ACTION GARDENING: SOWING SEEDS OF CHANGE THROUGH CORNEL

WEST'S PROPHETIC PRAGMATISM IN SCIENCE EDUCATION

by

DEBRA NANCY BAILEY MITCHELL

(Under the Direction of Deborah Tippins)

ABSTRACT

Pragmatist philosopher and cultural critic Cornel West sees American society as in a nihilistic state due to spiritual impoverishment. He relates this to deeply embedded issues of oppression in our society, such as racism and poverty, that have led to the breakdown of our communities, leaving youth with diminished will and power to face the imminent struggles of life. In short, America is in a state of crisis. The crisis takes many forms - race and poverty to West; environment education, and youth health to others - culminating into what West perceives as a widespread lack of love.

Action gardening as a theory offers resolution to societal crisis through support of the claim that reciprocal relationships established in the garden can cultivate action for others, for example, by sharing harvested produce and the empowerment of good nutrition. In other words, experiences in the garden can provide understandings that guide choices for the future, work toward equity, and more importantly, establish bonds of community based in relationships of care and love. In addition, education research finds that gardening benefits youth in areas of health, attitude, community-building, and academic achievement. Through philosophical methodology, specifically through West's

lens of prophetic pragmatism extended with the ideas of others, action gardening adds spirituality to this list of benefits. While some students have opportunities for gardening experiences outside of school, for others, they are not possible. The place in which to reach children who may be missing these opportunities is public school.

History shows that school gardening is not new. In fact, in the past decade, science education in the U.S. has experienced the emergence (or reemergence) of progressive approaches for teaching and learning science, including school gardening. Yet, incorporating gardening in a manner that enables more-than-novel experiences in nature is difficult within modern structures of schooling. Action gardening builds on history to provide support for the sociocultural dimension of science that gardening embodies. In addition it establishes fertile ground for youth action. In doing so, action gardening begins the healing of spiritual impoverishment and sows seeds of societal change.

INDEX WORDS: Action; Biophilia; Care; Community; Love ethic; Prophetic pragmatism; Radical democracy; School garden; Science education

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DEDICATION

This is dedicated to Steve, Sophia, Ada, and Phoebe. Thank you for your support

and patience. This is also for my parents, Brack and Judy Bailey, who gardened with me.

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CHAPTER 1

INTRODUCTION

<u>Purpose of the Study</u>

In the garden where I work, I deliver hydrated lime to each of the tomato plants that I am trying help get established. I am reminded of a mentor teacher who guided me through student teaching. I can still hear her low tone as she gives instructions to each student along with a piece of litmus paper, reminiscent of the manner a minister serves communion in some churches. She wants to make sure each student understands what to do, to ensure that the "magic" of science is not missed as the paper's color transforms indicating pH change. The care that my mentor teacher shows for her students is one that is situated in growth. She gives each student individual attention based on what she already knows about them; the experience she is enabling through interaction could potentially grow into scientific understanding. Metaphorically and analogously, when it comes to comparing relationships that emerge through care, people are not that different from plants.

I think back to what has led me here, to my own memories of middle and high school. My favorite subjects were chemistry and art, an integration of interests that are typically kept separate. This combined interest continued in college as I enrolled in both science and art courses. Looking back, I think of being torn between science and art as an aspect of my struggle to find an identity of balanced growth - to maintain a sense of stability combined with developing individuality in an attempt to ride the line between

security and freedom. I ended up choosing biology for my major. I liked drawing cells under the microscope.

For me, biology was a happy medium, a place where science and art would not be divided. Upon graduation I held several positions for which a general biology degree was a good starting point: a marine lab assistant, a veterinary technician, a water quality researcher, an environmental educator, and a botanical garden curator. All of these jobs were influential for me in developing a relationship with the natural world and living things. The seeds for this relationship were sown much earlier, however, and its development has been enabled by opportunity, and even privilege. This dissertation will mark a reflection of this relationship and the integration of my current interests with the unfolding future before me.

Looking through my memories, I find some that I have kept at the forefront. These memories involve friends, family, and other loved ones interacting with the natural environment in one way or another. I remember fishing and searching for arrowheads in old fields. Riding in the bed of a pickup truck, legally then, I remember helping my dad plant corn on his family land in the next county. I remember crying with concern for my pumpkin plants once during a severe storm. I close my eyes now and still hear the howler monkeys above my head in a Costa Rican rainforest as I realize that they and I are looking for the same fig plants. In my mind, I see photographs, some taken when I was a sixth grader, others as a young adult. They remind me of scenes from transformational experiences in my life – flowers on a class field trip to a historic garden, trains snaking through the elemental landscape of the western U.S., and a metal shed painted like a Wonder Bread wrapper seen from the moving window of a Greyhound bus. What was I

doing traveling across the country to take a position with an environmental organization? At what point did I begin to care about the natural environment and the species that inhabit it so much!? My memories tell me. It was not while sitting in the traditional classroom setting of school. I want to know the connections among these memories and the relationships learned through lessons in nature. The search for 'knowing' eventually led me to the teaching profession.

While employed as an environmental educator I began to feel hypocritical. I was developing programs that enabled families to spend more time in nature together, in line with feminist theories of embracing family; but while doing so, my own children were in day care. The choice became clear. I left my full time position to return to school to get certified as a teacher. Working as a teacher, my own children and I would share a similar schedule during the school year and have summers off together. My experiences in environmental education as a field trip leader and camp counselor had provided me with opportunities to see first hand that sense of wonder that Rachel Carson (1965) writes about, witnessing children's faces as they first experience nature. I felt my calling. Now, I was going to be that middle school teacher of life science that inspired a much different perspective of life, science, and nature. I made what I believed to be a responsible choice to leave a position of employment with the hope of working for what I considered to be the "greater good" of teaching.

The roles of educator and parent are at times conflicting, for they require the consideration of not only my own perspective of life but also that of others. Making choices is often involved as we define our relationships as humans to each other, other species, and the environment itself. For example, as an educator I introduce learners to

living and non-living components of the natural world, along with skills that aid in the development of scientific understandings and inform choices required of scientifically literate citizens. Through environmental education, I am involved in activities that promote care for other species and the natural environment. I believe that this service will somehow govern the choices that support a continued existence of humans and other species into the future. As a parent, daily routines include keeping my kids informed of healthy choices, along with the practice of choosing to act towards others in ways that establish relationships. In many ways, my life as a mother, caregiver, and teacher are not separate roles. At home, as well as in school and during other scenarios, individuality and identity are established as children are presented with a foundation of broadly accepted science content and, through scientific process, discover in their own minds, the methods of getting along in everyday life that best work for them. I call this epistemological practice. *Actually making choices* is central to this process of growth and what I will defend throughout this project.

There is an increasing gradation of choice, narrowing and selecting best choices, that continues as pragmatically influenced students-as-relational-beings progress through the school system. Consider how elementary-aged students are often asked about their behavioral choices. Middle school students extend their ability to make choices to elective courses and who to sit beside at lunch. High school students choose what to do after graduation, where to apply to college or where to apply to work. For those that go on to college, courses and majors are chosen with the intent of preparing young people for the "real world". This extension of care and scaffolding of authentic life skills is theoretically provided by the village, that is, the community of parents, educators, and

mentors. The community helps establish a sense of stability while allowing individuality in a balance of security and freedom.

For some, the American education system allows a certain freedom of choice for as long as it takes to become enlightened, assuming the security of funding options remains viable. Concomitantly, there are many children in American schools who will never realize these freedoms and do not even make it to high school. For these young citizens, the epistemology of choice and the security of employment are limited, and the relationships developed through scaffolding and mentoring in high school, college, and positions of employment are non-existent. Does the extended care and guidance of choices associated with a college degree translate into better citizens whose voices are of greater worth than those without a college degree? Is an ability to be self-sufficient established in college, or is a continued dependency on authority promoted? How can we go about enhancing the process of choice-making-in-the-making – in schooling - such that these practices translate into everyday life, adult life, or environmental life? These are not research questions, but ways in which I have questioned my own education experiences.

While student teaching I conducted a lesson surrounding choices. After outlining the processes of production and recycling for different materials - glass, plastic, and aluminum – students were asked to choose the most appropriate containers for particular by weighing the costs to consumers and the environment. The activity had all the makings of a meaningful lesson for developing scientifically literate citizens; it was centered in decision-making, was based on a relevant topic to budding consumers, and linked to economic decisions with environmental issues. Yet, I do not know if the

students learned or "grew" from it. The activity was enlightening for me, however, as I was forced to ask myself, "When did I begin to weigh the trade-offs, to consider the best decision for the long run, to altruistically make choices for others over myself, to choose the 'environment' over my personal preferences? Do I even do that now?" 'The future' is a difficult concept for adults and much more so for children. It is something that we cannot see, requiring a "leap of faith" of sorts. Life presents choices and trade-offs constantly, but how are children being prepared to deal with their responsibility to these life-altering choices? Schooling and life in general in the U.S. promotes making choices but without an understanding of the reasoning behind them.

In other words, while great strides are made in America to give each child an equitable beginning in education, great strides are NOT made to enable each child to equitably continue in life. As children approach adulthood, scaffolding for life skills diminishes. Consider how children in elementary school are asked, "What do you want to be when you grow up? You can be anything you want, even the president!" The world is our oyster, so to speak. However, as early as middle school, to some students, including a few who I observed drop out of school, the question is replaced with, "How are you going to support your family?" Establishing security quickly becomes more weighted than freedom. While some may consider the inequitable outcome of schooling to be a problem beyond the boundaries of schooling, others may consider it an example of miseducation.

Now thinking about children who are caught in this predicament, I am reminded again of the aforementioned mentor teacher. In a quiet tone, almost inaudible so that everyone had to stop what they were doing to hear, in a manner that commanded

reverence, she would say, "I am teaching you not to need me". In a time of complacency, when children assume entitlement in some way to some thing and expect spoon-feedings of what it takes to 'get ahead in life,' what a vision this is for educators and parents alike, to acknowledge the work that life entails and to model the self-trust necessary for living it well. Her words are a lesson of life, and apply to every student regardless of age or situation, recognizing the struggles that we endure and from which we grow. Her words remind me of another life lesson, this one sewn onto a banner in the sanctuary where I attended church as a child: "Bloom where you are planted," it reads. The potential for growth that is in each of us is not waiting for when we go to college, or for 'when we grow up'. Life is happening now; choices affecting the future are made now. Children are like seeds cast on different grounds. As educators and parents, it is our responsibility to cultivate the soils in a way that will provide a fighting chance for each seed to grow.

I propose and defend that we redefine science education so that it establishes an environment that is ready for growth, through youth action and *experience*, including but not limited to John Dewey's (1925) definition:

Experience…includes *what* [we] do and suffer, *what* [we] strive for, love, believe and endure, and also *how* [we] act and are acted upon, the ways in which [we] do and suffer, desire and enjoy, see, believe, imagine - in short, processes of *experiencing* [emphasis in original]. (p. 18)

As young citizens in science education *experience* the world, they learn through events, situations and actions that afford a certain space for epistemological growth. This growth encourages the development of ontological knowledge that extends beyond the classroom, a moral, reciprocally-relational connection with the surrounding community

and subsequent interactions with regional, national, and global communities. In this scenario, "community" is integrated with the identity of a child not as a separate discipline. It is interwoven during growth from the beginning, similar to how water and sunlight are required for plant growth. In this scenario, community is the language first spoken. It is the relationships within families and school, the result of ownership among young citizens for their own lives and a sense of belonging in their own community. It is the space where they are themselves and where they connect with others.

My reasoning for proposing this redefinition of science education is based on my observations of youth, some with short-sighted visions for the future as a result of miseducation. The heavy influence of economics – indeed, economic determinism - within our education system overshadows the ecological foundations of all manufacturing and industry that includes every product that we use. Practical knowledge for everyday life is not always passed along to students in structured curriculum. While practical knowledge may be learned through social interactions such as bullying situations, what teachers are accountable for, namely, addressing standards while preparing students for tests, does not easily translate into a reality outside of school. Teachers are acculturated to teach children to take standardized tests, to sit quietly, and to zone out. At the same time, daily tests surround the same children outside of school as they learn to deal with the science of their community.

In other words, we often teach that school is separate from the community. More specifically, the curriculum, both hidden and exposed is incorporated in the institutionalized architecture and curricular frameworks of our school systems and often

reinforces this sense of separation. Even scholars in higher education reinforce this notion with beginning teachers - accepted because it is the way they were raised in schools but also a classic example of reinforcing the *status quo*. These norms have deeply embedded roots. The university system reinforces this indoctrination because there is, indeed, no other way. This situation is both dire and tragic. Some even consider the education to be in crisis (Orr, 1992; 1994).

The supposedly nurturing atmosphere of care that most parents expect for their elementary school children declines sharply in middle school to the pressure of tests and scheduling, all in the name of the workforce. At the same time that these children are becoming exposed to adult issues such as bullying, alcohol abuse and so forth, they find themselves in an undefined space. Many teachers believe that taking a position is harmful. Let the parents or churches or neighborhood folks do it! I will come back to this point later in the dissertation. For children, middle school itself is an undefined space, a great abyss to cross, a separation between the present and future, from childhood to adulthood. While many of them make it to the other side and graduate, it is not necessarily with a sense of achievement. Our society puts heavy emphasis on achievement, but it is not always the kind of achievement that matters when put into context. This dissertation is about reimagining the journey of young citizens, providing analytical guidance for constructing a bridge needed to make it across the rivers of tragic hope and desperation for something new. This prophetic bridge is made of community, security, freedom, and love.

Gardening could potentially be incorporated to promote the transformation that I am envisioning. The context or habitat proposed here is to cultivate action through

gardening, for the elemental action underlying the work of gardening is toward the goal of growth. Gardeners experience the garden and use their experiences to develop theory that informs practice, which in turn enables opportunity for more experience, for growth, and for knowledge. While engaged in the action of gardening, learners, who often are yet to realize that they are young citizens, develop the capacity for action. What do I mean by action? While I further define and defend this concept in this dissertation, action relates to advocating and acting on the behalf of other species and other human beings. Action is developing relationships in authentic situations in which youth themselves live. If growing food for the health of themselves and others, youth are engaging in action that reflects what the future can be for friends, family, and neighbors. Through such action, youth invest themselves in change, actively monitoring and participating in their own growth through the metaphor of gardening: food plants for people, pollinators, energy, DNA, minerals, and habitats - while listening, observing, and being mindful.

Action gardening - childhood garden experiences and gardening contribute to four characteristics that are good predictors of acting responsibly toward the environment: a) environmental sensitivity or empathy, b) in-depth knowledge of specific issues, c) personal involvement in change, and d) self-confidence regarding action skills (Chawla, 1994). Learners engaged in *action gardening* (a concept I will defend further) gain a perspective of land in general, and more specifically the democracy of public lands. The embodiment of physical work, mindfulness, and pragmatism that is involved in action gardening can serve as a catalyst for engaged citizenry, a bridge to youth activism. Youth gardener/activists are able to experience challenging and empowering transformations toward becoming engaged citizens even as they are citizens. Turning children on to

action gardening through science education will promote problem-solving and decision-making skills in an uncertain future and (re)establish American democracy through connection with public spaces. By public spaces, I mean the "commons" (Mueller, 2009) or places that we call community and can share. We can learn a sense of balanced security/freedom that is democracy, through our engagement with children in the commons, and as I will defend, through action gardening.

Before we go any further, I need to say that this dissertation is not about environmental education. The curricula typically incorporated for use in the outdoors at school are founded in environmental education initiatives that are biased with an "environmentalist" outlook. This agenda "to instill in children the desire to 'save' the environment through personal choices and political activism" does not necessarily transfer to long-term care for the environment (Sanera, 2008, p. 2). In fact, Mueller (2009) notes that crisis, particularly ecological crisis, is not necessarily the best motivator for change. This idea is aligned with Sobel's (1996) acknowledgement that we need to give children (in the form of time) the opportunity to connect with and know nature before asking them to save it. Journalist Richard Louv (2005) in his nationwide collection of interviews regarding people's relationships with nature found spirituality, defined as a feeling of freedom when allowed unstructured time outdoors, to be the unifying thread among those who considered themselves as having a close connection with nature.

This dissertation is also not about youth activism, at least not as a form of indoctrination, for it is recognized that we all have agendas. This project is instead about "youth action", action among youth led by the ideas of intelligent youth who are versed in the knowledge of their cause, guided by adults, ultimately with and for the sake of

others. Rather than an unguided push for youth to be involved in positions of responsibility for which they have not yet demonstrated maturity, youth action in the form of action gardening fosters the capacity for action/activism among youth by promoting interactions among youth and community members. Relationships of mentorship and guidance are established within the community to prepare youth for life situations and decision-making as these life opportunities and community issues arise (Irby, Ferber, & Pittman, 2001).

In addition to establishing relationships within the human community, engaging in youth action through action gardening (re)establishes relationships with species other than human, with public lands, and with nature itself. Lack of these relationships is considered "a major reason for the rapid degradation of the environment—and to the undermining of the traditions of self-sufficiency of other cultures" (Bowers, 2006, p. 3). Relationships are lost as "consequences of an ancient process whereby the commons is enclosed, bought up, privatized and, eventually, controlled by industrial and political interests, thus denying people access to community shared land, work and decision-making processes" (Martusewicz, 2011, p. 336). The loss of the commons will not be controlled with coercion as Hardin (1968) suggests; instead the commons will be revitalized with relationships. Or with love, according to Cornel West (2004) who sees coercion as an intention to promote fear, love's opposing force.

Without the ecological understandings that are developed through relationships with the natural environment, it is difficult to make decisions about resource use (Orr, 1992). Without relationships with nature, young citizens are less able to establish a whole

sense of self (Santostephano, 2008). Without relationships with nature and community, the commons of public lands and their associated freedom are at stake (Bowers, 2004; Williams, 2004). When taking into account the historical and cultural relevance of the commons, freedom becomes understood less as an open license to do as one pleases and more as a relationship with the land itself, its inhabitants, and all others connected through shared experiences. In other words, freedom is as much a sense of belonging as it is a sense of open space.

The science education reform described here is rooted in the cultural and environmental commons and grounded in the union of social justice and environmental justice that is ecojustice (Mueller, 2009). My original contribution to ecojustice theory will be action gardening as a form of community youth action in schools. Establishing relationships in nature and the community is not usually the objective of science class. What will science education look like when students *experience* nature and community in school? How will the actions of youth inspired by these experiences benefit the community at large as students establish relationships and grow ecojustice understandings, critical thinking abilities, and practical life skills through action gardening? Developing answers to these questions is the focus of my dissertation. We will now take a look at how gardening can serve as a catalyst for developing relationships while learning science.

The Art and Science of Gardening: A Brief History

The study of the natural environment and other living beings has been necessary for the survival of humankind from our species' beginning. Early humans relied on knowing edible and medicinal plant species and landforms, understanding patterns of design in

nature, and observing other animals as prey, and as teachers as well. The act of gathering plants and saving seeds is evident in archaeological records and signifies the onset of agriculture more than ten thousand years ago (Cowan, Watson & Benco, 2006).

The scientific revolutions of the Renaissance enabled extensive explorations of the world, many for the sole purpose of collecting plants that were then grown in botanic gardens, such as that in Padua, Italy in 1544 (Hallett, 2006). Early explorers to North America observed the prosperity enabled through plant knowledge in the mound-building Mississippian kingdoms that were founded on the cultivation of corn (Hudson & Tesser, 1994). Settlers of the New World brought with them their own meaningful plants and knowledge of their uses to promote human health and wellbeing, as well as plants for ornamental enjoyment and garden design (Cothran, 2003). What began as a necessity for survival has come to often be considered a past time or a form of artistic expression.

The idea of school gardens is not new. Early in American history, gardening was recognized as an important aspect of education. Benjamin Franklin's organization of schools and communities called for the practice of gardening and grafting in between classical studies, field trips to nearby plantations to observe agricultural methods, and the inclusion of lessons in the "Latin of agriculture" (Woody, 1931, p. 60). Franklin (1749) questioned the omission of agriculture and gardening in universities saying, "why should we think meanly of this art which was the mother of heroes and of the masters of the world?" (p. 379).

The inclusion of gardening in the development of practical knowledge and foundational life concepts is the basis of kindergarten. Literally meaning "children's garden", kindergarten began in Germany with Friedrich Fröebel's ideas that young

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children need constructive play and self-activity and that most homes were not equipped to provide this for children. Early kindergartens were recognized as promoting literacy and socialization as well as enforcing child labor laws (Liebschner, 1992). Likewise, this concept of establishing social experiences through engagement in creative and constructive activities, including gardening, was a focus for John Dewey's initiation of the Laboratory School of the University of Chicago in 1896 (Harms & DePencier, 1996). The school is described as a cooperative venture of parents, teachers, and educators carried out under Dewey's direction, then head of the university's united departments of philosophy, psychology, and pedagogy. The school was considered a laboratory of pedagogy and psychology, not a practice school, although it did serve as a place for merging theory into practice. There Dewey's educational theories and their sociological implications were worked out in association with all involved - students, teachers, parents, colleagues – with respect for the creativity of the moment and true to the art of teaching (Mayhew & Edwards, 1936).

Connecting school to community through gardening has its place in history as well. Establishing a school-community connection and a subsequent child-nature connection in response to the American transition from rural to industrialized society was the intention of Ellen Eddy Shaw of Brooklyn Botanic Garden in 1913. Shaw, a schoolteacher before joining the garden staff, began the development of her children's gardening program by distributing seeds to classrooms in the poorest sections of Brooklyn. This program grew into shared vegetable and flowerbeds at the botanical garden planted and tended by young children and their middle grades mentors. The fruits of their labor contributed to their daily meals at home and were also given or sold for gifts to charities of the

children's choice (Shaw, 1911/2008). Shaw's vision to provide "a living opportunity for a child to learn lessons of nurture and observe how nature looks out for herself" remains the mission of this garden's education program today and has grown to include an environmental high school on site (Blumm, 2011, p. 47).

A similar mission is evident in the edible schoolyard project that began in Berkeley, California as a connection between a local restaurant, community gardeners, and a middle school (Stone & Barlow, 2005). On a much broader scale, the same idea of establishing connections among students and their food, and also among community farmers and schools, is the driving force behind the USDA Farm to School Initiative and the National Farm to School Network (USDA P.L. 111-296). Local food movements, such as Georgia Organics have developed programs and curriculum guides that enable teachers and parents to connect families with farmers and organic food (http://www.georgiaorganics.org/home.aspx). Recognition of the importance of place, culture, and individual history in learning science has resulting in curricula designed specifically for science educators, enabling the inclusion of aspects of daily life through a range of activities including gardening (Buxton & Provenzo, 2012),

This recent national initiative of incorporating gardening in schools is reminiscent of the United States School Garden Army (USSGA) that came about in response to World War I. Beginning in the 1890s, social reformers provided land and assistance to unemployed laborers who cultivated vacant city lots. The movement grew into widespread planting of backyards and community gardens, also known as Victory Gardens, with the intent of augmenting the domestic food supply so that more could be sent overseas. Education reformers translated this idea into school gardens in which

students could be engaged in interactive lessons of school subjects and work habits, an initiative that was eventually sponsored by the federal Bureau of Education (Lawson, 2005). The head of the federal Education Bureau was quoted as saying, "Every boy and every girl … should be a producer. The growing of plants … should therefore become an integral part of the school program", and the USSGA was formed (Hayden-Smith, 2007). School gardens and Victory Gardens greatly diminished in numbers when the war was over.

During World War II the widespread implementation of Victory Gardens was revisited. This movement was greatly influenced by First Lady Eleanor Roosevelt who argued for a Victory Garden on the White House lawn against U. S. Department of Agriculture fears that such a display might hurt the food industry by encouraging citizens to grow their own food. Roosevelt's mission was one of concern for human rights, rather than the promotion of consumerism that was urged by the USSGA. However, the primary objective of Victory Gardens was to fortify food and fuel security (Bentley, 1998). Today our country is engaged in more than one war. The White House once again has a garden for food production, this time called a kitchen garden in the very spot of Roosevelt's. Although food and fuel security is still a concern for many, this time the promotion of gardening among youth is to encourage healthy nutrition and exercise, a movement spurred by recognition of a health "crisis" among our nation's youth (Wojcicki & Heyman, 2010). As it is recognized that "through gardening, one learns not only practical skills associated with gardening—the steps necessary to nurture seed to fruit—but also the civic-mindedness to nurture a community open space", gardening can develop a sense of environmental stewardship and citizenry can emerge as well (Lawson, 2005, p. 7).

Needless to say, gardening has been interwoven with recurring threads into our understandings of what education should be for more than a century now. In each of the examples given here, the re-initiation of gardening in education has been in response to a realization of what is missing, to fill a void in our education agenda or to address what is perceived as a crisis, whether the crisis be food security, human health, or environmental awareness. In other words, both as a nation and as an education system, we implement gardening when we need it. As individuals, we garden as recreation, for therapy, and to supplement our diets if time and resources allow. As a nation, we garden in times of crisis.

My aim is to establish that the foundational scientific and social understandings that gardening among youth promotes should be fostered regardless of perception of crisis. The relationships with the natural world that are established through the practicing the art and science of gardening are deeper than what is learned through superficial environmental education activities. By "gardening", I mean the commitment of planning the garden, preparing the soil and planting the seeds according to the needs of the species to be grown, remaining observant and aware of weather conditions, making choices, taking appropriate actions for the sake of the plants, and making changes in plans and actions for the next season based on observations. By gardening, I am referring to the development of reciprocal relationships of care (Noddings, 1984, 1995). Reciprocal relationships result in *experience*, the value of which is Dewey thought to be provided by the "continuity and interaction in [the] active union" of the entities involved (Dewey, 1938, p. 43). Reciprocal relationships extend beyond science education into the

establishment of ecological identity, our sense of being in relation to the world (M. Thomashow, 1995; C. Thomashow, 2002; Zeidler, Berkowitz & Bennett, 2011).

My experiences as curator and educator at a public garden and as a public school teacher have allowed me to observe first hand how opportunities to establish relationships between youth and the natural environment diminish after elementary school. Time is not allotted for outdoor experiences or for play. In other words, there is little unstructured time. It is in the space of unstructured time that relationships with the natural world develop. The literature supports this observation, both with research noting the benefits of gardening, academic and otherwise, among elementary aged children (Blair, 2009; Eick, 2011), and with the lack of research on gardening among youth of middle school age. My intent is to theorize how to go about bridging this gap through the incorporation of action gardening.

<u>Cultivating Youth Action in the Garden</u>

Youth action is a form of youth activism, or an example of youth acting for change, often in the name of social justice. However, rather than youth carrying the responsibility for change alone, reciprocal relationships are established with community members through scaffolding and mentoring that enables the development of informed decisions. The voices of youth receive the same emphasis, but their vulnerability is protected through mentoring. When coupled with ecojustice, youth action involves acting not only with other humans in mind but with other species in mind as well as other entities, such as entire ecosystems or even mountain tops.

This method of community-scaffolded youth action, of working through issues without a predetermined goal (other than the goal of having worked through the issue), is

reminiscent of the methods of action research and participatory action research. The focus of these research methodologies is the process, similar to Dewey's Laboratory School focus of respecting the creativity of the moment. It is growth in action. The process of gardening is much like some action research methodologies in that it is a systematic inquiry into practice by practitioners through a spiraling repetition of actions: plan, act, observe, and reflect (Kemmis & McTaggart, 1982). Gardening, like action research, is conducted with the fundamental aim of improving process or practice rather than producing knowledge, however, the production and utilization of knowledge often follows (Elliott, 1991).

Although this dissertation is not about conducting action research, it is noted that while gardening, a process similar to that of action research in education occurs from the bottom up with the equitable inclusion of the voices of all involved (Gitlin et al., 1992). This framework, extended to include the ecological community, allows the visualization of action gardening in science education. Theoretical outcomes include communication, collaboration, and deep understanding of the process, assisting in the development of ecological and sociological understandings as well as decision-making skills that are inherent in critical thinking, an ability that is a goal of the National Science Education Standards (National Research Council [NRC], 1996; 2011). Once established, these understandings can be applied to any research (Krasny, 2005) and to any situation, a versatility that is a goal that educators and parents have for each student, for we are teaching them not to need us in an uncertain future.

Through action gardening, the process of gardening is broken down into its elements, the elemental action of gardening results in a form of *unlearning*. However,

based on my own experiences with plants and gardening, knowledge inadvertently develops through close attention to process, knowledge of the microcosm of soil, the uncertainty of weather, and the cycling of energy and matter, to name just a few. Understandings of care, reverence, and reciprocal relationships also potentially grow through action gardening, empowering students with understandings of themselves in relation to the world. Bringing their voices, cultures, and individual histories, all participants integrate their personal knowledges in a school garden community. These potential knowledges will be situated in a place in the environment and within a community providing a sense of location (Nazarrea, 2005). This is a sense of belonging that is often missing among middle school students as they face issues of adulthood. This is action gardening. Who knows what youth action this empowerment fueled by care will lead to? I will outline some envisioned possibilities later in this dissertation.

Hereafter in this chapter, I will discuss the role that educational philosophy, specifically the work of American pragmatist Cornel West (1989; 1993a; 1993b; 1993c; 2004) plays in envisioning a redefined science education that is cognizant of ecojustice and action gardening. As an American pragmatist, West is described as recognizing the "process of unlearning sedimented and often stultifying patterns of behavior, normative rules and paradigms of 'intellectual excellence'" (Yancy, 2001, p. 2). In many ways, West realizes the magnitude of redefinition that is needed in our processes of everyday life. West's de-disciplinary approach to academics and desire to philosophize with everyday people is the perspective that best envisions science education West's approach is to unlearn the world first. This requires the deconstruction of the walls that stand in the way of a more progressive policy.

The intent of this dissertation is to inform educational policy and curricula by bringing to light the importance of "unlearning" through the promotion of action gardening in science education for youth activism. It is through these changes that growth of young citizens in areas of decision-making and critical thinking is enabled. The stagnation of growth that occurs through the over-structuring of time and curricula in science classrooms will be examined through philosophical analysis, specifically through the lens of contemporary pragmatic methodologist Cornel West and other contemporary pragmatists. I will now turn to the prophetic pragmatism of West that will guide the foundation of this dissertation project.

<u>Why Cornel West?</u>

Cornel West (1989), a professor of religion and African-American studies at Princeton University and student of contemporary pragmatist Richard Rorty, builds upon the history of American pragmatism with his own 'prophetic pragmatism,' concentrating on the promotion of individual morality, autonomy, and creativity, particularly focusing on the invisibility of race inequities. West writes, "prophetic pragmatism attempts to keep alive the sense of alternative ways of life and of struggle based on the best of the past. In this sense, the praxis of prophetic pragmatism is tragic action with revolutionary intent, usually reformist consequences and always visionary outlook" (2004, p. 167).

In his writings West makes clear the dualism that he sees as the façade of the present-day American democracy that has succumbed to nihilism, or deep despair, at the hands of capitalism and authoritarianism (West, 1993; 2004; 2008). West writes, "Nihilism is a natural consequence of a culture ruled and regulated by categories that mask manipulation, mastery and domination of peoples and nature" (1999, p. 208). West

addresses racial dualism in America and is known for saying, "without the presence of black people in America, European-Americans would not be 'white' - they would be Irish, Italians, Poles, Welsh, and other engaged in class, ethnic, and gender struggles over resources and identity" (West, 1993, p. 107-108). In order to overcome dualisms such as these, and in the spirit of Cornel West, American democracy "needs citizens who love it enough to re-imagine and re-make it" (Unger & West, 1998, p. 93).

West employs activism in the form of 'combative spirituality,' a long-term, action-based hope in the name of justice (West, 2004) that "accents a supernatural and subversive joy, an oppositional perseverance, and patience" (West, 1988, p.43). Crucial to democracy, says West, is Socratic questioning: "the questioning of ourselves, of authority, of dogma, and of fundamentalism" (2004, p. 16). The vision for the future of democracy in America is "Socratic-driven, prophetic-centered, tragicomic tempered, blues-inflected, jazz-saturated" (p. 62). West explains that "we need a bloodstained Socratic love and tear-soaked prophetic love fueled by a hard-won tragicomic hope"… "This black American interpretation of tragicomic hope is rooted in a love of freedom" (p. 216). West (2004) quotes Plato (1966) when he emphasizes that the unexamined life is not worth living. This statement is at the core of West's philosophy, which also serves to justify his views on action.

Rather than centering on an idea of how democracy 'should be' in a utopian view as Dewey does (Noddings, 2011), West employs a more holistic earth-grounded perspective of including the not-so-good with the good in his practice of taking his prophetic pragmatism to the streets. It is there that his philosophy is, in turn, informed. West compares the 'life of mind' to the musical genre of the blues and 'the philosophy of

life' to jazz. The music of jazz musician Charlie Parker is still inspiring although it rides on dissonance in a manner not typically accepted as harmonic in nature, West (2004) notes, adding in a documentary film that examines West's views of American society that in the life of the mind, we "can't talk about truth without talking about learning how to die" (Imperial & Martin, 2008).

The purpose of my dissertation is to describe West's pragmatism as a lens for envisioning what the future of education could look like. For example, when applied to science education West's prophetic pragmatism can be used to analyze socioscientific issues, serving as a catalyst for youth action based in some foundations of knowledge, challenging and empowering youth to become engaged citizens, and promoting skills of problem-solving, decision-making, and critical thinking in an uncertain future. In other words, by employing West's perspective to inform science education, we can teach our students to live pragmatically, accepting and learning to reflect and take action, recognizing there will always be bad along with the good. In West's (2008) opinion, there has been no time in America when we have needed this new vision more:

> We are now in one of the most truly prophetic moments in the history of America… We have witnessed the breakdown of the social systems that nurture our children… We are talking about the state of young souls: culturally naked, with no safe moorings, these children have no cultural armor to protect them while navigating the terrors and traumas of daily life. Young people need a community to sustain them, so that they can look death in the face and deal with disease, dread, and despair. (pp. 1-2)

Why Use Educational Philosophy?

In the past decade, science education in America has begun to experience a shift. This shift is not the first time in the history of science education nor will it be the last. The shift appears to be from a more conservative paradigm with greater emphasis on academic rigor to a more progressive paradigm that acknowledges the need for social relevance (Bracey, 2007; Labaree, 2005; Schultz, 2009), perhaps even aligned with the ideals of John Dewey. I will come back to this point later. With the emergence and development of progressive approaches for teaching and learning science, such as those found in socioscientific issues (Sadler, 2004; Zeidler, Sadler, Simmons, & Howe, 2005), citizen science (Aikenhead, 2006; Roth & Lee, 2004; Trumbull et al., 2000), place-based education (Chinn, 2007; Glasson et al. 2006; Gruenewald, 2008; Roth, 2010; Sobel, 2004; Tippins & Mueller, 2009), ecojustice education (Bowers & Martusewicz, 2006; Mueller, 2009), and school gardening (Blair, 2009; Eick, 2011), the natural environment in addition to human cultures, communities, and individuals whether human or nonhuman, are fruitful curriculum diversions from the typical science classroom. Those who proceed with the notion that the K-12 classroom conveys science education in a manner that accurately prepares students for life beyond school are contributing to their miseducation. Those who pretend to know what teachers should know and curriculum should do without their hands in the community and livelihoods of people who engage in science in the community are out of touch with reality. They are indeed preserving an old school science. Additionally, the science classroom has experienced a shift in epistemic and physical location to include the outdoors along with the traditional indoor classroom (Burke, 2010). If these things are to be realized in science education, they will be realized

now when there has been increasing tensions among science educators to move out of the classroom to the commons.

While the aforementioned approaches (i.e., West, Dewey, etc.) of teaching and learning science have been developed through educational philosophy along with the utilization of theoretical lenses and frameworks, the educational research following their emergence is centered on practice, or more specifically on whether or not their implementation positively affects students' test scores within public schools (academic achievement seems to have fraudulently displaced community relevance even as it is embraced). Although philosophy is recognized as necessary and worthy of its own place within the discipline of science education (Schultz, 2009), theory is noted as scarcely present within the science education literature by influential science educators (Abd-El-Khalick & Ackerson, 2006).

It is with an understanding of the importance of theory in educational research that I employ a philosophical methodology to inform science education in American schools, using gardening with youth as my pedagogical contribution. In other words, when people ask how my theory translates into practice, it is the action gardening aspect of my theory that will probably make the most sense to the greatest number of people in science education. Ultimately while the theory is important and guides the development of the pedagogical, it is the pedagogical and the use of my theory that I hope will really make an impact in school sciences. Using John Dewey's (1936) *Art as Experience* and works of other contemporary pragmatists who have also shaped Classical American Pragmatism, my dissertation will examine the case for extending into the future a more profound understanding of nature that embraces the chaos of uncertainty within the

elements of the outdoors located immediately within garden habitats. I want to ensure that the shift currently being experienced in science education is not a temporary trend and action gardening will be my original contribution - albeit I recognize this trend is nothing new, but needs the work of a strong theorist to bring it into greater being in science education more specifically - because it is almost altogether absent in light of testing. In other words, my larger project is to usher in a science education that has already begun but needs more theoretical work in order to be successful. Here, I outline the philosophical method that I utilize in my dissertation to unearth ideologies deeply embedded in our understandings of the natural environment, including its uncertainties, and, second, to construct a theory which can be used to guide science education policy, curriculum, teacher educators, and teachers themselves in their approaches to incorporating action gardening as a bridge to understanding science as it relates to social and environmental justice more fully.

<div align="center">Philosophical Research in Science Education</div>

The importance of educational philosophy has been established since the ancient Greeks, such as Plato. David Carr (2003), a professor of philosophy and education acknowledges these writings:

> Indeed . . . adapting from Plato on a different but not unrelated matter, one might say that there may be no good educational practice until all professional teachers become - rather than school effectiveness, action researchers or other empirical researchers - educational philosophers. (p. 475)

Likewise, according to Koetting and Malisa (2011), philosophy holds significance in science, as a part of both educational research and its future and present application:

Whereas the impression is that in the sciences there is a detached empiricism, researchers in the sciences also have a commitment to philosophical beliefs, although at times the philosophical beliefs might not be explicit. They, too (researchers in the sciences), have a responsibility to society, and that responsibility is usually justified in philosophical terms. (p. 1011)

Within the discipline of science education, "forms of arguments that are not scientific are considered inferior forms of research, if they are even recognized as research at all," such as arguments that are philosophical in nature (Thayer-Bacon & Moyer, 2006, p. 141). This statement builds on an understanding that empirical research, or quantitative and qualitative research, as a scientific form of argumentation is considered the 'norm' in educational research and philosophy. This understanding, attached to the higher status given to reason and the mind over emotion and the body, began in the 17th century with Descartes (1641/1911). Thayer-Bacon and Moyer (2006) explain that:

Students are required to learn statistics to graduate, so that they can make sense of a quantitative study and determine it sound or not, but they are not required to learn logic, so they can make a well reasoned argument and critique others' arguments for their soundness and fruitfulness. (pp. 3-4)

Educational philosophy as a form and educational art of research is described by Thayer-Bacon and Moyer (2006) as something that does not need to follow the "scientific model of research" being promoted at the national level and educational philosophy is not considered pure philosophy in the traditional sense either. Both scientific research and traditional philosophy often tend to advance toward a preconceived end. Instead,

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according to Maxine Greene (1995), probably the 20ᵗʰ centuries' most beloved scholar, philosophy in education is more of a *conversation* struck up by poignant questions that, in discovering their answers, invoke the voices of those of us responsible for well-developed and accepted theories. The philosophical conversation changes according to context, critique, and reflexivity. Greene (1995) notes that, "Reason, like science itself, can be dominating and oppressive, especially when it claims under all circumstances to have the 'best answer' to social problems" (p. 5); that there is, "a neglect of self-reflectiveness" within technology-linked instrumental rationality; and that, "reflection on the relations between theoretical science and its applications must be part of what counts as 'Philosophy of Education'" (p. 6). She advocates for the importance and significance of realizing the multifaceted nature of humanity when considering educational philosophy, that is, a nature that defines the basis of education (often called the sociocultural) and translates into a great difference between science and science education respectively.

John Dewey (1960) calls for a rejuvenation of the discipline of philosophy, as it is overly concerned with problems of the past. In his thoughts on redefining philosophy, he writes, "Empiricism is conceived of as tied up to what has been, or is, 'given'"; however, "experience in its vital form is experimental, an effort to change the given; it is characterized by projection, by reaching forward into the unknown" (p. 23). American pragmatism philosopher Jim Garrison explains that, "Experience for Dewey was simply what happened when human beings *actively participated in transactions* with other natural experience…. Experience, for Dewey, is simply *how* the human organism interacts with its environment" (1994, p. 9). The value placed on experience by Dewey is shared

by other educators and theorists, one of whom is Florence Krall, educational philosopher, who centers her approach to educational research in the "lived lives" of personal history (1988, p. 467). These philosophical foundations support the beginnings of an experienced action gardening for youth.

Philosophical research elicits any idea to make the case for "what should be" rather than gathering data to support "what is" (Thayer-Bacon, 1996). Philosophical arguments do not try to establish facts as scientific arguments do. Instead they try to establish norms and standards ~~ conventions ~~ and try to make the case for "what is the best, the right, the good, the beautiful, the fair and just, the true" (Thayer-Bacon & Moyer, 2006, p. 8). Philosophical arguments are supported with reasons and judged by the soundness and external coherence of the logic. In constructing a philosophical argument, philosophers do not rely solely on reason but also incorporate "other tools that are just as important: intuition, emotions, imagination, and their communication and relating skills" (Thayer-Bacon, 2000).

Examples of philosophical research are clearly evident in science education. Learning science through socioscientific issues promotes authenticity in science for students, and draws on aspects of moral reasoning, as well as culture and social perspectives (Sadler, 2004, 2011; Zeidler, Sadler, Simmons, & Howe, 2005; Zeidler, Berkowitz, & Bennett, 2011), or as Dewey termed it, "genuineness, under the present conditions of the science and social life, of the problems" (1960, p. 30). Likewise, the issues-based sociopolitical science education curriculum of Derek Hodson (2011) prepares students with scientifically literate decision-making skills by including the notion of emotional intelligence and confronting the educational soundness of

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standardized testing, that in spite of paradigm shifting remains at the forefront in the American education system. Hodson uses philosophy to argue that situating science study in action-based curriculum should be associated with deeper understandings of personal and local issues that are embodied by students in their everyday lives.

As another example of more recent philosophical work in science education, my major professor Michael Mueller (2009) brings to light the consideration of relational (o)thers in protecting the commons through ecojustice understandings and the promotion of its evaluation within schools. He argues for ecological pluralism, or the learning from multiple perspectives as a principle of cultural and environmental diversity within all reasoning. Mueller's work has influenced educational reform internationally through the recognition and significance of cultural skills and local knowledges among more superficial ways of understanding schooling, such as the rote memorization that can be involved in standardized testing (Mueller & Bentley, 2009). In many of his writings, Mueller shows how American hubris limits and overlooks the incredible progress of international reforms in science education. In a similar vein, the philosophy of Michael Matthews (1992) highlights an evolving nature of educational theories and the pendulum-like shifts of educational trends, which is an important realization in understanding scientific and educational concepts and relationships on broader spatial and temporal scales, such as the manner in which the epistemology of constructivism has changed over time. Incorporating philosophy in science education establishes meaningful sociopolitical and ecological foundations for Earth citizenry while preserving the commons.

Theory Writing in Science Education

Essential to the incorporation of educational philosophy in science education is the methodology of theory writing. As is pointed out by Thayer-Bacon and Moyer (2006), philosophical writing is far more than the inclusion of one's opinion or voice. On the contrary, philosophical work provides support for an idea from literature that has withstood the scrutiny of researchers in a changing world. While visible evidence in the form of objective data can be used and even solicited by philosophers for analysis, ideas are at the heart of philosophy, justified by warrants and explained with examples to enable the clear envisioning of logical connections among seemingly disparate parts. The end result is a recommendation for action. In terms of educational philosophy, the recommendation is where the "rubber hits the road" *per se*.

Central to theory writing is the ability to critique the work of other philosophers through epistemic commentary, clearly describing their ideas, withstanding editorial comments. Analysis of the philosophy of others provides practice for writing one's own theories. Within science education, an analysis begins with a "generous read" or description of the author's work, incorporating "caring reasoning," or in other words, reading in such a manner that the author's work is represented fairly without prejudgment (Thayer-Bacon, 2003, p. 467). A generous read allows the reader to connect with the author to present their work in the best light, to take on their perspective, to walk in their shoes, or to "see through their eyes." By reading with care, the reader can think about and dissect the author's argument. The point is that readers must first appreciate and understand the original scholar's ideas in a clearly described way in order for a

philosopher to take them up without being disingenuous to the original scholar's words, meanings, or what might be intended in their work.

A philosophical argument is a collection of claims, one which is the conclusion and the central claim at the same time, and the others of which are premises of the argument, which are meant to serve as support for the truth of the conclusion. Through the incorporation of logic, or systematic analysis of the principles of inferences and reasoning, the validity or fallacy of an argument is determined. Premises are chained in clearly discernable steps in a chain of logic. In this manner, an argument is constructed to shed light on a foundational problem in, or otherwise challenge, a presently accepted theory. Sometimes a philosopher will bring to light new theory that has not been developed rigorously enough to be addressed fruitfully in the field. The key point is that plausible premises establish the basis of reasoning and questioning that comprise a philosophical argument (there should ideally be no room for "begging the question") just as observable empirical data provide support for scientific arguments.

A claim, whether premise or conclusion, can be true or false but never both. "An argument is good if its premises give good reason to believe the conclusion is true," dependent on whether "there is good reason to believe the premises are true," and whether "the premises lead to, support, establish the conclusion" (Epstein, 2002, p. 16). "An argument is valid if it is impossible for the premises to be true and conclusion false (at the same time)" (Epstein, 2002, p. 17). The strength of a valid argument increases with the unlikelihood of the premises being true at the same time as the conclusion is false. Precise wording and plausibility of premises strengthens an argument and recommendations that follow premises. Highly plausible premises will

be considered to be evidence in support of a conclusion or conclusions, if they are convincing, and thus, highly plausible premises strengthen a chain of logic for philosophical reasoning.

When analyzing a philosophical argument through epistemic commentary, the scholar discerns the central claim, or the conclusion, and determines whether or not the claim is supported with plausible reasons or premises. The central claim is a statement of how things "should" or "ought" to be, and it summarizes the conclusion reached by following the chain of logic. For example, in "Lessons from the Tree that Owns Itself: Implications for Education" (Mueller, Patillo, Mitchell & Luther, 2011), we challenge more common assumptions of ownership and rights for nature by posing the question of what it might mean in education in general, and in science education in particular, if plants were to be understood as having rights.

Reasoning for the central claim is established through three types of reasons: need reasons, justification reasons, and consequential reasons (Thayer-Bacon & Moyer, 2006). First, need reasons are provided early in the argument to convince the reader that there is an issue in need of addressing (but they don't have to be). From the writer's perspective, questions such as "Why did I write that? What else does the reader need to know?" help to structure need reasons. Ordinary language is used to make one's argument as clear as possible and widely accepted work of other philosophers is used to provide informed support (external coherence). Need reasons are supported through justification reasons to explain "how things are" and with consequential reasons to show "how things could be." For example, in "Lessons from the Tree," the need for recognition of plant rights is justified with the work of environmental ethicists Peter Singer (2001) and Paul Taylor

(1981). The extension of rights for plants, ecosystems, or other entities of nature is framed with the biocentric pluralism theory of James Sterba (1995). Consequential reasoning is provided by examples of places where entities in nature have been afforded rights, through benefits and warnings that speculate as to what will happen as a consequence of some grounded actions. In this way, the central point of the article, whether rights for nature should be given consideration in science education curriculum can be more fully addressed (i.e., the aforementioned alleviates the need to redo theory where it is already strong).

Following the 'generous read ethos' and outlining an argument by tugging at the central claim, need reasons, justification reasons, and consequential reasons, the educational philosopher then shifts from "seeing through the author's eyes" to evaluating the argument with a critical eye. As philosophical arguments are warranted with reason and logic, evaluation of an argument requires returning to a chain of logic and trying to "poke holes" in the argument through critique, by asking questions about the premises. Are there any gaps in the chaining of reasons? What premises might be added strengthen this argument? How could this argument be extended to be more universally applicable? Exclusions, or philosophical holes discovered in the argument are mended by modifying the argument with stronger premises, granting a principle of charity to minor deletions or amendments.

When a sound framework is constructed which modifies an original argument and extends it through the support of other philosophers in a manner that promotes stronger external coherence (a method typically used by pragmatists), a new theory is justified. The application of this new theory is envisioned through fruitful recommendations

developed from imaginative incorporations of sound pedagogies (in other words, theory into practice). The progression described here, of extending theory to inform practice that can in turn inform future theory mapping, epitomizes my understandings of pragmatism philosophy, discussed next.

<u>Pragmatist Philosophy</u>

Pragmatism, although embedded differently within cultures around the world, is considered to be America's most distinctive philosophy. American pragmatism is certainly the most embraced philosophy, especially in the sciences. It is understood to have developed from the response of European thought to the "American wilderness" upon colonization of the New World (Pratt, 2007). A clear way of thinking (James, 1907), American pragmatism emerging in writings and lectures amongst the fairly "new" independence of America led to a philosophy distinctive to its place, including its natural environment and its developing culture of collective cultures, and within the context of the onset of the industrial revolution. More specifically, American pragmatism has been described as, "a variety of creative interpretations of …power, provocation, and personality in the context of academic culture, capitalistic industrialization, and national consolidation in America" (West, 1989, p. 42).

Pragmatism differs from other philosophies in that it is inductive and pluralistic, recognizing multiple possibilities of truths based in individual experiences. Because of these characteristics, specific definitions vary. They are similarly based, however, in their connection of theory and practice, their openness to individual experience as an informant of future theory, and their denouncement of *dogma*, or beliefs fixed by unchallenged authority (Dewey, 1916). American pragmatism will be introduced here

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through the perspectives of three philosophers considered the "founding fathers" of the classical theory of American pragmatism: Charles Sanders Peirce, William James, and John Dewey.

<u>Charles Sanders Peirce</u>

American pragmatism has evolved since its emergence in the 19th century. Charles Sanders Peirce (1839-1914), a physical scientist and logician with great interest in probability, is considered by some to be "the most versatile, profound, and original philosopher that the United States has ever produced" (Peirce, 1966, p. vii). Peirce's pragmatism is aligned with scientific inquiry but rejects the central focus of Descartes' scientific method on Method of Doubt for, according to Peirce, inquiry begins with belief (Friedman, 1999, p. 724). Peirce's "fixation of belief" describes ways in which ideas settle as customs, traditions, or habits of mind (Peirce, 1966, p. 91) and recognizes that these actions are ancient in the development of humans whereas scientific logic is relatively new. Peirce elaborates by writing, "'common sense' is replete with…tenacity, authority, and the *a priori* method" (p. 92). The logic of scientific thinking should be applied to pragmatism if "we are to rid ourselves of some of the narrow prejudices, dogmas, and bad metaphysics with which 'common sense' is imbued" (p. 92). Thought to be influenced by Emerson's philosophy of "cultural criticism with moral purpose" (West, 1989, p. 43), Peirce's philosophy bridges science and social aspects of humanity by placing scientific value on social aspects of being human, such as emotion and sentiment, and recognizing the practicality of consequences, or the conceived actions of conduct.

Peirce's philosophy reflects the different ways of understanding the world that characterize his era, namely the era that accompanied Darwin's theory of evolution.

Peirce (1877) writes:

> The Darwinian controversy is, in large part, a question of logic. Mr. Darwin
> proposed to apply the statistical method to biology… by the application of the
> doctrine of probabilities, to predict that in the long run such and such a proportion
> [of change will occur]… Darwin, while unable to say what the operation of
> variation and natural selection in any individual case will be, demonstrates that in
> the long run they will adapt animals to their circumstances. Whether or not
> existing animal forms are due to such action, or what position the theory ought to
> take, forms the subject of a discussion in which questions of fact and questions of
> logic are curiously interlaced. (p. 2)

Peirce applies his understandings of logic, science, and evolutionary theory to
descriptions of being human.

> We are, doubtless, in the main logical animals, but we are not perfectly so. Most
> of us, for example, are naturally more sanguine and hopeful than logic would
> justify. We seem to be so constituted that in the absence of any facts to go upon
> we are happy and self-satisfied; so that the effect of experience is continually to
> contract our hopes and aspirations. Yet a lifetime of the application of this
> corrective does not usually eradicate our sanguine disposition. Where hope is
> unchecked by any experience, it is likely that our optimism is extravagant.
> Logicality in regard to practical matters is the most useful quality an animal can
> possess, and might, therefore, result from the action of natural selection; but
> outside of these it is probably of more advantage to the animal to have his mind

filled with pleasing and encouraging visions, independently of their truth; and thus, upon unpractical subjects, natural selection might occasion a fallacious tendency of thought. (Peirce, 1877, p. 2)

Interestingly, Peirce objects to Darwin's theory for both scientific and moral reasons, arguing that Darwin extended "politico-economical views of progress to the entire realm of animal and vegetable life" (Peirce, 1935, p. 196) and promoted a selfish "gospel of greed" (p. 294). Instead, Peirce describes a different perspective of evolution from Darwin's, one including "three sentiments, namely interested in an indefinite community, recognition of the possibility of this interest being made supreme, and hope in the unlimited continuance of intellectual activity, [and] as [being] indispensable requirements of logic" (Peirce, 1932, pp. 399-400). Peirce (1893) termed this progress "evolutionary love" and saw it as based in acting for others, such as our neighbor, as "one whom we live near, not locally perhaps, but in life and feeling" (p. 177).

Peirce (1893) argues for an evolutionary philosophy that stems from a belief among some that "growth comes only from love" and the "ardent impulse to fulfill another's highest impulse" (177). "Philosophy," he writes, "when just escaping from its golden pupa-skin, mythology, proclaimed the great evolutionary agency of the universe to be Love" (Peirce, 1893, p. 176). Peirce's pragmatist philosophy is one of continuity. Although written with a human-centered perspective, as Peirce is known to incorporate animism (Halton, 2005), the following displays a continuum among human sentiment, scientific method, evolution, and logic:

When we consider that logic depends on a mere struggle to escape doubt, which as

it terminates in action, must begin with emotion, and that, furthermore, the only

cause of our planting ourselves on reason is that other methods of escaping doubt

fail on account of the social impulse, why should we wonder to find social

sentiment presupposed in reasoning? (Peirce, 1932, pp. 399-400)

Peirce's philosophy is a "distinctively American response to a European

discourse that overlooked and ignored transactional relations between the self and nature,

communal relations between the self and other selves, and especially the radical

contingency and *revisability* of both relations [emphasis in original]" (West, 1989, p. 45).

Peirce (1958) writes:

Every reality, then, is a Self; and the Selves are intimately connected, as if they

formed a continuum. Each one is, so to say, a delineation – with mathematical

truth, incongruous as the metaphor is, we may say that each is a quasimap of the

organic aggregate of all the Selves… (p. 96)

Peirce's pragmatist philosophy of recognizing the continuum among realities leaves these

relations ignored no longer (within philosophy, science, or any other domain of

knowledge).

William James

William James (1842-1910) was a fellow member to Peirce in the Metaphysical

Club in Cambridge, Massachusetts in 1872. James' pragmatist philosophy differs from

Peirce's with respect to its ethical imperative. The motivation stems less from "scientific

method but rather by the aspiration to adhere to a certain kind of vision and the

preference for a specific way of life" (West, 1989, p. 55), thus James' focus is on individuality and personal life, and not general ideas and scientific method as was Peirce's focus. The viewpoint of James also differs from that of Peirce in that James' pragmatist philosophy is based in sensation and empiricism and is therefore more experiential and pluralistic, as opposed to Peirce's base in conduct and rationalism (West, 1989).

To James, "the pragmatic method is primarily a method of settling metaphysical disputes that otherwise might be interminable" (James, 1907, p. 45). James (1975) said, "The general triumph of that method [of pragmatism] would mean an enormous change in what I called…'temperament' of philosophy" (p. 31). The point here is that there should be a change in the temperament of philosophy, and pragmatism is a way to allow that growth to occur. In contrast, James' pragmatism was perceived by Peirce as being too subjective, and the differences between the pragmatism of James and that of Peirce were enough to spur Peirce to change the name of his philosophy to "pragmaticism", a name "ugly enough to be safe from kidnappers" (Peirce, 1934, p. 276).

James, a trained medical doctor, attracted to religion, and a charismatic lecturer has been described as "an authentic American intellectual frontiersman…like Mark Twain's Huckleberry Finn, expanding the moral possibilities of individuals on a raft that floats near land and society yet never really bank[ing] for long" (West, 1989, p. 55). James' pluralistic approach to pragmatism as a method for discovering solutions to issues incorporated a psychological line of thinking that was considered at the time to be innovative within the sciences. James considered "information of the mind's operations" (James, 1899, p. 5) and the psychological stream of consciousness to have practical application in the classroom. James (1899) explains to teachers:

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In each of us, when awake (and often when asleep), some kind of consciousness is always going on. There is a stream, a succession of states, or waves, or fields (or whatever you please to call them), of knowledge, of feeling, of desire, of deliberation, etc., that constantly pass and repass, and that constitute our inner life. The existence of this stream, is the primal fact, the nature and origin form the essential problem, of our science. (pp. 15-16)

James makes apparent in his lectures his recognition of individuality and how the identities of people change through time along with the changing environment of the living world in which they are situated. To James, acknowledgement of these changes provides an avenue through which to envision how *truth* itself changes. James suggests that his perspective on pragmatism is different than that of the rationalist described as upholding only one truth, non-utilitarian, objective, and unattainable for the most part because of its reliance on one Truth epistemology. Because James is a pluralist, there is no room for one Truth but rather multiple truths in relation. According to West (1989), James "calls into question the Cartesian dualisms of mind and matter, subject and object, immediate awareness and external world" (p. 56).

James' philosophy accounts for spiritual thinking as well. He writes, "spiritualistic faith in all its forms deals with a world of *promise*, while materialism's sun sets in a sea of disappointment" (James, 1907, p. 108; emphasis in original). He adds that, "the Absolute…grants us moral holidays. Any religious view does this. It not only incites our more strenuous moments, but it also takes out joyous, careless, trustful moments, and it justifies them" (p. 108). James points out that the materialistic world ends where the spiritual one continues. It is the promise of something good that gives us hope to look

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beyond the present, changing through pragmatism the question of, "What is the world?" to "What is the world going to be?" (James, 1975, p. 60). To James (1902), religion, along with philosophy has become overtaken with one-sided dogmatism due to the "theorizing mind [that] tends always to the oversimplification of its materials" (p. 27).

Along pluralist modes of thinking, James recognizes that truth is made via a verification or validation process or through experience. "True ideas are those that we can assimilate, validate, corroborate and verify. False ideas are those that we can not" (James, 1907, p. 201). Similarly, we grow knowledge through experience in the world and this fundamental characteristic of pragmatism can be used to help usher in action gardening in science education.

Our minds thus grow in spots; and like grease-spots, the spots spread. But we let them spread as little as possible: we keep unaltered as much of our old knowledge, as many of our old prejudices and beliefs, as we can. We patch and tinker more than we renew. The novelty soaks in; it stains the ancient mass; but it is also tinged by what absorbs it. (James, 1907, p. 168-169)

James links truth to reality in three categories for "'Reality' is in general what truths have to take account for" (James, 1975, p. 117). For James there are several parts, what is known and previous truths. In short, *sensations* refers to the information we take in through our senses; *the known* consists of two categories: the profound and the superficial, with the profound given a more foundational status than the superficial; and *previous truths*, for James, means truths that have become "once removed" through conceptual change or knowledge growth. James theorizes that, "*Our fundamental ways of thinking about things are discoveries of exceedingly remote ancestors, which have been*

able to preserve themselves throughout the experience of all subsequent time [emphasis in original]" (James, 1907, p. 170). For James, this collection of understandings is *common sense*.

This philosophical consideration of possibilities and cultivating understandings of the past defines the pragmatism of James. Yet, "he promotes moral transgression based on personal integrity and individual conscience rather than means of social revolution by means of collective action" (West, 1989, p. 57). James' approach is considered to be "middle-of-the-roadism" by Cornel West and others who integrate polar positions of dualism. Pragmatism for James then, is a mediator that operates under an assumption that amiable reconciliation of two extremes is better than either extreme alone (West, 1989), through which knowledge and truth grows.

<u>John Dewey</u>

American pragmatism becomes more vivid with the work of John Dewey (1859-1952). Dewey applies his progressive ideas of democracy, activism, and meliorism through intense focus on his "metaphilosophical implications of modern historical consciousness, the cultural ramifications of demystifying and defending critical intelligence, and the political consequences of expanding creative democracy" (West, 1989, p. 72). Extending from a classical American pragmatist perspective that rejects dualistic epistemology, Dewey's reforms promote a naturalistic approach in which knowledge is understood as developing from highly contextual situations and relationships. He is well known for his emphasis on experiential epistemology.

The cornerstone concept of Dewey's pragmatist philosophy is his logic of experience. This logic was developed through a redefinition of the term "experience".

Dewey criticized how ambiguous the word had become. It has a "slipperiness" to it, particularly by its usage in other disciplines, such as psychology, and particularly in its usage by James, who in using it as both the "what" and the "how" caused it to be "strange and incomprehensible" (Sleeper, 1986, pp. 106-107). Dewey believed that experience had become a "weasel word," describing it as a vast abyss lacking definition, composed of so many definitions that it is indefinable (Dewey, 1925, p. 1). Instead, experience in philosophy is a method/process and not subject matter. In other words, Dewey emphasizes the how and not the what.

Dewey's redefinition of experience reveals five paradigmatic notions of experience within modern philosophy (West, 1989). There is experience as knowledge, encompassing all modes of an organism's interaction with its environment. Secondly, there is the recognition of experience not only as subject but as subject-object. Thirdly, there is the acknowledgement of the need for characterizing experience as a projection into the future, as well as the past and present. Next, is the recognition of connections throughout experience, and finally, experience is not separate from reason but is laden with inference and therefore potentially intelligence (Dewey, 1960). Through redefinition of experience, Dewey breaks up the foundation upholding the subject-object dualism that is epistemologically problematic in modern philosophy (West, 1989).

Although *experience* is described extensively in several manuscripts written by Dewey, in brief, it is the interaction between a person and their environment, or the measure of value of which is provided by the "continuity and interaction in the active union" (Dewey, 1938, p. 43). The environment of the learner is comprised of the physical structures, the fellow learners, the instructor, living organisms, and the non-physical

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elements as well, such as lighting, visual displays, scents, music, voices, and all other sources of stimuli. All of these things contribute to the experience of the learner and how the learner interacts with the environment. Dewey's experience metaphor demonstrates that meaning is "primarily a property of behavior," or in other words, we learn by our interactions, our experiences, by doing (Dewey, 1925, p. 141).

Dewey recognizes that being human involves social contact and communication. He writes, "what nutrition and reproduction are to physiological life, education is to social life. This education consists primarily in transmission through communication. Communication is a process of sharing experience till it becomes a common possession" (Dewey 1916, p. 9). Communication, along with continuity of interaction with environment, is an integral part of experience. Through communication, learners and teachers alike build on cultural traditions and beliefs, past experiences, and prior personal knowledge to address current issues (Dewey, 1938).

Part of the experience of growth in intelligence occurs while interacting with one's environment. As activity becomes more complex, coordinating a greater number of factors in space and time, intelligence plays a more and more marked role, for it has a larger span of the future to forecast and plan for. The effect upon the theory of knowing to displace the notion that it is the activity of a mere onlooker or spectator of the world, the notion which goes with the idea of knowing as something complete in itself…If the living, experiencing being is an intimate participant in the activities of the world to which it belongs, then knowledge is a mode of participation, valuable in the degree in which it is effective (Dewey, 1916, p. 393). According to Dewey's philosophy, freed intelligence is

the freedom of thought, consciousness, expression, and communication of reflective thinking (Dewey, 1935).

To Dewey, the growth of intelligence is education, and education is based in experience. They are one in the same essentially for Dewey. Dewey's view of democracy is as a product of education, situated in the contexts of local community and natural environment as opposed to the traditional scheme "of imposition from above and from the outside" (Dewey, 1938, p. 18). The inability of America to thoroughly address political issues of his era was, according to Dewey, due to a spectator theory of knowledge and lack of experience (West, 1989, p. 88).

Art as an expression of education is another process where the redefinition of experience holds true. Dewey (1936) explains that an experience is not merely an excitation on the surface received through physiological sense organs but a more profound "adjustment of our whole being with the conditions of our existence" (p.16). An experience inspires growth, and is an interactive relationship, which is parcel of a composition, or a situation. Making art requires the same balance of components and energy, Dewey says, of "doing and undergoing in alteration, but consists of them in relationship" (p. 46). He goes further to note that without a "full living experience associated with production," the art is missing some of the aesthetic nature of the experience itself (p. 27). This relationship described by Dewey, a metaphor of existing between art and artist, holds true for the relationship that also exists between learners and teachers. In other words, Dewey emphasizes a relationship between animate perceiver and inanimate thing.

Dewey's philosophy of mind consists of his redefinition of language. For Dewey, "existence" was another problematic word that needed to be resolved through classical American pragmatism. He said: "'[R]eality' is what existence would be if our reasonably justified preferences were so completely established in nature as to exhaust and define its entire being and thereby render search and struggle unnecessary" (Dewey, 1925, p. 54).

Living by his own philosophy, Dewey redefined his own definitions, such as eventually replacing the word experience with that of "interaction" and then, with "transaction" and he would later say 'culture' but never wrote this (Sleeper, 1986, p. 106-107). For instance, "caring as sympathetic understanding" in Dewey's work is an example of transaction or interactions that affect one another (Thayer-Bacon, in press, p. 13). To Dewey transaction occurs among all entities, whether physical or not. For example, knowing is transactional, and the disciplines of philosophy and religion are also transactional. "The transaction that takes place in inquiry reconstructs the object by reconstructing its relations (Sleeper, 1986, p. 121). In this manner, Dewey emphasized the notion of examining one's life and language in order to be a participant in a continuum inseparable from the future.

In addition to Dewey's many written works, he demonstrated how pragmatism is lived through his own actions. Cornel West (1989) writes, "economic deprivation, cultural dislocation, and personal disorientation" (p. 80) of industrialized capitalist America transitioned into the 20th century and spurred Dewey into political and social activism. The most successful of these endeavors for Dewey is the Laboratory School of the University of Chicago, later known as the Dewey School (1896-1904). The pedagogy of this school is based on Dewey's logic of experience and demonstrates Dewey's

pragmatist philosophy applied to education with goals of the school founded in the development of a cooperative community in a manner that meets social needs of learners and in intellectual development through activity rather than rote learning and regurgitation (1900).

Toward the end of his life, Dewey's major project was culturalism, or "the great community" (West, 1989, p. 107). Recognizing that we start in communities of family first before entering into the social community, Dewey's view of humanity is one of relationality, or in relationship. Thus for Dewey, the social and political aspects of democracy are inseparable. The development of "the great community" was intended to spark the moral re-emergence of local communities, a project that needs to be continued today, but that has nearly been forgotten.

To conclude, three prominent figures in the founding of classical American pragmatism are presented in the preceding paragraphs Charles Sanders Peirce, William James, and John Dewey. While they are philosophers of distinct perspectives that are not always in agreement, there are common threads among their separate philosophies that connect them, web-like rather than linearly. Some of these connecting threads are experience, community, relationship, interaction, diversity, critique, and continuum. American pragmatism reflects the community of individuals that make up the American experience, along with their histories, cultures, and environments, connecting past and present and continuing into the uncertain future.

Examples of Contemporary Pragmatism

The work of John Dewey is considered by some to be the pinnacle of American pragmatism, when with his work, the "highest level of sophisticated articulation and

engaged elaboration" was reached (West, 1989, p. 68). When examining the discipline of education with which Dewey was so closely tied, a correlation is evident between the shift away from progressivism back toward traditionalism, and the decline of American pragmatism. This shift between progressivism and traditionalism has been repeated several times over, much like the swing of a pendulum, reflecting a political climate of apparent indecisiveness in American education (Labaree, 2005). This indecisiveness has been further influenced over the decades by our country's involvement in wars (and a sense of competition to remain global leader, such as that spurred by Sputnik), allowing the fear of uncertainty to thrive, and driving education away from the societal learning of science and the teaching of citizenry, toward the teaching of facts and rote memorization (Bracey, 2007).

American pragmatism is a philosophy for the public, and a philosophy for public action. However, because American pragmatism grows through opportunity for change, it is at times perceived as lacking definition and distinction. Concomitantly, American pragmatism is distinct in its non-distinctness and continues to be work for the greater good, often in the margins and borderlands, by contemporary pragmatists.

<u>Richard Rorty</u>

The work of Richard Rorty serves as a form of renewal for classical American pragmatism in the 1970's and beyond. Rorty is a master of critique with the intent of edification; this is the goal of his philosophy rather than mere presentation of his own perspective or that of others. Edification for Rorty means that writing should be seen as a conversation among philosophers.

Rorty's style is not solely about critique through conversation, however. He also engages his reader in imagining a reality without the "givens" of the past. In the same way as Dewey, he can be charged for relying too heavily on the future for progress (Bowers, 2001). For example, Rorty (1982) notes the development of language, beliefs, and common matter through time as a "sequence of rational changes of view," like the replacement of the planks of the boat on which humans travel through time (p. 8). The refurbished planks are miniscule increments of change and are really no change at all, just replacements, if they result in the remaking of the same boat. Real change would be the construction of an intergalactic starship that would enable our thought patterns to transcend their current structures (Rorty, 1982).

Rorty (1982) pays particular attention to language, metaphors and the stagnant epistemology that comes attached with ordinary language. He provides the reader with a variety of viewpoints, oppositional perspectives, and uses these perspectives to help us develop more in-depth understanding of language and development. Rorty considers writing to be a form of enclosure for meaning (in this way, he is very similar to David Abram (1996) and others who consider written word to be a roadblock to understanding). Rorty (1979) said, "edifying philosophy aims at continuing a conversation rather than at discovering truth" (p. 373). Systematic philosophy, by contrast, entertains the "notion of a mirror which would be indistinguishable from what was mirrored, and thus would not be a mirror at all" (p. 376). "One way to see edifying philosophy as the love of wisdom is to see it as the attempt to prevent conversation from degenerating into inquiry, into a research program" (p. 372). "[T]he fear is that all discourse will become normal discourse" (p. 388).

Rorty (1982) makes a point that differences are differences – differences between *a priori* and empirical truth, between *a priori* and givenness, between alternative frameworks and alternative theories, and between conceptual theories and the world. It is the juxtaposition of the differences that makes the idea of difference seem the same, and it is language that makes the sameness seem different. In other words, often various differences from the norm are lumped together in one category of "difference" or "different from the norm" and can thus be perceived by some as being the same. It is not until separate terms are attached to these individual differences that they are perceived as different from each other. Rorty's ideas are presented in a manner that could almost seem dualistic because of his recognition of the "given". However, Rorty recognizes differences as coming about through interactions and discovery with personal experience, allowing perception of an event that is unique to each perceiving individual. An example of a "given" understanding would be the one correct answer to a question that is given to students to be memorized in preparation for taking standardized tests. "Education has to start from acculturation…we may put less value on 'being in touch with reality'…only after having passed through stages of implicit, and then explicit and self-conscious, conformity to the norms of the discourses going on around us" (Rorty, 1979, p. 365). In this manner, we learn what we are by learning what we are not.

Rorty (1979) makes clear that the reason for his approach of critique and contrast is not to analyze, for analysis leads to "empirical" status. The reader is provided with philosophical history and a diversity of perspectives and left to think for herself. In this manner, an edifice of American pragmatism is not only reconstructed, but materials are

provided for creating what is yet to come. The idea for Rorty is that knowledge should never been enclosed, but cultivated.

Barbara Thayer-Bacon

With roots as a teacher of learners from elementary school age to graduate school, Barbara Thayer-Bacon embeds pragmatism in the classroom through her transactive practice. As an educational philosopher, Thayer-Bacon paves the way for philosophy to be realized in educational research. As a feminist, she stresses the importance of care and relationships among participants in the classroom environment. As a contemporary feminist pragmatist, she works to dissolve dualisms, such as those of mind and body and of theory and practice.

As mentioned earlier in this paper, philosophical research is used in education to make the case for not only what is the best but also for what is just (Thayer-Bacon & Moyer, 2006). This is done by incorporating not only reason but with intuition and relational skills as well (Thayer-Bacon, 2000). In her philosophical work, Thayer-Bacon "describe[s] knowers as fallible human beings who are connected to knowledge, in a knowing relation…question[s] that a general account of knowledge, based on *a priori* standards for justification, is possible (Thayer-Bacon, 2009, p. 18). She agrees with Dewey that "the most pervasive fallacy of philosophic thinking goes back to neglect of context…to philosophy's effort to describe itself in a transcendental manner, removed from the context of the everyday, common world" (Dewey, 1960, p. 92). Because of this, Thayer-Bacon centers her approach in the classroom on care and relationship.

Relation signifies the existential connections of things, a dynamic and functional interaction, and it also signifies the logical relationships of terms. We speak of the

overlapping and interconnecting of concepts and meanings that have reference to each other, and we describe how things affect each other existentially. (Thayer-Bacon, 2009, p. 16)

Viewing "*caring* as a form of moral orientation" (Thayer-Bacon, in press, p. 12), Thayer-Bacon's work in feminist theory helps illuminate "models for education that emphasize our diversity and encourage us to maintain and value our plurality" (p. 10). Geared toward dissolving social injustice, she conducts her teachings in a manner of acting for others, for equity among multiple, diverse perspectives. Thayer-Bacon writes, "The feminist movement…has helped us understand that the personal is political" (in press, p. 5) and that "language is not gender neutral, but in fact affects our consciousness" (p. 6). Other feminists such as Charlene Seigfried (1991) support Thayer-Bacon: "Pragmatism argues for the inclusion of diverse communities of interest, particularly marginalized ones" (p. 14).

As a pragmatist, Thayer-Bacon explains that her job is to "argue that philosophers' roles are to be prophets, poets, and soothsayers, helping us to solve human problems that exist through a greater understanding of our social context, and helping us imagine new possibilities" (2006, p. 358). Her definition of contemporary pragmatism sums up her multiple roles as an educator:

Pragmatists seek to connect experience to the outcome of directed action, so that philosophy is not just about abstract ideas, but is about trying to have an impact and solve real-life human problems. Pragmatists seek to heal dualisms others have created and offer a unifying description of the world. They seek to work in collaboration with others and create a community of inquirers. Pragmatists want

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philosophy to act like science in terms of being able to question one's theory at a deep level, all the way down to one's criteria, methodology, and basic assumptions, as well as one's situatedness. (Thayer-Bacon, 2010, p. 89)

Founded in democratic theory of "selves-in-relation-with others, including the natural world" (Thayer-Bacon, 2006, p. 27), Thayer-Bacon incorporates Dewey's social transaction to establish a "democratic community of inquirers" within her own classroom (Thayer-Bacon, 2011, p. 494). Her aim on a broader scale is to develop a liberalism, beyond liberal democracy, that is not centered on the sovereign individualism of classical liberalism, but instead recognizes community, a "relational pluralistic political theory that translates into public school settings" (Thayer-Bacon, 2006, p. 19), a "*relational, pluralistic democracy-always-in-the-making*" (p. 29).

David Orr

While noted environmental educator David Orr is not a philosopher of pragmatism *per se*, the manner in which he thinks and conducts his life is the way of a contemporary pragmatist. As Thayer-Bacon extends her pragmatism to the classroom in a manner of acting for marginalized others, Orr extends his pragmatism to the natural environment, linking to education as well with his infamous statement "all education is environmental education" (1992, p. 90).

Orr's (1989) theory of ecological literacy emphasizes the need for development of practical competence, understanding of ecological relationships and basic thermodynamic laws; the way to do this is through immersion in diverse natural environments. Orr (1992) articulates that experience in one's own natural environment shifts the human perspective from one of an economic overemphasis to one of balance amongst economics, ecology,

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and cultures. Orr (1994) writes that the development of care for the Earth in future leaders, through outdoor experiences and environmental education, is indeed, moral education. Orr (1989) makes the point that environmental education should change how humans live. Orr asks, as Aldo Leopold before him, 'what is education for?' if not to develop among citizens understandings of basic principles of ethics, sustainability, and ecological literacy, such as those inherent in and taught through experiences in nature (Leopold, 1966 cited in Orr, 1994, p. 15).

According to Orr (1994), our educational curricula, explicit and hidden, promote materialistic consumerism while overlooking the ecological foundations of our economy. He emphasizes the role that teachers and schools have in shaping the minds of learners by what they do or do not include in their learning environments and by the experiences they enable among learners and nature. What a student is surrounded by, in physical surroundings and in curriculum, both hidden and not, determines their inclusion of self in nature (Orr 1992).

Ecological literacy in the pragmatist tradition emphasizes connectivity and continuity with fewer divisions and disciplines, recognizing commonalities among organisms and promotes the strength that exists in diversity. It gives great importance to relationships within human communities and social infrastructures, highlighting interactions amongst humans as most important in the educational experience. The ecologically literate person has knowledge that is necessary to comprehend interrelatedness, and an attitude of care or stewardship (Orr, 2011, p. 258).

Cornel West

Where Orr extends his pragmatism to shape our understanding of the natural

environment, Cornel West extends his philosophy of American pragmatism to the streets. It is there in the streets through activism that his philosophy is, in turn, informed. Additionally, just as William James "…took it upon himself to translate and transform his conversation with these traditions into a language intelligible to educated middle-class Americans" (West, 1989, p. 56), West presents "a danceable education to young people in their own idiom" (2004, p. 194).

West's (1989) "prophetic pragmatism" concentrates on the promotion of individual morality, autonomy, and creativity, particularly focusing on the invisibility of race inequities. West writes, "Prophetic pragmatism attempts to keep alive the sense of alternative ways of life and of struggle based on the best of the past. In this sense, the praxis of prophetic pragmatism is tragic action with revolutionary intent, usually reformist consequences and always visionary outlook" (2004, p. 167).

In his writings, West makes clear the dualism that he sees as the façade of the present-day American democracy that has succumbed to nihilism, or deep despair, at the hands of capitalism and authoritarianism (West, 1993, 2004). Rather than centering on a Dewey-like utopian view of democracy, West employs a more inclusive and accepting perspective by acknowledging the bad with the good (Noddings, 2011). Crucial to democracy, according to West, is Socratic questioning: "the questioning of ourselves, of authority, of dogma, and of fundamentalism" (2004, p. 16). West's vision for the future of democracy in America is "Socratic-driven, prophetic-centered, tragicomic tempered, blues-inflected, jazz-saturated" (p. 62). He adds that, "The prophetic tradition is fueled by a righteous indignation at injustice - a moral agency to address the cries and tears of oppressed peoples" (p. 215). West said: "Prophetic hip-hop is precious soil in which the

seeds of democratic individuality, community, and society can sprout" (p. 185). West employs activism in the form of "combative spirituality," a long-term, action-based hope in the name of justice (West, 2004). He explains that, "It is imperative for the adults who have made the life of the mind their life's calling to be engaged with the wider community and play a vital role in furthering the national discourse on the important issues of the day by exercising the ways of truth telling that engage youth" (p. 186), to "challenge youth to be self-critical rather than self-indulgent" (p. 184). West quotes Plato when he says, "the unexamined life is not worth living" (c.f., Plato, 399 B.C.).

West calls for action and engaged citizenship. Like his teacher Rorty, he establishes an environment for growth through critique. Like Socrates, he answers the call for engagement with *parrhesia*—the frank and fearless speech that according to Plato characterizes democracy (West, 2004, p. 210). Through the American music forms of blues, jazz, and hip-hop and in the name of the goal of reaching American democracy, West answers his own call for action as an American pragmatist on the American urban streets often engaged in protest. The following quote from Terry Tempest Williams (2004) captures the ideology of West very well:

> To commit to the open space of democracy is to begin to make room for conversations that can move us toward personal diplomacy. By personal diplomacy, I mean a flesh-and-blood encounter with public process that is not an abstraction but grounded in real time and space with people we have to face in our own hometowns. (p. 23)

In summary, the work of the contemporary pragmatists presented in this section has exemplified American pragmatism in action. While of diverse backgrounds and

perspectives, Rorty, Thayer-Bacon, Orr, and West are connected through their reconstruction of American pragmatism after the emergence of the work of Dewey, James, and Peirce. In the same vein as Dewey's practice of redefining words and epistemologies, pragmatism continues to be redefined by practitioners such as these. American pragmatism is to be rewritten, retold, and redefined *ad infinitum*.

> If free and enriching dialogues are to take place in the spheres of education, among teachers or learners; if serious efforts to deconstruct and to redescribe are to be undertaken; people must reach out of their own lived situations in as many directions as seem feasible. Educational philosophers, in their turn, must identify themselves as situated in the same fashion and actively participate in a community – stretching back in time and forward towards the unexplored. (Greene, 1995, p. 7)

Summary

The work of a pragmatist philosopher guides the future by participating in the present. Through a chain of logic, a framework is cultivated that extend the understandings of the historical contextual past to address difficult issues of the present and to envision the future. Through logic, claims are made regarding how ideologies, curricula, or policy should be. Pragmatism digs up the status quo of the past and present and ultimately, builds on these ideas to embrace the uncertainty of the future with foundations of knowledge and morals.

Although pragmatism is applicable to any discipline or subject, I want to question science education for social action. The lens of pragmatism enables seeing beyond the walls of the classroom, seeing beyond the constraints of the standardized tests, shifting

toward ideas that stem from experiencing the freedom that comes with knowledge and understanding of action-oriented philosophy. I anticipate my project will help others to see beyond the 8th grade, or 12th grade, or far into the future, to future spaces of growth in places of schooling and community life.

There are several pedagogies I anticipate analyzing once I have a clearly described and critiqued contemporary pragmatist theory. Topics for my analysis include the following. The incorporation of socioscientific issues in science education curricula allows learners to see the value of authenticity and "see through the eyes" of different stakeholders through reasoning within multi-faceted issues. With ecojustice education, learners realize the perspectives of other humans and of other species as they are introduced to the importance of preserving the ecological and cultural commons. Through place-based education, learners become embedded in the science and related histories and cultures of their own schoolyards and communities. Citizen science is a manifestation of these theories and ideals. Through citizen science, learners are able to contribute to a greater collective of scientific information while realizing their own citizenship and the value of their input. Moreover, participants are engaged in reflecting on actions that are hopefully the results of more informed understandings of the world around us. These approaches set the stage for a deeper understanding of school science while also gaining greater meaning of what it is to be human.

Building on the work of the pragmatists discussed in this essay, and using it as model for science education I will analyze learning in light of change through relationships. The action and reflection on action underlying the work of gardening moves me toward my goal of growth in this dissertation. Gardeners are informed through

experience in the garden, and I will use this experience to develop theory that informs practice, which enables opportunity for more experience, for growth, and for knowledge. While engaged in the action of gardening, learners and young citizens acting for other species and growing food for the health of themselves and others are acting for friends, family, and neighbors. People involved in action gardening develop relationships through authentic situations. Through action gardening, youth invest in themselves and for others through change, being eye-witnesses of and active participants in the growth of food plants for people, pollinators, and plants that provide shelter for birds.

Learners engaged in action gardening gain a perspective of land in general, and more specifically, they learn about how democracy is embedded in public lands. The embodiment of physical work, mindfulness, and pragmatism that is involved in action gardening can serve as a catalyst for a more engaged citizenry and a bridge to youth activism for generations to come. Based in foundations of knowledge, youth gardener/activists are able to experience challenging and empowering transformations toward becoming engaged citizens. Enabling action gardening can promote problem-solving and decision-making skills in an uncertain future, and (re)establish American democracy through connection with public spaces (Bowers, 2011; Williams, 2004).

American pragmatism is not merely the topical application of, but the inoculation of contemporary pragmatism, as a way to analyze the way we go about science education in our public schools. Through this inoculation people can learn to speak the language voices of nonhumans and experience all of nature as it is our selves. Cornel West and other pragmatists will help me return to this idea in more depth. With a new sense of community in society and nature, we can learn to see social differences as opportunity for

connection, and embrace uncertainty for the prospects it holds for scientists and other professionals. Most of all, we can learn a sense of balanced security/freedom that is democracy.

The current shift in science education that is acknowledging nature, culture, and community is exciting! It is important that this acceptance of innovative approaches to teaching and learning science continues, not superficially nor through merely temporary trends but instead, through widespread movements transforming education in the larger sphere of the world. A lasting, working balance between schooling and community can be established through the continuous dialogue between theory and practice of pragmatism.

To adapt Dewey's definition of experience, referenced previously, to what science education will not necessarily look like but *feel* like after the inoculation of contemporary American pragmatism:

> Experience…includes *what* [we] do and suffer, *what* [we] strive for, love, believe and endure, and also *how* [we] act and are acted upon, the ways in which [we] do and suffer, desire and enjoy, see, believe, imagine - in short, processes of *experiencing.* [emphasis in original] (Dewey, 1925, p. 18)

The language of pragmatism, namely, experience, community, relationship, interaction, diversity, critique, and continuum, pertain not only to adults but to children, to young citizens. Overlooking their citizenship in an authoritarian manner keeps them acting as children (and to a large degree reserves social responsibility for adults). To acknowledge youth as citizens is not asking them to save the world, but rather inviting them to plant some seeds and watch them grow, while nurturing them with care. We can learn with our

students, and their children, to live pragmatically and democratically through action gardens.

As a young adult, I had the opportunity to travel throughout the United States with the mission of visiting all the national parks possible. The sense of freedom that I gained from that experience embodies what the democracy of America should be. This democracy is what West claims in missing from America. The facade that many of us adhere to as American citizens is not that different from the background landscape of "nature" that is presented in schools through outdoor classroom structures and environmental education curricula. The view of nature that is presented to developing minds within our schools in the U.S. is one that promotes a separation, a human culture/nature dualism (still today after so much philosophical writing about the culture/nature miseducation). There is a devaluing of nature, and it works in opposition to the development of the whole child, including mind, body, *and* spirit. Cornel West encourages action based on foundations of knowledge, challenging and empowering youth to become fully engaged in their own lives. Freedom is what is missing, and this freedom is found in nature.

<div align="center">Roadmap for the Dissertation</div>

In my dissertation, my goal is to analyze the pragmatic philosophy of Cornel West, giving great attention to his emphasis on action based in love and a personal struggle for freedom through democracy connected with the land. I will extend my findings with the works of philosophers and educators to develop a theory for youth action through action gardening. The following roadmap is intended to guide this process.

In chapter two, I will examine the following works of Cornel West: *Beyond Eurocentrism and Multiculturalism, Volume I: Prophetic Thought in Postmodern Times* (1993a); *Beyond Eurocentrism and Multiculturalism, Volume II: Prophetic Reflections: Notes on Race and Power in America* (1993b); *Race Matters* (1993c); and *Democracy Matters: Winning the Fight against Imperialism* (2004). I will use these works and others to gain a deep understanding of West's theories, including prophetic pragmatism, radical democracy, and his love ethic. Classical theorists, James (1901) and Dewey (1916; 1925; 1936; 1938) will help me to define West's perspectives on pragmatism in American culture. To provide more clarity, I will also draw upon genres other than written word, including film and music that are incorporated by West to extend his pragmatism into the ever-changing realm of popular culture.

In chapter three, I will connect with the viewpoints of philosophers and educators in order to critique and modify his ideas for my theory. In speaking out for others who are excluded, is he also being exclusive? As West is a humanist, I specifically will include works that extend West's ideas to nature, ecosystems, and species-other-than human.

With a defended description of West and modification of his ideas for science education, I will turn in chapter four to a theory of action gardening. By incorporating West's lens of pragmatism that was amended and extended in chapter three to include nature, I will draw on the works of other philosophers and educators to establish my own theory of action gardening. Elemental actions of gardening will be aligned to steps of scientific process. The growth observed in nature through gardening will be analogized to the potential growth of students in science education.

My final chapter will serve as a synthesis chapter written with fruitful recommendations for moving forward in science education by applying the action gardening theory to practice. Possible examples include, interdisciplinary gardening curricula; school community garden design and construction; establishment of corridors connecting the public lands/commons of public school properties; and recommendations that illuminate perceptions of nature that are integrated in the hidden curriculum of school architecture and grounds (Orr, 1994, 2006).

<u>Glossary</u>

1.   *Care* as referred to in this paper requires that the carer (*one-caring*) must exhibit engrossment and motivational displacement, and the person who is cared for (*cared-for*) must respond in some way to the caring (Noddings, 1984).

2.   *Community* in an ecological or ecojustice sense refers to all the living organisms of a given area and the physical environment with which they interact (Odum, 1971). A human community typically refers to a unit of humans that extends beyond the household among whom there is influence, integration and fulfillment of needs, and often shared emotional connection (McMillan & Chavis,1986).

3.   *Experience* refers to the continuity and interaction among the union of entities (Dewey, 1938).

4.   *Nature* for the purpose of this paper starts with a foundation that nature is everything that is not made by humans, including humans, recognizing that humans are not capable of creating the elements from which life is made (McHarg, 1969). However, this definition is limited in that it places humans outside of a category that includes all of living things, for it assumes that things made by non-humans are natural while things

made by humans are not natural. The focus of the paper incorporates an ecopsychological perspective in that it recognizes that nature is integrated into the human self and draws on Schelling's *Naturphilosophie* in that it accepts the idea that our perceptions of nature are not of universal validity but instead are interpreted through the outcome of formative energy, or soul, or in Dewey's (1925) words, through *transactive experience*, recognizing how our interactions with our environments, including other beings in these environments, affect our everyday experiences and realities. Thus, nature is understood to be an outward reflection of our selves.

5.   *Science Education* is a practice during which students learn science content and process skills so that they may formulate questions regarding the physical structures and processes of the natural world, test explanations of these questions, and communicate their findings (NRC, 1996).

CHAPTER 2

CORNEL WEST'S PROPHETIC PRAGMATISM: A QUILT, A SONG, A GARDEN

<u>Introduction</u>

Chapter one introduces the notion of action gardening as a form of science education that concentrates on process, serving as a representation of contemporary American pragmatism in action. In addition, in chapter one philosophical methodology is described, and the progression of American pragmatism is outlined, culminating in a prologue to the work of pragmatist Cornel West. These introductions lay the groundwork for the development of connections that are made in this dissertation between the practice of gardening and youth action as a form of youth activism.

In this chapter, West's literature is reviewed to develop a thorough understanding of his own form of pragmatic philosophy that he calls *prophetic pragmatism*. In order to understand West's philosophy, I begin by reviewing four works, chosen for their different focuses of applying pragmatism to academic disciplines (e.g., economic, sociological, and political disciplines). These literary works are: *Beyond Eurocentrism and Multiculturalism, Volume I: Prophetic Thought in Postmodern Times* (1993a); *Beyond Eurocentrism and Multiculturalism, Volume II: Prophetic Reflections: Notes on Race and Power in America* (1993b); *Race Matters* (1993c); and *Democracy Matters: Winning the Fight against Imperialism* (2004). As these four works serve as a starting point for review of West's theories, review of other works are included in order to better grasp West's concepts.

A second set of works to provide more clarity to West's ideas includes: *The American Evasion of Philosophy: A Genealogy of Pragmatism* (1989); *The Cornel West Reader;* (1999b); *Prophecy Deliverance!: An Afro-American Revolutionary Christianity* (2002); and *Hope on a Tightrope: Words and Wisdom* (2008); and *The Rich and the Rest of Us: A Poverty Manifesto* (Smiley & West, 2012). In addition, Yancy's (2001) *Cornel West: A Critical Reader*, Cowan's (2003) *Cornel West: The Politics of Redemption* and Gilyard's (2008) *Composition and Cornel West: Notes Toward a Deep Democracy* assist in explaining West's ideas.

Three concepts stand out as particularly foundational to West' philosophy and serve as a guide to the reader throughout West's work. These concepts are 'prophetic pragmatism', the 'love ethic', and 'radical democracy'. *Prophetic pragmatism* is West's own form of American pragmatism; this *is* his philosophy. The *love ethic* is what drives prophetic pragmatism; it is a requirement. We humans all potentially have this; we just may not yet recognize it. West wants to help us recognize it. *Radical democracy* is what we can do with prophetic pragmatism after we realize the love ethic; it is a form of pragmatism in action. These concepts will make up the

three main sections of this chapter, with subsections of terms that present themselves in recurring patterns throughout West's works (meaning books, essays, lectures, song lyrics,
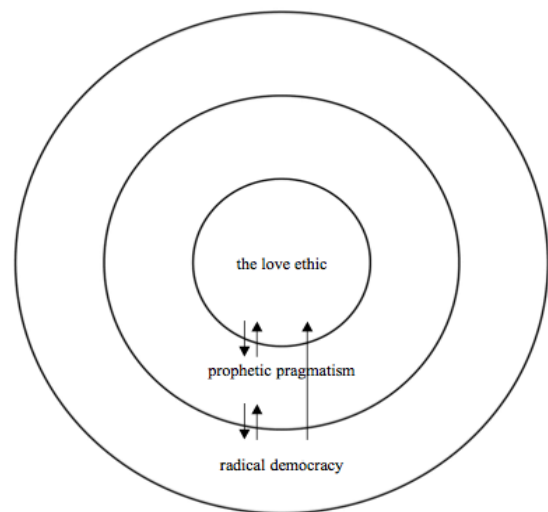
tweets, and other types of social networking posts.) The three concepts comprise a continuum: the love ethic is required for prophetic pragmatism, and radical democracy describes the action that extends from a prophetic pragmatist perspective, in turn clearing the path for continued prophetic pragmatism.

<div align="center">Metaphors of Changing Composition: A Quilt, a Song, a Garden</div>

A Quilt

There are a couple things that I would like to point out before we get started. First, West's philosophy is deeply grounded in the ontology of humanity. Recognizing as Rorty (1979) does that we are not confined to the 'given' yet it aids us learning what we are not, metaphors are used throughout this chapter to understand West's perspective, for their use enables the establishment of a common language among separate epistemological communities (Thayer-Bacon, 2000). Similar to Barbara Thayer-Bacon's (2000) use of a quilting bee metaphor to describe a group of people working together to make something, the metaphor of a quilt is incorporated to describe how separate entities can come together relationally to collectively make something new and different.

Second, West's voice is prevalent in his work. He places great importance on the oral tradition, or the passing of information by-word-of-mouth, as is evident in the many transcribed lectures and interviews that are included in his literary works. Particular quotes of West's recur throughout his work, similar to how *Bible* verses are quoted by preachers. In addition, West references the work of other pragmatists throughout his own work, so that as a collective whole it can be envisioned as similar to a patchwork quilt - remnants of fabric (of the philosophical type) woven by pragmatists before West stitched together to create something of greater purpose than its individual pieces.

<div align="center">69</div>

Let me expand on this metaphor. In constructing a patchwork quilt (of the cotton type), each patch of fabric has its own history of purpose. For instance, one patch may be from a grandfather's work shirt, another from a child's play clothes handed down through cousins, and another from a well-used tablecloth. Although each patch has its own history of purpose, when the patches are combined they together have the new purpose of a quilt to provide warmth or comfort - the structure of a quilt. There is the act of making a quilt to consider as well. Quilt-making or quilting, is an intricate process that is both work and art, sometimes performed by an individual or by a community of individuals working together on one quilt in an event called a quilting bee. Thayer-Bacon (1999) uses the metaphor of a quilting bee as an analogy for how knowledge is constructed rather than discovered, for individuals who are socially and culturally-embedded. Quilting bees are often catalysts for social action, such as when the quilt is produced and auctioned as a piece of art, the proceeds of which go to a chosen charity.

The NAMES Project AIDS Memorial Quilt is a large-scale example of how communities of individuals can draw together to promote social action. Begun in 1987, the AIDS Memorial Quilt is composed of quilted panels created in memory of loved ones lost to AIDS-related causes by quilters around the nation. It is considered the largest piece of community folk art in the world (Hawkins, 1993). The AIDS Quilt continues to be grow each year, providing peace for those remembering loved ones lost to AIDS and also serving as a fundraiser for AIDS research. West's pragmatism, like a quilt is comprised of parts: pieces of history, culture, and philosophy. Each part is well developed by itself and when put together with others, becomes an integral part of a composition, contributing to a sense of wholeness through relationship and interaction.

<u>A Song</u>

A common thread throughout West's philosophical quilt is his perception of music as a cultural expression and a potential catalyst for social action. In particular, West focuses on the improvisational nature of jazz, using it as a metaphor for pragmatism. More similar to a conversation than a recording, a live jazz song changes according to the mood and environment of the individuals who are performing. The jazz song (performed live) is more like an impromptu conversation, or the Socratic method, a form of teaching utilized by West and Socrates that involves "the questioning of ourselves, of authority, of dogma, and of fundamentalism," answering questions with more questions in a continuum of inquiry (West, 2004, p. 16). Jazz is a living experience among musical instruments, their musicians, and their audience that varies according to context. For West, jazz is more similar to Dewey's (1925) conception of an *educational experience*, composed of fluid and dynamic relationships and transactions among teachers, learners, and environment, than to an object frozen in time. Expounding upon the similarities between a jazz song and an educational experience that takes place in a classroom (indoor or out), a jazz song presents unique features of rhythm and tone that many times emerge harmoniously from a chaotic, cacophonic collection of notes.

West also often references the music genre the blues, foundational to other music genres including jazz and rock and roll. Because blues music is born of the African American struggle of establishing an American identity following generations of slavery, this music form is considered by West to be grounded in reality and to hold promise for addressing issues of present and future America. (Although "America" can mean any place in North America, Central America, or South America, in this dissertation the term

"America" refers to the United States of America.) Both jazz and blues are American

forms of music, and they are both predominantly black forms of music. Although both

the blues and jazz are human constructs responding to the condition of 'being human',

they differ in that the blues addresses the 'what' and 'why' of being human while jazz is

more about the 'how' of being human and the action of modeling human relationships in

a manner that enables transcendence from the struggles of everyday life.

<u>A Garden</u>

The metaphor of a garden is integrated as similar to a patchwork quilt in 3-D,

constructed by combining the metaphors of a quilt and a song in a form of hydridization,

a concept that I discuss in the next section. Just as individual patches of fabric of a quilt

are attached to lived experiences of the past, a garden is comprised of living entities that

change over time according to their environment: available nutrients, water, light, and

care. The land on which the garden is placed is quilt-like as well, for the land has

cumulative history. In Georgia, the land of a school garden may have been a cotton farm

half a century ago, and before that perhaps a spiritual place of indigenous people who had

not yet met settlers from Europe.

Like a jazz song, living entities of a garden ecology interact and have

relationships. For example, pollinators and flowers have relationships thought to have

coevolved, as in the case of a honeybee with ultraviolet vision. A honeybee can see

patterns on *Aster* petals that are invisible to the human eye (Macior, 1971). Patterns direct

the bee to nectar and incidentally to pollen, that if taken to the pistil of another flower of

the same species, will result in reproduction and contribution to the *Aster* gene pool.

Similarly, humans establish relationships with the flowers, bees, and other parts of

gardens. Humans and gardens have reciprocal relationships, or in ecological terms, mutualistic relationships in which each party gives and receives from one another. In exchange for providing care, such as in the example of a human providing water for plants during times of drought, humans gain aesthetic pleasure, nutritional sustenance, and psychological wellbeing.

The patchwork quilt-like notion of piecing together history and applying it to a new purpose is prominent in West's conception of pragmatism. The importance of relationship and interaction, such as that which occurs among instruments during a jazz song or among the inhabitants of a garden are also present, enabling West's philosophy to grow beyond a stagnant image of a single quilt. The resulting living, growing composition that West calls prophetic pragmatism is pieced together with the love ethic, a construct of West's that he borrows from Dr. King, to envision what connections among individuals and communities could be. The composition inspires 'in the moment,' improvisational experiences from whence action in the form of a third construct emerges, radical democracy.

This chapter will revisit American pragmatism, followed by a description of West's prophetic pragmatism, the love ethic, and radical democracy, and it will culminate with a summary of how the three ideas work together. Areas that become apparent in West's philosophy as needing further definition are reserved for chapter three in which his theory is critiqued. To begin, let us first take a look at a brief outline of early American pragmatism as it leads to West's contemporary philosophical interests.

American Pragmatism

To reiterate from chapter one, American pragmatism is a philosophy for the public, promoting action, fueled by the opportunity for change, and often working for the greater good. American pragmatism differs from other philosophies in that it is inductive and pluralistic, recognizing multiple possibilities of truths based in individual and shared experiences. Because pragmatism embraces difference and individuality, more specific definitions of American pragmatism vary. These definitions are similar, however, in their connection of theory and practice, their openness to individual experience as an informant of future theory, and their denouncement of *dogma*, or beliefs fixed by unchallenged authority (Dewey, 1916), which makes pragmatism an accepted philosophy.

American pragmatism developed from the response of European thought to the "American wilderness" upon colonization of the New World (Pratt, 2007). It is a philosophy that emerged during the fairly "new" independence of America in writings and lectures that many times began as critiques of European philosophies and social constructs. The setting for the emergence of American pragmatism is one that includes a sense of wonder and freedom inspired by the American landscape depicted in the paintings and written works of 19th century artists and poet/philosophers, such as Thomas Moran and Ralph Waldo Emerson. In addition, the setting for the emergence of American pragmatism includes a human air of confidence and power associated not only with the economic and political independence gained from British rule during the century prior, but also with the technological progressivism and resourcefulness that accompanies the onset of the industrial revolution.

West (1989) describes American pragmatism as, "a variety of creative interpretations of …power, provocation, and personality in the context of academic culture, capitalistic industrialization, and national consolidation in America" (p. 42). In this description, his recognition of cultural, economic, and political factors within American pragmatism are evident. He does not include, however, any recognition of ecological or environmental foundations. This gap of connection with the natural environment in West's philosophy is one that he himself recognizes when he writes, "One of the major lacunae in my work is the crucial ecological challenges of our time – abuse of nature, cruelty to sentient nonhumans, possible nuclear annihilation" (West, 1999bp. 421). This area of tension along with others in need of further definition is more closely examined in chapter three.

To West (2004), the major themes of American pragmatism are "evading of epistemological-centered philosophy, accenting human powers and transforming antiquated modes of social hierarchies in light of religious and/or ethical ideals" (p. 144). In other words, West places ethics at the center of philosophy rather than knowledge (Milligan, 1997). West (2004) summarizes the common denominator in American pragmatism as the use of thought to enable effective moral action against ethnocentric oppression of marginalized and excluded groups including people of color, the disabled, lesbians and gays, and the poor. Rather than a source of solutions, like Dewey (1929), West sees American pragmatism as a philosophy of praxis riding on a continuous critique of the present.

West is greatly influenced by Dewey's pragmatism respectively. This is evident in the great importance for West of the community. West's ideas are reminiscent of

Dewey's major project late in his life of culturalism, focusing on community (West, 1989, p. 107). Like Dewey (1922/1957), West's view of humanity is relational, or as being centered in relationship. These relationships begin first among family members before entering into the larger social community, where they form the social and political aspects of democracy (Hewlett & West, 1999). West, like Dewey, concentrates on process and also, like Dewey, West is "protean" and "matastable" (Yancy, 2001, p. 7). Dewey differs form West in the aesthetic connections between the imagination and the cosmos and how they are grounded in nature (Garrison, 2009). West on the other hand is grounded in the reality of humanity, in what he calls "the funk," (Imperial & Martin, 2008) while connecting with the supernatural that is recognized in religious faith. Also like Dewey (1929/1989; 1934), West emphasizes experience. To Dewey, *experience* is what happens when human beings actively participate in transactions with other humans, other natural experiences, and their environments (Garrison, 1997). Dewey (1960) sees philosophy as being overly concerned with problems of the past, "as tied up to what has been" or what is "given" and clarifies that "experience in its vital form is experimental, an effort to change the given… characterized by projection, by reaching forward into the unknown" (p. 23). West puts a greater emphasis on history but does so while simultaneously reaching forward toward the future through experience and activism. West and Dewey differ in their views of democracy. Dewey explains democracy as a pragmatic process while West views pragmatism as democracy itself (Garrison, 1997).

In the formulation of his own pragmatism, West draws from James (1890) and Emerson (1836/1959) by basing his philosophy in public life. He emulates their style of taking philosophy to the people by traveling and lecturing, and by adjusting this style to

appeal to youth and young adults by incorporating social networking and music in his attempts to reach out to people. Like his mentor Rorty (1998), West puts immense importance on critique. Like Josiah Royce (1898) and W. E. B. Du Bois (1903), West recognizes and gives a prominent place in his philosophy to the struggles of life. West turns to Du Bois as a guide in addressing issues of race and draws from Marx to incorporate social, political, and economic analysis, areas perceived as missing from the philosophies of other pragmatists (Milligan, 1997). Like Peirce's (1893) concept of *evolutionary love*, West bases his philosophy in acting for others. Through love-based action, the composition of West's prophetic pragmatism grows beyond the boundaries of any metaphor - quilt, song, or garden.

<div align="center">West's Prophetic Pragmatism</div>

West (1999b) claims, "prophetic pragmatism perspective and praxis is pragmatism at its best" (p. 186). Incorporating ideas of philosophy from pragmatists before him, West arranges them together into something different, something he sees as better at addressing the issues of the present and future. By including the notion of being prophetic, he includes the concept of being open to perceptions of a changing future while acknowledging the depths of despair of the human condition. Now, I turn to pragmatism along with two recurring foundational understandings of West's theory, the importance of *history* and *hybridity*. Because these two terms give a foundational understanding to West's philosophy of American pragmatism, they are discussed first. Examination of the concept of *prophetic* will follow them to extend West's pragmatism.

History

Placing great importance on historiography, West (1993b) states that history is too often overlooked. "We have to talk about the present as history," West says (p. 118). This can be taken as having at least two interpretations. First, to remind ourselves that 'the present is history' is to acknowledge the individual, each and every one of us, and the importance our actions. Ordinary people can and do make history in how they think, feel, act, and love (West, 1993a).

Second, by acknowledging history West (1993a) recognizes the prospective nature of our nation, yet, at the same time, sees the 'forward-looking nature of America' as having given us a limited sense of history. The common saying of 'out of sight, out of mind' applies here, precisely what the AIDS Quilt and other memorial projects work against. Perhaps this saying is also some kind of subconscious rationale for segregated schools in America in the 1950s or for the displacement of Native Americans from their homelands in the 1830s - a false ease of guilt for those who know somewhere deep inside that ethically all humans should be allowed common ground on which to stand, sit, or park their wheelchairs. A question of altruism, regarding humans making choices for the good of others, is explored in more detail in chapter three. The key point for West is that we must admit that the "most valuable sources for help, hope, and power consist of ourselves and our common history" (West, 2004, p. 6).

To give some background that West does not give (as if assuming that as Americans we should know this already), the ancestors of the majority of African Americans were taken from their home countries and brought to America during the 17th, 18th, and 19th centuries, during the European colonial period, to farm the land. Proceeds

from the agricultural production went to England until around 1776, after which American slave owners and landowners reaped the rewards of slave labor until the Civil War when slavery was abolished, so to speak. West vehemently agrees with many African Americans that in spite of civil rights movement successes, inequity is prevalent among different races in America (meaning the United States because that is where West situates his argument), especially between people of African descent and people of European descent – the black and the white. According to West (1993a), African Americans hybridized their cultures with the cultures of the Europeans in America in order to survive, which relates to West's next point.

Hybridity

West makes clear that his concept of the present is not one of replacing the past but of building upon it, in a form of hybridization. To West (1993b), history itself is a hybridization. Hybridization among people is not *integration*, or the recognition of interdependencies between separate antecedents in a sort of middle-of-the-road arrangement. Instead hybridization among humans is more similar to that which may happen in a garden, say, among *Trillum* species in a native collection. *Hybridization* is the combination of separate established entities or antecedents into something completely different from the separate antecedents (Dear & Burridge, 2005).

In a garden, hybridization is biological; it occurs when one species is pollinated by another different species of same, with the help of the wind or an insect, resulting in hybrid offspring. Among humans, hybridization is cultural, sometimes occurring voluntarily, as when teens opt to join gangs, or as when Brad Pitt married Angelina Jolie and together they became "Brangelina". Sometimes the hybridization is market-driven, as

when national franchises incorporate local family-owned and operated businesses. And, sometimes hybridization is by coercion or force, as when people are enslaved and transported to another continent. Hybridization can also occur by a combination of methods, such as in educational research (Kliebard, 1995).

It is with the concept of hybridity or hybridization that West makes sense of culture in America and elsewhere, for he understands all cultures to be hybrids. As a result of "cross-cultural fertilization, every culture is the weaving of antecedent cultures," different cultures, different hybridities, different multiculturalisms (West, 2004, p. 4), a process perceived by some in science education as contributing to the loss of cultural knowledge (Tippins, George, & Britton, 2010). To West (1999b), hybridity or hybridization is not an end, but an ongoing process that can be used to envision a future America. It is not promoting the western parent or an African replacement, but instead, promoting "critical negation, wise preservation and insurgent transformation of this hybrid lineage that protects the earth and projects a better world" (p. 315). To West, hybridization is essentially a form of pragmatism.

West uses hybridity to present the topics of race and racial issues to his audience. These topics are central to his agenda and also perceived by West as central to American society; it is through the topic of race that West views humanity in America. West (1999b) describes "the profoundly hybrid character of what we mean by 'race,' 'ethnicity' and 'nationality'" in American culture with an image of European immigrants laying down their nationalities to absorb rules for whiteness. This image, a sort of 'white-washing' of nationalities that West sees as Americanization puts questions "of dualism, hybridity and identity on an international scale " (p. 131).

In other words, the notion of *whiteness* in America is a construct of American culture. (Whiteness is understood to be an aspect of racism that exists in countries other than the US, such as South Africa and Australia - any place where people are marginalized based on their race). The notion of blackness is a construct of American culture as well, supporting the black-and-white dualism within American society that West (2004) sees as alive and well decades after the African American Civil Rights Movement. West (1993c) points out that, "without the presence of black people in America, European-Americans would not be 'white' - they would be Irish, Italians, Poles, Welsh, and other engaged in class, ethnic, and gender struggles over resources and identity" (pp. 107-108). In other words, in spite of promotions of multiculturalism, America is still considered 'the melting pot' with a blindness for European nationalities and disregard for less represented cultures but that still distinguishes between black and white.

Although hybridity or hybridization is described as a way in which nationalities can be lost, it is also a method by which aspects of cultures are saved. For example, particularly in the southern American colonies, where aspects of African religion such as drumming were banned in colonial times, other rituals such as the *ring shout* (singing and dancing in a circle) were masked through their infusion into Christian worship (Mitchem, 2007). This is a form of hybridization, a way of transporting African ways of knowing into the unknown of enslavement, that has allowed remnants of African religious culture to still be present in American culture centuries later. The masking of African religion in America also led to the emergence of *hoodoo*, a form of African folk medicine that incorporates plants and spirituality to heal illnesses among individuals and communities.

Another example of cultural hybridization can be found in the Mayan churches of Chiapas, Mexico. At first glance, the churches appear in structure to be like other Catholic churches of Latin America. Inside there are figurines of religious icons on display, but instead of representing Catholic saints, the figurines represent Mayan gods. Because the manner in which the figurines are displayed is so similar to that of Catholic churches, the similarity serves as a mask or camouflage. Through a form of hybridization, Mayans have held onto their native culture since the time of Spanish conquests in the 16th century (Chiappari, 2002). Cultural hybridization as a result of force as in these two examples is certainly not advocated but recognized as an analogy to ecological situations that result in hybridization.

West (1999b) extends hybridity politically and economically. He writes, American culture is "liberal rule combined with business-dominated status quo… a hybrid culture in combination with a collective self-definition as homogeneously Anglo-American… [that integrates] the uncertainty of the capitalist market with the quest for security of the home" (p. 145). In other words, West's view of hybridity in America occurs on multiple levels. In spite of recognizing the diversity of 'the great American melting pot,' the hybridized culture of America is perceived as capitalistic Anglo-American. Furthermore, the results of this hybridization have "yielded an indigenous mode of thought that subordinates knowledge to power, tradition to invention, instruction to provocation, community to personality and immediate problems to utopian possibilities" (West, 1999b, p. 145).

As mentioned earlier, West places ethics at the center of philosophy rather than knowledge. Ironically, West sees the power of economic materialism that he calls

'market morality' as at the center of American social life and working in opposition to ethics. Henry James' (brother of pragmatist William James) described 19th century America as a 'hotel civilization,' a hybrid of home and market, or a hybrid of security and freedom, already entranced by market morality (p. 10). West (1999b) writes, "market morality engulfs us in such a way that it is difficult to arrange our lives so that communal activity supersedes personal pursuits" (p. 17). We choose individual wants over community needs often in American society.

Thus, the process of hybridization is not always harmonious. Instead, hybridization may be the source of tension that paradoxically enables opposing entities to define each other, and, like opposing poles of magnets, even bind together. West (2004) provides several examples, such as, "evil is inseparable from freedom" (p. 217). Another example is, "one cannot deconstruct the binary oppositional logic of images of blackness without extending it to the contrary condition of blackness-whiteness itself" (West, 1999b, p. 131). In other words, to address what it means to be black in America is recognizing that a black-white dualism exists. The tension of hybridization can generate paradoxical relationships.

West recognizes that paradox created by dualistic tension can also lead to transcendence from dualism. For example, West finds paradox in the origins of the blues and blues-based jazz. "Unfree people…in America created the freest forms" of music (West, 2004, p. 216). In other words, people living in the personal aftermath of human slavery are able to create forms of music that enable others to transcend the oppression of the moment, simply by listening. The blues is "a melancholic yet melioristic interplay of freedom and limitations that identifies and confronts social misery [and]… often fall[s]

short of the mark" (West, 2002, p. 9). Jazz is "a metaphor for the middle road between invisibility and debilitating anger for black America…[an] approach to social changes between idealism and cynicism" (West, 1993b, p. 9). Jazz is a paradox of individuality and unity, a hybridity of elements attracted and repelled with a tension that transcends dualism. West (1993c) explains:

> As with a soloist in a jazz quartet, quintet or band, individuality is promoted in order to sustain and increase the *creative* tension with the group – a tension that yields higher levels of performance to achieve the aim of the collective project. This kind of critical sensibility flies in the face of any policing of borders and boundaries of "blackness," "maleness," "femaleness," or "whiteness." (p. 105)

West (2004) quotes Duke Ellington when he says, "jazz is freedom" (p. 91). The spark of inspiration to transcend the status quo of dualism that created by the improvisational, Socratic nature of jazz is *prophetic*. It is from the tension of paradoxical hybridity that propheticism emerges.

To Be Prophetic

Because it is the defining term of West's pragmatism philosophy, the meaning of the term "prophetic" requires close examination. Historically, prophets have been defined as intermediaries between humanity and the supernatural, and as such have been thought by some to have the ability to, in a sense, foretell the future as prophecy. The use of "prophetic" in defining West's pragmatism is not so much about foretelling the future as it is about embracing the future. Prophetic pragmatism, like pragmatism in general, is about embracing the past as well (West, 1999b). What separates prophetic pragmatism from pragmatism in general, though, other than the addition of the word prophetic, is

more about "embrace," the action of reaching out and the spark that ignites the urge to reach out and embrace.

Philosophy in general is about reaching out, or reaching in, or a combination of both that is the *nature* of philosophy. In the case of philosophy, however, the reaching is for wisdom, not to be confused with knowledge. West (1999b) references Dewey's definition of philosophy as "an intellectualized wish… a prophecy of the future, but one disciplined by serious thought and knowledge" (p. 41). West's philosophy of pragmatism reaches not only for wisdom but for justice. The justice he seeks is for the "wretched of the earth" (West, 1989, p. 235), or in other words, the oppressed.

West (1989) explains his philosophy: "I hold a religious conception of pragmatism. I have dubbed it 'prophetic'" (p. 233). "I use 'prophetic' in order to harken back to the rich, though flawed traditions of Judaism and Christianity that promote courageous resistance against, and relentless critiques of, injustice and social misery" (West, 1999b, p. 186), and he goes on to say, "to prophets who brought urgent and compassionate critique to bear on the evils of their day. The mark of the prophet is to speak the truth in love with courage – come what may. Prophetic pragmatism proceeds from this impulse" (West, 1999b, p. 171). The term *prophetic* varies in meaning, however. It is defined by some as having a distinct relation to time but not as a foretelling of the future (Garrison, 2009). To others (Rorty for one), *prophecy* is considered to be the same as *prediction* exerted authoritatively, commanding others to look past the present and even past hope to a future world other than this one. As these predictions do little to change the issues of the present that originally lead to looking to the future for change,

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Rorty perceives predictions as false prophecies (Stone, 2011). To West (2008), however, prophecy is hope in the present, or as he says, "hope on a tightrope" (p. 5).

Rorty (who was West's teacher) argues against linking prophecy and pragmatism. While Rorty considers Dewey a prophet, he emphasizes that "prophecy requires imagination not philosophical arguments," and that "professorial pragmatism has its place in the philosophical arena, not in offering prophetic motivation" (Gordon, 2001, p. 77). Rorty's point is that prophecy, because of its subjectivity, does not belong in the concrete realm of philosophical argument. The two (meaning philosophy and prophecy) cannot be linked logically; there is no bridge. The only way to get from one to the other, according to Rorty is by a 'leap of faith.'

West addresses this gap between the philosophy of pragmatism and prophecy by hybridizing them, by constructing a bridge of prophetic pragmatism. In order to do so, to connect the terms, he defines *prophetic* so that it may be understood objectively. West (1993a) describes four constitutive elements of propheticism (or being prophetic). These elements are: a) *discernment*, best described as the ability to provide a "broad and deep analytical grasp of the present in light of the past" (p. 3) or "determining what is meant by freedom and democracy" (p. 60); b) *human connection*, explained as "the capacity to get in contact with the anxieties and frustrations of others" (p. 5); c) *tracking hypocrisy*, enabled by a form of intellectual humility that is self-critical, not self-righteous; and d) *hope* with which "to inspire and to invigorate world-weary people" (p. 6). West (1993b) summarizes his philosophy as "pointing out hypocrisy with a sense of hope based on discernment and connection and a sense of possibility" (p. 162).

Cowan (2003) presents West's method of propheticism as told to her in a personal interview with West:

First, prophetic thinkers must identify and analyze forms of evil. They must provide deep analysis of the present in light of the past, but this historical sense must be counterbalanced by empathy and close contact with the humanity of others. In terms of tracking hypocrisy, they must draw attention to the gap between rhetoric and reality. Finally, they must keep track of hope, as without hope their work will remain reflective and sophisticated analysis, but will lack engagement in struggle. Those who hope must cling courageously to the idea that history is incomplete and that in an open-ended future their actions can make a difference. (p. 4)

Empathy is a key word because feeling, or "the capacity to get in contact with the anxieties and frustrations of others" is central to being prophetic (West, 1993a, p. 5). However, feeling must be followed by action in order to be prophetic. For example, once, while hiking I came upon some teenagers terrorizing a snake by the river. I cleared my throat to get their attention; to interrupt them, so the snake could get away. They looked at me and turned back to what they were doing. I felt for the snake, but I did not say anything. I did not stop them. I was not prophetic. I wish I had been. If I had been prophetic, I would have embraced the opportunity to help the teenagers take a different perspective, perhaps that of the snake, or to broaden their understandings of the consequences of their actions in the ecosystem.

West's description of propheticism brings to mind a circus act – a performer walking the high wire, a tight rope, not looking too far ahead or too far back but being

present in the moment, making choices of pace and stride according to the tension of the rope, responding with an adjustment of balance to outside forces that upset the balance, maintaining hope that the goal of reaching the other side will be attained, and believing that reaching that goal is an act for the greater good of humanity. West (1993a) writes, "Prophetic thought is something different than traditional academic discourse. Because it has to do with putting your life on the line… with the reassurance [and]… faith that… you will do the right thing regardless of the consequence" (p. 65). Propheticism requires *experience* that is Deweyan in nature, requiring active participation that is more than a mere superficial excitation but that instead inspires growth through relationship of this involved. In other words, experience in a Deweyan sense is transformational, resulting in broadened perspectives of one's self in relation to others. To be prophetic requires experiences that adjust our whole being. Propheticism involves *the mind* through the enacting of discernment and intellectually tracking hypocrisy, *the body* by physically connecting with others through our actions, and *the spirit* by inspiring hope among depleted souls.

Examples of Prophets and Prophetic Pragmatism in Action

West (1999b) provides four examples of prophetic thinkers that he considers prophets: M. L. King, Jr., Malcolm X, Freire, and Emerson. King is considered a compassionate prophet because of his "all-embracing moral vision facilitated alliance and coalitions across racial, gender, class, and religious lines" (West, 1993b, p. 10). Malcolm X contrastingly is named by West "the prophet of black rage [for his] commitment to black humanity at any cost" as well as his mission to illuminate and overcome the hypocrisy of American society (West, 1993c, p. 95). Freire is a prophet of social change,

bringing light to how ordinary people can and do make history in how they think, feel, act, and love (West, 1999b, p. 179). To West (and Henry James Sr. before him), Emerson is an unconscious prophet who embraces the common. In West's (1999) words, "to Emerson reason, formal thought, foundations, certainty were not only far removed from the dynamism of human experience; they also were human creations appearing as detached abstractions that command their creators and thereby constrain their creators' freedom" (p. 150).

West (1999b) describes all four prophets as *organic intellectuals,* meaning they are willing to connect with the public and reflect critically upon themselves and the larger society for the possibility of amelioration. For West, the primary characteristic of organic intellectuals is that they link the life of the mind with the sense of political engagement. "The condition of truth to emerge must be in tune with those who are undergoing social misery – socially induced forms of suffering,"(West, 1993a, p. 4). One such 'emerging truth' can be found in urban gardens that are springing up in areas of poverty, neighborhoods of income too low to supplement the costs for good nutrition at farmers markets or the transportation fee to get there. How ironic for people to raise their own vegetables and share them with others in the face of mass-market vegetable Walmart consumer culture! West considers himself an organic intellectual freedom fighter or a 'critical organic catalyst' who "points to his commonality of interest with the social group on whose behalf he acts" (Cowan, 2003, p. 115). West defines his outlook: "The quest for truth & good require us to let suffering speak, and demand social misery be put on the agenda of those with power"

(https://twitter.com/CornelWest/status/208229163885268992).

An organic intellectual is not necessarily a prophet, and a prophet is not necessarily a prophetic pragmatist. Remember, prophetic pragmatism is a hybridization and is distinct from its separate antecedents. To be a prophetic pragmatist is to promote both "the possibility of human progress and the human impossibility of paradise" (West, 1993b, p. 10). West does not even see King and Malcolm X as fully prophetic pragmatists - King because he is idealistic, and Malcolm X because he cannot see beyond the constraints of black nationalism. The four prophets West uses as examples have something else in common, though, and that is their perception of injustice or crisis. West (1984, 1991, 1993a, 1993c, 2004) actually defines prophetic thought as a perception of need for action in response to crisis. Crisis is not often a sustainable motivator for action, for it operates at a superficial level, jarring people to make temporary changes without lasting results (Mueller, 2009). Propheticism is different in that, according to West's descriptions, it is the result of a feeling from which one cannot turn away, a trigger of a deep sense of knowing that inspires deep action.

Prophetic thought and action are inseparable, for propheticism is a visceral response, a deeply physical, emotional, intellectual, and spiritual reaction to an issue. For West, the response to injustice is founded in experience, either gained firsthand or gained as an empathetic witness through the firsthand experience of someone else. To be prophetic is based on a Deweyan understanding of experience, meaning it is profound, even transformational or transcendental. West's (1999b) definition of 'intellectual' already mentioned acknowledges a willingness to be put in public view for critical reflection on self and society that could potentially lead to amelioration. Being prophetic is more than being intellectual. It is more than being willing to interact with the public, as

many politicians can be described. Instead, being prophetic is similar to how many teachers feel about teaching; it is a calling.

Milligan (1997) extends the concept of prophetic pragmatism into the classroom by considering what education would be like if teachers were realized to be prophetic pragmatists. Like West, Milligan attaches the term prophetic to the institution of *religion*, an attachment that others such as Garrison (1997; 2009) extend to *spirituality* as a more inclusive term that reaches beyond walls of churches and the rules of religion. Exploring the notion of integrating public schooling and religion in a way in which neither is trivialized, Milligan (1997) puts *ethics,* "the struggle to understand what is good and not good" at the center of education where *knowledge* usually is (p. 54). "Like West's prophet, the teacher might teach and practice the moral critique of human action, including not only social, political, and economic injustices but the ethical ramifications of subjects which are often considered "objective" — science, for instance — from the perspective of moral and ethical norms of different epistemic communities" (Milligan, 1997, p. 53). Milligan recognizes that the union of public education and religion would require looking past economic utility, what he considers to be the center of our educational focus, a perspective that connects strongly with the work of others (Orr, 1992; 1994; Garrison, 1997; 2009).

Garrison (1997) compares West and Dewey while imagining the integration of education and prophetic pragmatism. He notes that where West would center a prophetic pragmatist education on ethics, Dewey would center his approach on aesthetics. Garrison (1997) gives King's "I have a dream" speech as a prime example of poetic prophetic pragmatism for its union of the real and the ideal. Garrison (1997) explains, "Poetic teaching teaches by existentially Being, and not by express intent; it strives to convene

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creative and critical conversations in the spirit of democratic pluralism" (p. 59).

Furthermore, "the goal is to educate aesthetically creative and morally responsible

citizens; it is not to train human resources feeding the economic production function"

(Garrison, 1997, p. 59).

Garrison (2009) provides examples of teachers as prophets in the form of

prophetic *tricksters*, describing this cultural archetype as "devious shape shifters that

carry out some of the profoundest cultural work possible. They break, bend, and remold

the structures and identities… that hold a society together…Tricksters break rules, violate

laws, and rewrite regulations… Their logic is that of paradox" (p. 67). The trickster is

needed to circumvent the confines of the "standardistos" (the education rule-makers) in

order to stay true to an educator's passion for guiding the imaginations of children to a

goal of learning. Tricksters require rules to operate – rules that they break as they locate

gaps or *poros* between worlds through which we can tap into student desires by

connecting with a sense of spirituality. Garrison (2009) connects to the subject of identity

when he writes of the need for "the inclusive logic of a trickster to even begin to

comprehend the meaning of hyphenated identities (such as Mexican-American) that defy

the law of noncontradiction (A and not A is always false). Conventional logic does not

work without fixed identities" (p. 59). In other words, it is a willingness to remold

identities, such as that of the trickster prophet, that can set the stage for a paradigm shift

from the conventional logic of miseducation toward the societal change that West sees

spiritually impoverished America as needing. Garrison (2009) adds further that if

teachers do not educate in a way that taps into student desires, such as allowing a

connection to a sense of spirituality, then education is left to popular and corporate

culture. I will return to connecting prophetic pragmatism and education in chapter three. First, I will better explain propheticism by describing the willingness to change identities that is required for societal change through the following example of *prophetic witness*, a form of call and response that West sees as imperative to propheticism.

In 2002, a Haitian town leader visited a church in Georgia. The man had been sent by a Haitian non-governmental organization as a last cry for help for his town and others like it in Haiti, that are immersed in poverty with a landscape so degraded that there was little vegetation for fuel or food, no facilities for schools or health care, and a last glimmer of hope. One man in the congregation, a landscape architect considering early retirement due to economically difficult times, heard the call.

Soliciting the backing of other church members by 'passing the hat,' this one man in the congregation traveled to Haiti to see for himself. With the information he gathered, photos and stories of the struggles of the people and observations of the landscape, he returned to Georgia and presented the plan for organizing with other churches to provide aid for the people he had met in Haiti. He found financial backers in Ireland for the construction of a plant nursery in Haiti dedicated to the production of *Jatropha*, a fast growing shrub with seeds of high oil content that can be used for fuel, soap, and other necessities. The plants help hold soil in place and provide relief from the hot sun for people and food plant seedlings. In addition, the nursery provides jobs. As the organization grows today, a school has been built, along with a health care center and a community center to support these effects.

The organization continues to work with the Haitian people to examine ways of helping the people while healing the environment that can be sustained into the future.

Seeds are planted – not just Jatropha seeds but seeds of good will. Through hard work and trial and error, one good thing has grown into another. When asked how it all started, the one man in the congregation replies, "The spirit moved me." This is an example of prophetic witness. He heard a call and responded. He could not turn away from what he perceived as a crisis among people in dire need of assistance. Realizing he could not do much by himself, he spread the word and solicited the help of others, an organization was formed, and good things continue to result.

West (1993a) describes America as having a crisis of race and of poverty, different issues that are deeply connected. Smiley and West (2012) describe poverty in the "21st century-style slavery," recognition of which should serve as the impetus for "a new civil rights movement" (p. 103). The crises of race and poverty West has experienced first hand by taking his philosophy to the people, like Emerson and other prophets and organic intellectuals. West (1993a) keeps his focus on black America but notes that it is "impossible to think that the plight of black America is distinct from the plight of the nation" (p. 68), pointing out that poverty "has to do with priorities of a nation" and he goes further by explaining that, "to eliminate poverty would mean a quality labor force, walking the streets with ease, maybe even a cut back on the expansion of prisons" (p. 66).

West (1993b) connects poverty to race in America that in turn connects to other aspects of society: "Race is not a moral mistake of individuals, solely. It is a feature of institutions and structures that insure that one group of people has less access to resources, both material and intangible" (the material consisting of money, housing, food, and health care, and the intangible including self-confidence, self-esteem, self-regard, and

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self-respect) (p. 11). Poverty and race are only two examples of crisis, however; many perceive crisis in the education system, in the science classroom, in the outdoor environment, and elsewhere (Mueller, 2009). For perceptions of crisis to lead to prophetic thought and in turn to prophetic action, experience with a crisis firsthand is required.

Prophetic witness is a form of prophetic action that stems from direct experience with crisis or injustice. It the most difficult aspect of prophetic pragmatism to describe, for it involves the inspiring of an individual to reach out to others beyond one's self - to an entire society perhaps - while embracing the uncertainty of what the reaction may be. Prophetic witness can occur in as many ways as there are individuals, but it involves intentions for large-scale change. As exhibited by the actions of the one man in the congregation, "Prophetic witness consists of human deeds of justice and kindness that attend to the unjust sources of human hurt and misery" and shed light on blindness to suffering and concealed injustice, "including the evil of being indifferent to personal and institutional evil" (West, 2004, pp. 114-115). Prophetic witness inspires the development of courage to change our lives and historical circumstances (West, 2004).

The willingness to inspire social change is prophetic witness. Philosopher Hilary Putnam (2001) considers West's work "an act of 'witness' to a democratic faith" (Putnam, 2001, p. 35). As a witness to a democratic faith, West lives his work, so to speak, meaning that he puts exceptional effort into reaching out to the public so that he can witness the struggles of ordinary folk. He wants to empathetically experience perceived crises, translating prophetic thought into prophetic witness as a critical organic catalyst in the oral tradition. He travels across the country talking with people on the

street and in tent cities, giving lectures as often as possible, makes appearances on talk shows, attends protests in the name of fair treatment and justice for the poor and oppressed (and is arrested for acts of civil disobedience), records hip-hop records, and posts through social networking daily political updates and words of inspiration, reminding followers to keep faith through life's struggles. West is a witness to democratic faith as he calls for the enactment of democratic ideals - that ordinary people should be able to participate in the decision-making processes that regulate their lives and that we realize this equity by participating. West (1993a) bases his actions on a spiritually-based notion of equality that we are all created equal and that we all should have the same opportunities (p. 63). West (2004) calls for action and he responds, accordingly.

There are infinite ways in which one can hear and heed a call for action as an enactment of prophetic witness and propheticism. For James Holland, founder of the Altamaha Riverkeeper in Georgia, the call came one day that seemed like any other for the ex-marine crabber who had become used to the falling numbers of crabs in his traps and the signs of river, wetland and coastal degradation. The call came in the everyday beauty of nature.

> Like the spark of life the female blue crab carries in her orange sponge, an idea began in him. The voice of the voiceless spoke, and sitting in the rocking boat, eating a tuna sandwich, drinking warm coffee, he began to listen… To watch [the wetlands] simply vanish is a sin against God… Holland had no idea that his life was about to change permanently and that for the rest of his days he would become a voice for wild places and wild things. (Ray, 2011, p. 127)

Prophetic witness is about seizing the moment. Like drops of water that make up a literal river, the moments that we are attached to are as important as all others and have an important role in contributing to the whole (Ray, 2011).

The catalyst for action could occur anywhere or anytime that experience inspires growth, allowing the soul to transcend, enabling a connection with one's spirituality. The catalyst can even occur as a response to someone else's experience, as what happened with the one man in the congregation aforementioned. Take a work of visual art as an example. The observer of the artwork, say, of Van Gogh's "The Starry Night", is able to share the emotion of the artist through an experience of observation. It is as if the emotion of the moment that was experienced by the artist while painting is suspended in time, allowing the observer to experience that moment as well, transcending the experience of everyday (Dewey, 1936). Art allows people to, for a few moments, enjoy the immersion of themselves into a different reality. The experience spreads through association, like a ripple in water, and if conditions allow, all involved - meaning the artist, the crabber, the musician, the quilter, the gardener, the preacher, the scientist, and the teacher – inspire experience among others who are present in the moment (Dewey, 1934). Experience is an essential component of prophetic thought, witness, and action and can potentially be inspired in any context or moment.

To West, hip hop is a union of prophetic thought, witness, and action for it is created through propheticism and can in turn inspire it in others. Drawing on the history of African American music, West (1999b) recognizes that spirituals, gospel, blues, and jazz have contributed to the reestablishment of a sense of self among African-Americans after the uprooting of slavery:

Afro-American music is first and foremost, though not exclusively or universally, a countercultural practice with deep roots in modes of religious transcendence and political opposition. Therefore it is seductive to rootless and alienated young people disenchanted with existential meaninglessness… and dissatisfied with the status quo. (p. 474)

West (2004) "challenge[s] youth to be self-critical rather than self-indulgent" (p. 184), calling on them "to keep alive prophetic thought and action in our time" through the contemporary music genre of hip-hop (West, 1993a, p. x). "Prophetic hip-hop is precious soil in which the seeds of democratic individuality, community, and society can sprout" (West, 2004, p. 185).

West's hip hop recordings consist of various compositions of jazz and spoken word, including *Street Knowledge* (2005), *Call and Response* (2008), and *Never Forget: A Journey of Revelations* (2007), a recording on which West is joined by BMWMB (an acronym for "Black Men Who Mean Business") in reference to various contributors including Prince (or the Artist formerly known as Prince). West is also a guest contributor on the album *The Shape of Hip Hop to Come* (2011) by "the Cornel West theory", a hip hop group that has adopted themselves as 'the grandchildren of Dr. West' basing their lyrics and actions on his philosophy of intellectually reaching out to the public in response to injustice – certain evidence that his seed of prophetic pragmatism has been sown.

<u>The Love Ethic</u>

West's philosophy of prophetic pragmatism, including hip hop music, is centered on ethics. More specifically, at the heart of West's prophetic pragmatism is *the love ethic*,

a theory borrowed from Dr. Martin Luther King, Jr. West's use of the love ethic is, like King's, based in the idea that through love we can promote societal change. According to social critic bell hooks, prophetic witness King based his love ethic in Christianity but developed it through Mahatma Gandhi's teachings of non-violence and the framework for love as a principle of life, rather than merely a sentiment, promoted by Erich Fromm in his book *The Art of Loving* (http://www.mindful.org/the-mindful-society/activism/surrendered-to-love-martin-luther-king's-legacy). Fromm (1956) presents love as an ability that is taught and developed beginning with self-love and basic elements of care, responsibility, respect, and knowledge. Building on this framework, King in 1958 writes of how Gandhi's "Satyagraha" (referring to the truth that can be found in the force of love) was significant in illuminating the possibilities of love for social reform and collective transform on a scale beyond interactions among individuals (King, 2000).

> The intellectual and moral satisfaction that I failed to gain from the utilitarianism of Bentham and Mill, the revolutionary methods of Marx and Lenin, the social-contracts theory of Hobbes, the "back to nature" optimism of Rousseau, the superman philosophy of Nietzsche, I found in the nonviolent resistance philosophy of Gandhi. I came to feel that this was the only morally and practically sound method open to oppressed people in their struggle for freedom. (King, 2000, p. 478)

West (1993b) writes that King was too idealistic to be pragmatic, but the love ethic extends beyond boundaries of idealism. Furthermore it extends beyond boundaries of religion. Smiley and West (2012) quote the Dalai Lama as recognizing that all major

religious traditions carry a similar message - love. hooks (1994) adds that to love is action that serves as a practice for freedom, for by choosing love, we choose to live in community, moving away from oppression and toward freedom.

West's application of the love ethic is explained in this section by first describing the state of *nihilism* that he perceives as pervading America. Next, Peirce's theory of *evolutionary love* is described as holding a foundational place in American pragmatism. An introduction to West's idea of *the politics of conversion* follows with an attempt to explain the progression of love.

Nihilism: A Disease of the Soul - and the Need for the Love Ethic

As mentioned earlier, prophetic action has its roots in the perception of crisis. West considers American public life in general to be in a state of crisis and deterioration. The crisis of public life stems from other crises, such as poverty and racial issues that have culminated into a state of nihilism, described by West (1993c) as "*the lived experience of coping with a horrifying meaninglessness, hopelessness, and (most important) lovelessness* [emphasis in original]" (p. 14). It is a state of deep and paralyzing despair, "the imposing of closure on the human organism, intentionally, by that organism itself " (West, 1993b, p. 102). Nihilism is an issue of the individual, of communities, and of society.

West's recognition of lovelessness as the defining characteristic of nihilism has connected West's work with that of Nietzsche (Gilyard, 2008). West's philosophy is based on his widespread perception of nihilism, underlain by a drive for racial equality. The identification of "lovelessness" actually sets up a hierarchy between love and lovelessness, attaching a preconceived vision of equality and an emotional value-laden

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understanding of inequality. Therefore a dualism is established (that of love and lovelessness) in the mission of dissolving another dualism (blackness and whiteness). There is a tension associated with love and lovelessness that drives the dualism of black and white, or other perceived inequalities, racial or otherwise (West, 1989; West, 1993c; Gilyard, 2008).

West (1991) recognizes the state of nihilism as requiring urgent attention, calling it a "disease of the soul" (p. 223). West (1993b) sees both cause and effect of nihilism in shattered families, schools, and civic organizations, a breakdown of the nurturing system for children that has left "rootless, dangling people with little link to the supportive networks – family, friends, school - that sustain some sense of purpose in life" (West, 1993c, p. 5). Our children are missing what West calls the "cultural armor" to make it through the struggles of life. These "cultural structures of meaning and feeling that created and sustained communities… [that] embodied values of service and sacrifice, love and care, discipline and excellence" are missing in American culture today (West, 1993c, p. 15).

To West (1993c; 2004), our state of lovelessness is the result of the rampant emergence of market morality and market religion from the authoritarianism of a racist and patriarchal capitalist society. Youth are "falling prey to a culture of consumption. A culture that promotes addiction to stimulation… A culture obsessed with consuming as the only way of preserving some vitality of a self…a market culture that promotes a market morality" (West, 1993a, pp. 16-17). In other words, as Garrison (2009) says, when we as parents and teachers do not guide the desires of youth, we allow the market culture to guide them instead. We allow the Disney Channel to mold their view of the

world or Nintendo to model their approach to challenges while weakening their understandings of non-market values like love, justice, and community. The result is "a cold-hearted and mean spirited disposition toward the world" (West, 1993b, p. 150).

As a remedy to the rampant spiritual impoverishment in America, West (1993a) prescribes love. Love is the answer: love in relationships, political causes, and community. West calls for a 'spiritual awakening' associated with a rejuvenation of public life (Cowan, 2003) that focuses on the common good of the 'public square' [or the commons], the vitality of which "depends on how much we *care* about the quality of our lives together [emphasis in original]" (West, 1993c, p. 6), an idea that connects with ecojustice philosophy (Bowers, 2001; Mueller & Bentley, 2009).

Evolutionary Love

West (1993a) describes both agapism and evolutionary love as irreducible to market culture in the struggle to rejuvenate public life and fill the void of lovelessness. In his theory of *evolutionary love*, Peirce (1935) recognizes love as the basis of one of three modes of evolutionary reality or reasoning: tychasm, based in chance; anancasm, based in mechanical necessity; and agapasm, based in instinct and embodied in the law of love. Seeing Darwin's theory of evolution as being governed mostly by chance and overlain with a human perspective of greed, Peirce (1932) develops his own theory of evolution based on a continuum among human sentiment, scientific method, and logic and perpetuated through "hope in the unlimited continuance of intellectual activity" (p. 655). In other words, Peirce's evolutionary theory recognizes emotion-driven actions as working in conjunction with the rationality of logic in describing human intelligence.

Peirce (1893) termed his evolution continuum "evolutionary love" and saw it as based in acting for others, such as a friend or neighbor, or "one whom we live near, not locally perhaps, but in life and feeling" (p. 177). Peirce (1893) believes "growth comes only from love" and the "ardent impulse to fulfill another's highest impulse" (p. 177), proclaiming "the great evolutionary agency of the universe to be Love" (p. 176).

West "believes that love prompts other values such as civility, respect, integrity, and accountability that if practically implemented can collectively contribute to the restoration of America's fragmented community" (Cowan, 2003, p. 128). West (1993c) writes, "the love ethic has "nothing to do with sentimental feelings and tribal connections… [It is] rather a last attempt at generating a sense of agency among a downtrodden people" (p. 19). It is the ability to overcome invisibility through self-love and to transcend race through love of others. As what happens when people work together to care for a garden, "West's love ethic encourages people to turn from self-centeredness to interconnection" (Cowan, 2003, p. 139). Therefore West's love ethic is about establishing community.

Politics of Conversion

To establish a community involves conversion, or a change of perspective, a conversion of how one sees the world. West's *politics of conversion* "emphasizes recognition of self-love as well as commonality and love of others" (Cowan, 2003, p. 6). The politics of conversion enables the movement of love from self to others through relationship. It is understood that some level of self-love is required before one can care deeply for others. This is thought to begin at birth with a parent-child bond, considered to be the strongest of human attachments (West 1999b, p. 338). Thus, for West, love is both

an emotion and an action that is modeled by parents to children and passed along as a common thread that intertwines self, others, and society, converting perspectives, establishing community bonds, and encouraging democratic ideals.

The love ethic as a tenet for societal reform is idealistic in some aspects, and because of this it is paradoxical. The love ethic is idealistic because the image of joining fragmented communities through our actions for others assumes that love exists in the first place. If the situation is loveless, if there is no self-love, then West's love ethic may actually require community to get it started. Like the spark that is required for fire, or the seed required for the plant, self-love requires the love of someone to get it started. However, political theorist Cowan (2003) acknowledges that many people "have been told repeatedly that they are somehow less than human, [and] their minds, bodies, and souls have been colonized by self-hatred. Decolonization comes only through the 'conversion' that affirms one's humanity" (p. 137). In other words, the conversion that is needed for decolonization from self-hatred requires self-love, and unfortunately, there are situations in which love seems non-existent, say in abusive domestic settings, to give one example. In order to pass love along to others, we must first love ourselves. Too little self-love is prominent on West's (1993c) list of crises. Therefore, calling for love where there is none is idealistic – it is not impossible however.

In addition to being idealistic, the love ethic applied on a societal scale (rather than merely among individuals) can be seen as a paradox. This is mainly because the love ethic entails the action of applying love to a political goal, more specifically to achieve democracy, a combination that for many of us is difficult to fathom. Tensions "come into play when the vague and universal language of love is translated into concrete policy

proposals" (Cowan, 2003, p. 6). Yet it is from tension, such as that between the abstract and the concrete, that love can originate. In other words, it is often in a sense of the tragic that the need for love begins – the tragic, or the struggle, drives the need for love. Yet, the perpetuation of love, say in the form of care for those in need, often *requires* a sense of the tragic, meaning we show our love for others when it is needed – an expression that diminishes when it is not needed. Thus, the existence of the tragic perpetuates the application of the love ethic as a healing force for the tragic. It is cyclical and a paradox, but essential. When all else fails we still have the choice to love – to reach out to others, to embrace uncertainty. This is particularly important to acknowledge in times of perceived nihilism as West sees America in today. As Fromm and King both recognized before West, to love is a choice, and it must begin with the individual. To West (1999a), love is the aim and action of liberation for the oppressed. Rather than concrete proposals, what West "offers by way of an agenda for change is the call to love each other" (Cowan, 2003, p. 166). Poet Elizabeth Alexander (2009) asks, "What if the mightiest word is love?" (p. 20). West believes that it is, calling for us to choose love as an act of radical democracy, a concept that will be introduced in the following section.

<div align="center">Radical Democracy</div>

Along with the love ethic, *radical democracy* is an integral part of West's vision for our nation. Radical democracy is viewed by West to be prophetic pragmatism in action. In order to introduce the concept of radical democracy, this section begins with an overview of the condition of *American democracy* as perceived by West. An examination of what it means *to be radical* follows, and an introduction to the notion of *engaged citizenship* as we move toward *freedom* concludes this section. These concepts play a role

in understanding radical democracy as a form of action and will be defined in further detail in chapter four.

American Democracy

As members of a democratic society, it can be assumed that many Americans understand what it means to be democratic. However, West (1999b) states that, "There is a deeply troubling deterioration of democratic powers in America today" (p. 2). West (2004) writes, "The problems plaguing our democracy are not only the ones of disaffection and disillusionment. The greatest threats come in the form of the rise of three dominating, antidemocratic dogmas" (p. 3). The first of these is the dogma of free-market fundamentalism that positions the unregulated market as an idol, "as if freedom were reducible to simply having material toys" (West, 2004, p. 5). The second is the dogma of aggressive militarism that "in practice…takes the form of unilateral intervention, colonial invasion, and armed occupation abroad," a practice that is mirrored on the domestic front (West, 2004, p. 5). Third, is the dogma of authoritarianism that is rooted in distrust of one another and the fear of the general public having too much freedom and gaining power. Authoritarian power is enforced by market-driven media that has all but taken the place of political dialogue incorporating "the kind of questioning, compassion, and hope needed for any democratic experiment" (West, 2004, p. 7). In other words, politicians with 'big bucks' are able to monopolize the media, leaving the voices and needs of the people of our 'democracy' unheard.

In order to understand the present condition of American democracy and envision democracy beyond dogma, West looks to important figures in America's history for insight. From Thomas Jefferson, West (2004) gains an understanding of the

"irreducibility of individuality with participatory communities" (p. 174). (In other words, one may and should maintain one's individuality and still be an integral part of a community.) Like Emerson, West (2004) recognizes "heroic action of ordinary people in a world of radical contingency" (p. 174) (meaning radical democracy can and does happen among the general public in everyday situations). Similar to Lincoln, West (2004) "wrestles with a deep sense of evil that fuels a struggle for justice" (p. 175). (In other words, evil is perceived as responsible for sparking resistance and triggering crisis-like conditions when trying to hold onto democratic ideals.) Like Dewey, West (1993b) grounds his writing in an understanding that "democratic practices are themselves deeply rooted in precisely the nuanced historical sense, the subtle social analysis, and the self-correction and self-critical process of never blocking the road to inquiry" (p. 123). (Democracy is fluid and changes/grows with societal changes.) West's (1993a) own contribution to defining democracy, as with his development of prophetic pragmatism, is the inclusion of a sense of the tragic. Through recognizing the tragic, one can attempt "to keep alive a sense of possibility, a sense of agency, a sense of hope and a sense of resistance in a moment of defeat, disillusionment, and discouragement" (p. 32). Democracy according to West, thus, begins with the individual, adapts to societal changes yet stands firm with resistance to oppressive power, and embraces the tragic as a necessary aspect of life, all for the betterment of the community.

To be Radical

To West, *radical* denotes a democracy of action, a deeper and more profound political way of being, a willingness to venture outside of the norm for the common good. Democracy that is radical is similar to pragmatism that is prophetic; 'radical' and

'prophetic' serve the same purpose. According to West, living in the "democratic" society of America is not necessarily living democratically. As West (2004) quotes Walt Whitman from his 1871 work *Democratic Vistas*, we have yet to be realize democracy in America:

> We have frequently printed the word Democracy, yet I cannot too often repeat that it is a word the real gist of which stills sleeps…It is a great word, whose history, I suppose, remains unwritten, because that history has yet to be enacted. (p. 1)

As a mode toward realizing democracy, West suggests enacting the 'radical iconoclasm of Socrates' through "*parrhesia* – frank and fearless speech – that is the lifeblood of any democracy… rooted in a ferocious scrutiny of the lived experience of the demos" (West, 2004, pp. 209-210). The *recognition* of *parrhesia* and the protection of it are built into the concept of American democracy through the Bill of Rights and the right to free speech. However, the *enactment* of *parrhesia* is required for radical democracy. West (2004) acknowledges Emerson for recognizing that every citizen must aspire to questioning, such as that engaged in by Socrates, in the transformation of mobs to democratic societies. Likewise, West (2004) states, "We must out-Socratize Socrates" to establish a democracy that is "rooted in the guttural cries and silent tears of oppressed people" (p. 213). The "aim of Socratic questioning is *paideia* – the cultivation of an active, informed citizenry" (West, 2004, p. 41).

Engaged Citizenship

At the time of the signing of the Declaration of Independence, Benjamin Franklin warns of the British despotism potentially looming on the horizon for the future of

America without *engaged citizenship* (West, 2004). West's definition of engaging as a citizen includes questioning the government and engaging in society to promote change with a sense that good and evil are intertwined **(**Merlino, 2011). Engaged citizenship is the enactment of loving our country enough to help change it, to "reimagine and remake it" (West, 1999b, p. 332). Enacting reform is to be radical, and West sees love as the driving force for such action. "Democracy, Americans understand, depends upon *demophilia*, love of the people" [italics in original] (West, 1993b, p. 12). Through the love of others, solidarity is established to resist systems of power and anti-democratic dogma so that we can move toward *freedom* (West, 1993c; 1999b; 2004). Democracy is about freedom.

We each have our own vision of freedom. To Duke Ellington, freedom is found in jazz. To West (1999b, 2004) freedom is found in justice for the oppressed. To me, freedom is found in nature. Remaking American democracy requires struggles for freedom in the form of radical democracy. It requires binding together in communities and organizations to bring pressure on the status quo but doing so without losing our individualities. By recognizing our human commonalities of love and struggle, we can see past the perceived freedom of market-oriented material gain to a more foundational idea of freedom based in non-market values - the freedom from want and worry that can be found in love and community.

<u>Summary</u>

To summarize so we can put the ideas presented here together, history is important to West and to American pragmatism in general. If not, how would we know where we have been and how we should proceed toward our goals? "Thus prophetic

pragmatism looks both backwards and forwards: it recognizes past difficulty and struggle and yet clings to a sense of utopian possibility" (Cowan, 2003, p. 48). Generally speaking, through a lens of American pragmatism, we salute our past, take the bad with the good, and move on melioristically.

Hybridity or hybridization is also important to West. West's perspective is founded in the predicament of being a human, specifically recognizing the marginalized, oppressed, and all who struggle. Hybridization is important in this recognition because it explains how we have overcome struggles in the past and therefore sheds light on how we may go about doing so in the future. These understandings support the love ethic as a force of continuity, providing hope in place of fear and driving radical democracy toward the realization of freedom.

The idea of propheticism is important and examined closely in this section because it is a defining term separating West's prophetic pragmatism from American pragmatism in general. Being prophetic is very much about "heeding the call" – hearing a call for help, feeling the spark of ability and confidence, and not turning away but following through for the sake of others. Prophetic pragmatism is about the response of an individual, who unable to stand complacent in the face of injustice intelligently takes action for the betterment of society. It is about prophetic witness. Prophetic witness refers to something that West believes is innate in all of us as a commonality of humanity and an essential aspect of the love ethic. West also believes that each of us knows struggle and has the ability to love. Because of these commonalities, he is able to connect the call of need with the action of response. The idea behind prophetic pragmatism is that through love, we can work past struggle to enable change. The commonality of the love ethic

allows prophetic pragmatism to be true for all people of all time. Prophetic pragmatism by definition is flexible, allowing for individuality and autonomy while promoting commonality – a paradox.

Prophetic pragmatism in action can take various forms: the establishment of a sustainable nursery; the formation of a river organization; the organization of an occupation protest; the construction of a nation's memorial quilt (now of 48,000 panels and weighing 54 tons); the emergence of an improvisational song; or the transformation of a schoolyard into a garden. Regardless of the form it takes, regardless of the metaphor that may used to begin to describe it (although through prophetic pragmatism action grows past any metaphor), prophetic pragmatism is a spark ignited by love leading to the fluid and dynamic composition of relational experiences from which grows change toward freedom.

> Out here in the garden too much of this suffering and pain out here
>
> but to transfigure that pain and suffering into some joy
>
> so we can cry and have some source for struggle
>
> Serious political struggle predicated on broad vision
>
> And that's what we're really after.
>
> West, 2000

CHAPTER 3

A CRITIQUE WEST'S PROPHETIC PRAGMATISM

Introduction

In chapter two, I examined major literary works of Cornel West with the purpose of explaining his philosophy of prophetic pragmatism. We now understand how prophetic pragmatism differs from classical American pragmatism in general and contributes to contemporary theories of pragmatism. In addition, readers should see how West's love ethic is central to his philosophy and how prophetic pragmatism "in action" is envisioned with radical democracy. West asks us to experience daily life through prophetic pragmatism, to participate in the decisions of society and to create actions that allow for voices of self and others to be heard.

In chapter three, I examine areas of West's work that are in need of further development to better enable the application of his philosophy across a broader spectrum of issues, specific to science education, withstanding racial issues in modern day America. The areas to be examined in chapter three are located within West's love ethic, in his overemphasis on crisis, and in his lack of extension from humanity to the natural environment. Further developing these areas allow for West's philosophy to be extended through the works of others in chapter four.

A characteristic of prophetic pragmatism that is very important for science education, as well as for science and for education in general, is the focus that is placed on embracing uncertainty thinking. It is this aspect of prophetic pragmatism, the aspect of

embracing uncertainty that drives the melioristic climb from the tragic. While West concentrates on racial issues and more recently on poverty, he also acknowledges the need to extend his philosophy to issues such as ecological degradation, which I will do in this chapter and the next. Moreover, West's prophetic pragmatism will be applied to the implementation of school gardens as a hybridized medium for both learning science and youth action for social and environmental justice in chapter four.

<p style="text-align:center">How to Get to Love from Lovelessness</p>

West (1999b) recognizes a commonality for humanity that exists in the emotion of love and proposes the love ethic as the solution to social issues. More specifically, West (1993a; 1993b; 1993c; 2004) perceives public life in America to be in constant states of crises. He often equates crisis with the extensive circumstances and history of slavery and resulting racial issues but also includes other forms of oppression, such as rampant poverty and inequities based on gender or disability. The resulting situation that West paints is one of widespread anger, despair, and hate among those experiencing oppression. West describes America's crisis state as nihilistic, as nothing more than "*horrifying meaninglessness, hopelessness, and (most important) lovelessness* [emphasis in original]" (West, 1993c, p. 14). How do we go about moving from lovelessness to love, or from anger and hate to love? The situation that West describes and his proposed solution beg several questions. Addressing the nature of these questions requires a closer look at love.

First and foremost is West's use of love in general. Cowan (2003) points out a potential disjunction of applying an emotion, namely love, to a situation of social and political crisis to be transformational in the project of striving for justice. Cowan (2003)

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notes, "West's talk of love fails to acknowledge moral proximity and the idea that we feel greater emotional regard for those closer to our immediate lives" and asks, "Can we really love in the abstract, or must there be an explicit connection to a specific person in a specific location?" (p. 133). Cowan (2003) justifies her questions by writing, "it is reasonable to demand that West tell us more about how to enact this love ethic, particularly given the dearth of precedents for it in American life that make it hard to visualize how the politics of conversion might work in practice" (p. 168). There is an area of tension in West's love ethic regarding its precedence and practical application within American society.

Ancient Greek philosophers recognized three essential forms of love - *eros*, *agape*, and *philia* – yet, West does not specify the type of love he envisions for his love ethic. West (1989; 1993a, 1993b; 1993c; 2004) firmly connects prophetic pragmatism with Christianity (although he does not limit the connections to one religion) by highlighting the Christian foundations of the giving of self for others, in service or self-sacrifice. West (1993b) writes, "To be a Christian is fundamentally to live a certain kind of life, to live a sacrificial life, a love-informed life, a life of care and a life of giving" (p. 231). (It is important to note that West (2004) delineates between ideals of Christianity and how it is often played out in society when he writes, "the dominant forms of Christian fundamentalism are a threat to the tolerance and openness necessary for sustaining any democracy" (p. 146).) Sacrificial love "which asks for nothing in return" defines *agape* in comparison to *philia*, or the love between friends, and *eros*, or "love of beauty or romantic love aiming to possess" (Orr, 1994, p. 142).

Furthermore, West (1989) draws from Peirce's evolutionary love, one aspect of which is *agapasm*, or the instinctual aspects of what humans recognize as love. Peirce argues for an evolutionary philosophy that stems from the belief that "growth comes only from love" and the "ardent impulse to fulfill another's highest impulse, " or in other words, to give of self for others (Peirce, 1893, p. 177). "Philosophy," he writes, "when just escaping from its golden pupa-skin, mythology, proclaimed the great evolutionary agency of the universe to be Love" (Peirce, 1893, p. 176). West (1989) credits Peirce's incorporation of agape as being influential in his love ethic.

Gilyard and Putnam see West's love differently, however. West presents his love ethic as a response to the racial issues of America, and thus, Putnam (2001), more specifically, links West's love ethic to the antislavery movement of the transcendental times of the mid 19th century. Antislavery during that time period was seen as a new religion: "an education in universal brotherly love to which all dogmas were secondary" (Putnam, 2001, p. 21). Brotherly love falls into the philia category rather than self-sacrificial agape. Gilyard (2008) echoes Putnam when he recognizes West's love ethic as a political love "that affords a dignity premised upon equality" (p. 43). West (1993b) himself makes links to philia when he writes that Americans understand that "democracy… depends upon *demophilia*, love of the people" [italics in original] (p. 12). Eros is present in West's love ethic as well. West (1999b) defines eros as "Dionysian energy that overflows beyond the rational" (p. 413), allowing momentary escape of the body, or in other words, enabling transcendence. Energies of empowerment are enabled through eros that West (1999b) considers to be "indispensable for struggle because they also become forces for hope in a situation in which there is not a lot of hope" (p. 413).

These energies are foundational to propheticism and to radical actions made in the promotion of democracy. The key point is that West's love ethic exhibits all three historically recognized types of love: agape, philia, and eros. By not being specific to one type of love, West's love ethic transcends divisions and serves to unify the separate types into one simple understanding of love as a positive energy.

Education reformer and environmentalist David Orr (1994) also acknowledges the movement of love beyond the boundaries of agape, eros, and philia. He (1994) recognizes the role love plays in progressing toward the "new kind of religion" that is needed in America to urge humans to more deeply consider nonhuman species and the natural environment on which we all depend (p. 207). As Orr (1994) sees it, only a religion-like movement will have the power and momentum to overcome the generally accepted greed and promotion of Euro-western views to see why natural environments should be shared in common (e.g., Hardin 1968). Orr's vision is beyond that of the "religion of possibility" based on "faith in the genius of ordinary men and women" that Unger and West (1998) see as existing in America as demophilia (p. 11). Orr, like West sees America to be in a state of crises, but for Orr the main crisis is ecological and this is due to an educational crisis (Orr, 1992; Orr, 1994; Mitchell & Mueller, 2010). The new kind of religion or love comprised ethic that Orr suggests is based heavily in Wilson's biophilia hypothesis. Orr sees *biophilia*, or the human innate affinity for life, as an expansion of the self-interested urge of eros with the self-sacrifice of agape. Orr's point is particularly important to this project, because through biophilia, West's love ethic can be extended in such a manner that answers the question of how to move to love from lovelessness.

<u>The Biophilia Hypothesis</u>

Realizing West's love ethic is largely based on admitting that the "most valuable sources for help, hope, and power consist of ourselves and our common history" (West, 1993c, p. 6). This point is also well supported by Wilson's (1984) biophilia hypothesis although not identified by West as contributing to his theory. The biophilia hypothesis is the notion that humans have an innate affinity for life, a philosophical association that is genetically (or biologically) situated and culturally inspired, beginning in human evolution. Accompanying Wilson's hypothesis are the following assumptions: a) biophilia is inherent and biologically based; b) it is part of our species' evolutionary heritage; c) it is associated with human genetic fitness; d) it is likely to increase the possibility of personal fulfillment; and, e) it is the basis for a human ethic of care and conservation of nature (Kellert & Wilson, 1993).

In other words, in our subconscious, we still realize that an affiliation with and subsequent care for nature promotes the perpetuity of human survival through the provisions of needs such as food and shelter. As long as humans are included as part of the category of 'nature,' West's love ethic can draw a heightened clarity from the connections made through the tenets of biophilia hypothesis. Morrison (1999) adds that aspects of human cultural evolution, such as altruism and community have promoted the survival and success of our species. These human qualities are aspects of social development that fit right within West's humanity-centered philosophy. Although West does not venture into making the interdependent connections among humans and other species, he does not restrict these connections from being made either, as a manifestation of his theory.

Premising West's love ethic with biophilia moves the concept of love beyond being considered only as an emotion to being acknowledged as an innate human animal characteristic, a point that potentially extends Peirce's evolutionary love and his recognition of instinct in a way in which West did not. Cowan's (2003) question of how to apply an emotion to a society is answered when love is seen as a innately human species characteristic. The question of how to move from lovelessness to love is answered within this understanding of West's love ethic. Because biophilia is an evolutionary characteristic promoting human species survival, it is well within each of us, albeit within some of us it lays dormant or ignored. Although they recognize the 'ability to love' within each of us, Hewlett and West (1999) say the love that an individual shares with others is also dependent on the love and care shown to that individual beginning at birth.

Let me explain further. Orr (1994) provides examples of what biophilia as a new religion, as a revolution, entails. First, an admission of failure is required:

> the failure of our economics which became disconnected from life; the failure of our politics which lost sight of the moral roots of our commonwealth: the failure of our science which lost sight of the essential wholeness of things; and the failures of all of us as moral beings who allowed these things to happen because we did not love deeply enough and intelligently enough. (p. 431)

This is followed, according to Orr (1994), by a new covenant with animals, policies that allow life-centeredness at a local scale, a patriotism that is redefined to include nature, and a love of God that is reminded to include creation, meaning a view of religion that

extends beyond humanity and the boundaries of institution to include nature rather than seeing nature as outside of religion.

On the level of the individual, Orr (1994) writes that a biophilic revolution is nurtured by enabling love to grow from agape, a process that involves several realizations. These realizations include the capacity for the growth of love to begin early and require the participation of Elders and mentors. It requires places of freedom where love can take root and grow while being supported by community. Growing love requires the recognition of its qualities, such as patience, kindness, and humility (or in other words, it requires the recognition of non-market or consumeristic values). It also requires the realization of limitations and thus a realization of scale, which is an aspect of love where Orr obviously differs from West. Finally, to enable love to grow from eros to agape, according to Orr (1994), requires understanding love as a practice of art and the "ability to say no to things that diminish the object of love or our capacity to work artfully" (p. 144). In this way, West's love ethic can be seen as recognizing each of us as an artist of love.

<u>Crisis as an Area of Tension</u>

Although the words of Wilson and Orr show how biophilia can serve as a pathway to love for humanity, let us return to lovelessness for the consideration of the next area in need of further definition in West's prophetic pragmatism - the question of crisis. As stated previously, West sees America in crisis, in a state of nihilism, due in part to America's history of slavery and continuing racial inequality, in addition to our country's huge economic divide between the haves and the have-nots. Thus, West's philosophy is premised upon a goal of achieving equality, which is at the forefront of his

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philosophy. Yet, Gilyard (2008) points out that "to achieve equality would intensify [the] nihilism" perceived by West, for in achieving equality, we add definition to inequality (pp. 43-44). This scenario depicts a conundrum, a "catch twenty-two" of sorts in which the effect of the issue drives the cause. To better understand the problem I am pointing to in West's philosophy created by perceived crisis, we examine more closely the crisis of nihilism that is based in a love-lovelessness dualism.

Gilyard (2008) acknowledges that West draws from Nietzsche in defining nihilism. To Nietzsche (1887), nihilism is the rejection of self and the world due to a lack of *will to power*, or the drive to succeed. West calls this lovelessness. Yet, nihilism is prevalent and necessary in the development of culture, for even the topic of God is nihilistic. Nietzsche (1887) writes that the desire of "mystical union with God is nothing other than the Buddhist's desire to sink himself in nirvana, " or dissolve into nothingness (p. 166). Thus to Nietzsche, to achieve a union with God is to reach a state that is void of want or need and accepting of nothingness. Although Nietzsche's nothingness and West's lovelessness are similar, Nietzsche sees a continuum associated with nothingness whereas West does not portray lovelessness as less than absolute. To Nietzsche, although nothingness is an absence of the will to power, it is also an ultimate goal.

This continuum is recognized in the work of other philosophers, such as in Hegel's (1807/1977) master-slave dialectic, as an example of how continuum can be realized by working through dualism. In this example, Hegel creates a scenario in which two beings meet, first, seeing the other only as an object, and then recognizing the consciousness of each other in a manner of self-realization. They commence in a struggle to the death for freedom from the other only to find that without the other there is no self

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from whom to request and receive freedom. Thus, a contradictive and hierarchical duality results in unity through a realization that self is defined by other.

West reinforces this dualism. He draws from Kierkegaard in seeing redemption in Christianity (Gilyard, 2008). Kierkegaard (1847/1998) presents understanding within spirituality gained through the Christian faith that 'God is love'. This understanding potentially fills the void at the center of West's concept of nihilism, for West also describes nihilism as a state of spiritual impoverishment. However, rather than accepting the absence of love or spirituality as an aspect of the continuum, when looked upon dualistically lovelessness is cast out as undesired. Gilyard (2008) notes that this is where West's nihilism differs from that of Nietzsche - Nietzsche recognizes a continuum between God and nothingness, West's nihilism sets up a dualistic hierarchy between love and lovelessness without providing a vision for their connection. West broadens the chasm of dualism by considering lovelessness a crisis.

Nietzsche (1887) notes that a dualism encourages the struggle for the desired over the not desired, similar to Hegel's master-slave dialectic, leading to the cultivation of the type of values that drive the struggle in the first place. In other words, dualisms perpetuate themselves, as in a futile cycle of sorts. Dualisms also perpetuate other dualisms to which they are connected, such as how the dualism of love and lovelessness in West's work is connected to the dualism of equality and inequality, the dualism of self and other, or to the dualisms that West perceives as prevalent in America of black and white and have and have-not.

Nietzsche's (1887) philosophy presents nihilism as potentially active or passive, correlating to an increased or decreased power of spirit in the short-term but resulting in

ambiguity in the longer term. When applying this spectrum to the racial issue of a black and white dualism in America, we are able to better understand the ambiguity involved in West's work. Taking an African American perspective of black and white, active nihilism chips away at whiteness. Passive nihilism, on the other hand, renders black reactive to white that resides on a pedestal of sorts, at the center. Active nihilism is self-affirmation through domination of other, and passive nihilism is a form of self-sacrifice or asceticism. Regardless, the approach is still based in dualism, which for West is the dualism of black and white (Gilyard, 2008).

Dualisms create tensions that illuminate our limitations. Therefore, tensions drive culture. Nietzsche (1887) exemplifies the cultural drive of tension in his recognition that nihilism is a driver of culture for it drives the desire for change. It is within the process of moving toward the desired over the not desired, within the struggle for the peace of freedom from the binds of tension, where the philosophies of West and Nietzsche meet again, for although West describes an America in crisis, it is evident in his (1989; 1993c; 1999b; 2004) work that the most important piece of the struggle created by the tension of dualism is the struggle itself.

Struggle has been incorporated in the literary works of philosophers throughout history. West, like Royce, Kierkegaard, Nietzsche, Schopenhauer, and Buddha recognize the importance of struggle or suffering in the process of life. For example, Buddha is considered a pragmatist, basing his philosophy in the practicality of existence. To elaborate further, the Four Noble Truths of Buddhism include the truth of suffering, the cause of suffering, the cessation of suffering, and the eightfold path to cessation of suffering (Abelsen, 1993). In order to reach peace in a profound sense, or the peace of

freedom, one must break the cycle of suffering. The first step in breaking this cycle is acceptance of suffering, ultimately reducing the heightened awareness of tension.

The importance of suffering is clear and prevalent in West's philosophy, including an understanding that the realization of suffering is a step toward enlightenment within the human condition. In fact, West (1989) openly critiques American pragmatists such as Dewey for not acknowledging suffering. However, the dualism of love and lovelessness established by West through the crisis of nihilism implies that there is something to conquer, and that there is an undesirable other, thus creating a gap in a holistic sense of self-realization. West does not perceive lovelessness as Nietzsche sees nothingness, namely, as surrender, as an aspect of life along a continuum, or as an embrace of uncertainty such as that which is experienced in union with God. Similarly, West does not perceive the tension of nihilism as necessary in formation of values, ethics, and culture as Nietzsche. Instead West sees nihilism as a crisis prima facie.

Crisis is reflected in the tone of West's writing. His words express a heightened awareness of oppression due to the extended effects of inequities in society. West (2004) writes:

> families bereft of resources and communities devoid of webs of care yield thin cultural armor against the demons of despair, dread, and disappointment. Nihilistic criminal thugs step into the void and rule a brutal underground economy and frightened community, and timid black leaders offer no energizing vision to perishing people. (p. 26)

He adds that the crisis is not confined to black America but instead is a widespread despair among many people within our society, a claim that he supports with

observations from his currently ongoing Poverty Manifesto tour with Tavis Smiley (Smiley & West, 2012).

West's oft militant-esque language, such as his reference to "cultural armor" in the above quote supports his tone of crisis. West (1999b) writes that the effects of the prophetic love of justice are "ethical witness (including maybe martyrdom for some), moral consistency, and political activism – all crucial elements of our democratic armor for the fight against corrupt elite power" (p. 215). In addition, West frequently refers to *combative spirituality*, a "long-term, action-based hope in the name of justice" (2004, p. 184), promoting "community and communion that preserves meaning by fighting against bombardments of claims that we are inferior" (1999b, p. 110). Even the title of his 2004 book embodies the urgency of crisis apparent in the Western mindset; *Democracy Matters: Winning the Fight Against Imperialism* is not necessarily a choice of words that promotes a vision of peace and love.

It has been written that the biggest error made in promoting change is not creating a high enough sense of urgency among enough people (Kotter, 2008). In addition, emotion, especially fear, serves as a motivator for action (Lopes, 1987). "Even when we are motivated by hope, the key emotion that inspires us to act with a sense of urgency is our fear of losing an opportunity [to achieve a hoped-for goal]" (Kroeger, 2004, p. 5). Furthermore, motivation for action is often based in identity, sensitive to and dynamically constructed in subconscious and situational cues and context (Oyserman, 2009). This means that cues that are triggered by fear elicit particular responses, and these cues are often based in maintaining one's sense of security of self through identity.

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West grabs our attention with words depicting a sense of urgency regarding a perceived crisis, such as widespread poverty or race-based inequalities, triggering empathetic responses in the reader that potentially drive actions (at least in theory). Indeed, urgency has repeatedly been shown to provide results in moving people toward change or at least toward awareness of a need for change, such as in the example of the documentary film *An Inconvenient Truth* (Bender, Burns, & David, 2006) about Al Gore's campaign to raise awareness about global warming. Painting an emotion-laden picture of despair, West spurs us to act through self-reflection and empathy for the oppressed. With not as much of a fear of future loss as a feeling of lamentation for what is already gone, West urges us to question our moralities as individuals, communities, and a society. How can we treat human beings in any manner other than the way in which we ourselves would like to be treated? A century and a half after the abolishment of slavery, we are in disbelief and denial that we are still not free. West provides compelling visions of how, if we band together in love, things will begin to right themselves.

To speak or write in a manner that is not peaceful, does not model peacefulness, and as Cowan (2003) points out, West's call for the love ethic should include an outline of how to enact it, describing West as "a provocateur whose strength lies in wrenching hearts and troubling the nation's conscience rather than strategizing" (p. 168). However, West's "combative" word choice is intentional. West is urging us to stand up and bear witness; he wants us to realize that fighting for justice, instead of being politely and quietly tolerant, is actually a form of love. Being polite and tolerant has its place but it is not necessarily a form of propheticism. The connection that West makes between love

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and the fight for justice introduces the type of changes in perspective that are inherent in pragmatism and that make prophetic pragmatism prophetic.

West's militant language provides guidance on how to rise out of despair through the empowerment of speaking out for justice, yet his own words remain stuck in crisis. Although West links to the spiritual realm by acknowledging the power of love and linking his understanding to the self-sacrificial love of Christianity, he does not forget the earthly frailty of what it is to be human. West writes that "love – a risk-ridden affirmation of the distinct humanity of others that, at its best, holds despair at bay" (1999b, p. 187). In other words, West recognizes that love is not a magic word. Connecting with others, and even God and justice, through love today, does not alleviate the responsibility of making the same choice, or taking the same action, tomorrow. West theorizes about how to transcend crisis, but it is an individual choice to do so. The difference in Kierkegaard's proclamation that "God is love" and West's love ethic is that the former considers love to be a noun and the latter recognizes that also "Love is a verb" (Covey, 1989).

By combining the philosophies of Nietzsche and Kierkegaard, we are given a different perspective and can begin to see the relationship of love and lovelessness, and interpretation of West's love ethic as a continuum rather than a dualism. Through Nietzsche's work we are able to see dualism as a small component within a larger scale picture of the continuum; we can see that the tension of dualism has its place in the realization of the continuum. With a perspective of continuum, dualism can take on a new role of being a pluralistic and more dynamic perspective rather than the battle between diametrically opposing forces, an acknowledgement of sameness rather than difference. Within a perspective of continuum, the declaration of crisis creates trouble in the logic of

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moving from lovelessness to love. In other words, when considering West's love ethic, to declare crisis is to lack the faith that is required for the perpetuation of love. For West, fear, such as that associated with crisis, is an opposing force of love (West, 2004). *Crisis* is the wedge creating the chasm of dualism; *crisis* establishes the hierarchy between two that sets dualistic inequality into motion. Yet, *crisis* also impinges on tension that urges growth by calling for our reflection on our ideals and actions in relation. Thus crisis is a productive proclamation.

West is not the only philosopher who uses crisis to trigger change. A main limitation of Orr's (1992) theory of ecological literacy is that it is premised on ecological or environmental *crisis*. Orr illuminates aspects of human misuse of natural resources and environmental degradation to urge changes in the priorities of the American education system. The idea of environmental crisis is a human creation, for it is situated in a human-scaled conception of time, a mere fraction of the time of the Earth. In addition, given the uncertain nature of the future (it is uncertain because we for the most part cannot foretell the future; we can only create hypotheses and predictions based on understandings of the past and present), predictions of catastrophe have limited credibility. Yet, the fear of catastrophic loss of nature, of massive flood or fire, and of subsequent human pain, suffering, and death tomorrow and for generations into the future is used to drive changes in actions today. Species other than human are also utilized to drive change, such as the endangered giant panda or the African elephant that serve as "poster children" for awareness movements that play on human emotion to inspire localized choices (often the choice of giving money) with the goal of global change.

There is the absence of enactment, similar to that recognized by Cowan (2003) in regards to enacting the emotion of love on a political scale.

My point is that the use of crisis only goes so far. We can scientifically explain the reasoning surrounding the choice, but we, in the end, leave the choice itself up to something outside of science. As a consumer, I can choose to bring my own bag with the intent of saving trees and reducing the air and water pollution of paper mill and the bag manufacturer, but other than trying to convince others to do so also, my choice, driven my preferences and desires, has limits. Beyond that, I can only have faith that others will make the same choice and that the trees will remain uncut so that the pollution will be lessened. Orr (1994) recognizes this paradox with using the crisis proclamation when he calls for a biophilic revolution of new religion proportions, as does West when he preaches the love ethic, yet they both still emphasize crisis to inspire change.

Crisis as a Limited Catalyst for Change

The trouble with crisis thinking is not only about using fear or coercion to inspire love, for the case has been made that it is from the paradox of tension or struggle of opposing forces (as fear and love are considered to be by West) that the creative urge for change can potentially arise. Instead, the real problem of crisis, in a prophetic pragmatism sense, is the result of a lack of melioristic change. This disparity results because crisis operates in the physical realm of market values (or heightened awareness of consumerism). The desired changes of paradox are deeper than the physical realm of paper bags or trees or even the body of human who is making the choices. Rather, the desired changes reside in the more metaphysical realm of nonmarket values, namely, in the realm of ethics and morals.

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Mueller (2009) notes that the use of crisis, particularly the ecological crisis, is not necessarily the best motivator for change, at least not for sustainable change in science education. Instead of inspiring a change of actions that benefits self and others for the longer term, or that inspires the growth of spirit through reaching out to others in a time of need, crisis can actually lead to people turning away. Like a turtle draws back into its shell with the instinct of danger, people tend to seek security in times of perceived crisis. This example is in line with Sobel's (1996) acknowledgement that as educators and parents we need to give children time to get to know the natural world and guidance while doing so before asking them to save it.

An example of a positive motivator for change that is more sustainable and fosters a heightened awareness of environmental impact of human actions on a local scale is the planting of milkweed in a school butterfly garden. Children observe first hand the arrival of monarchs to lay their eggs on the host plant, the caterpillars that follow eating the milkweed, and perhaps even the next generation of monarchs emerging from chrysalises. Connections are made through care leading to reciprocal relationships, emphasizing nonmarket or non-consumptive values in a manner that supports an understanding of the "butterfly effect" of our actions. Our actions are not isolated but instead have effects that in turn with time, are also actions with effects and so on.

Saying that the Earth is "in crisis" or that America is "in crisis" has a short-term, superficial influence, regardless of whether one is referring to the state of the natural environment, the education system, or society in general. The difference between short-term responses and longer-term influences is much like the difference between saying and doing. In other words, the difference is similar to that of seeing and hearing mere

words with little meaning, similar to what occurs in the traditional science classroom, and the deeper, more meaningful understanding of scientific processes that occurs as growth is observed firsthand through experiences in the school garden. When people recognize conditions of the geography and ecology of where they live and go to school aligned with this ecology, they participate more fully in decision-making. The results are a difference between life experiences that are potentially transformational and merely going through the motions in a manner that is *status quo*. "Crisis" creates the conditions for stagnated growth of individuals, communities, and societies.

<div align="center">The Tensions of Ecological Connections</div>

West's philosophy of prophetic pragmatism is centered in humanity. He considers the wellbeing of humans from many angles, including economically, politically, and even spiritually. West's platform for social change has been centered on race since its inception; more recently it includes the issue of widespread poverty that he connects to the persistent issue of racial inequality in America. In spite of centering on race, though, West has been criticized for failing to explain what he means by race. Mills (2001) writes, "West's treatment of race is inadequate" (p. 215). "In spite of West being known as the Black intellectual talking about race, there is no full analysis; white supremacy is mentioned throughout but not described," adding that there is a need to confront white perceptions of racial issues (Mills, 2001, p. 216). In other words, it could be said that Mills sees West's argument as one-sided and lacking depth.

So, what does race have to do with the tension that West has left in connecting with ecology? Racial issues are considered by some to be a metaphor for the inequality of opportunity, oppression in general, or *the other*, "as the other than self, the other that

opposes self-identity," in the sense that one's lowest self is enabled to dominate one's higher self (Kearney, 1995, p. 168) As race has had an intense representation in more recent American history, the mention of "racial issue" brings to mind, for those who were children in the 1960s and 70s, fearful memories of rioting associated with the integration of schools. For others it may trigger the a feeling of uncertainty in regards to government authority as a result of the verdicts of acquittal that were issued for the police officers charged in the unjust beating of Rodney King in 1991. For still others it is reminiscent of the wrongful murder of Trayvon Martin in 2012, the assailant of whom went uncharged for a seemingly unsolicited shooting at close range. America has a prominent history of oppression, and although inequality and injustice are claimed to occur for other reasons, such as gender and economic status, race as a reason for oppression prevails in America.

Another metaphor for oppression, or *the other*, is the zombie (Moreman & Rushton, 2011). Yes, the zombie. The zombie is a walking paradox, for it is literally "the walking dead". Driven by an insatiable hunger, zombies unintelligibly search for others to dominate and consume, soullessly caring for nothing or no one. We are often like the zombie inside, dead-like but undead. We are like the zombie in two ways. One, we numbly allow our higher selves to be consumed by our lowest selves. In this manner, we are the oppressed while also being the oppressors of our own selves. Two, we uncontrollably consume others outside of our selves, in acts of oppression, such as in acts that express racial inequality. The zombie could be based in gender or economic status instead of in race and still hold the same metaphorical reasoning. Likewise, the zombie could be considered to represent the market morality of modern America. Regardless of

the context of the zombie, it is out of our control, yet it is within us. Let me explain this metaphor further.

The notion of the zombie stems from the "invasion literature" of 1871-1914, a genre that includes military fiction as well as historical horror fiction about beings of different identities, such as vampires, manmade inventions turned monster, and zombies. The genre is said to have come about as a response from fears of retaliatory invasions of foreign forces after colonization. The zombie is used as a metaphor for colonization, reflecting the mixing of cultures that occurred as military and travel technologies enabled globalization (Affeldt, 2011). It is said that invasion literature mirrors the cultural loss experienced by those being colonized or invaded, and serves to vent fears of payback invasions. For example, the victim of a zombie's bite loses one's own identity by becoming a zombie one's self, driven by an insatiable appetite for human flesh that is passed along through biting. The loss of the body (as in loss of the flesh as it is eaten) is said to represent the loss of land that occurs with invasion and colonization. This is another form of identity loss that goes beyond loss of the physical to strike a feeling as if one's soul has been stolen.

Solastalgia is a term that recognizes the sense of the loss of one's soul, similar to a feeling of homelessness, that is experienced upon the loss or transformation of a loved environment, and similar to a sense of mourning for one's native land. The existence of the condition is pairs with the acknowledgement of *soliphilia,* or the love and responsibility that one feels for a place (Albrecht, 2006). The condition is based on research showing that the mind suffers in a changing environment, results that support connections between healthy minds and time spent in healthy natural environments. The

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concept of an *ecological unconscious* is a notion that presents an understanding of the individual mind as existing in integration with the surrounding environment. For example, some findings are exemplified by the indifference and despair of Aboriginal Australians following recent years of mining aluminum from open pits that has interrupted the route of the ancient and sacred practice of the walkabout (Smith, 2010).

There is much documentation of the importance of natural environments in the development of *identity*. One definition is: "Identity, in practice, is a way of being in the world, a layering of events and interpretations that inform one another and are produced from our participation in communal practices of lived experience" (Wenger, 1998). West (1993b) says, "identity is about bodies, land, labor, and instruments of production. It's about the distribution of resources" (p. 165). Identity is also about minds, and there is a great deal of psychological and philosophical research based in understanding the development of the sense of self as an aspect of identity, particularly in the role that the natural environment plays in the development of self.

Heidegger's (1962) theory of the self includes the authentic, or owned self, and the self that is influenced by the collective others of one's context, or the *they-self*. Another way of looking at the difference of selves is as the self and the other, or the true self and the ego. Rajneesh (1988) writes that our first awareness upon birth is *the other*. We learn what we are by learning what we are not, reflecting society in a manner that defines the ego. Beyond the ego is the true self or the soul or spirit. Extending from Heidegger's concept of they-self, the research of Santostefano (2008) sees each individual as a holistic organization of self and environment, the *nature-self*. Thus, a person who has a greater sense of being at "one with nature" has a more *integrated*

nature-self, or in other words, a hybridized sense of self that has developed with and by incorporating outdoor nature.

A similar extension can be made to West's recognition of each of us having an individual self and a community self; our *community-self* is an aspect of our they-self. *Communitization* (rather than colonization) is not a forced invasion but a hybridization enabled by the love ethic in which the origins remain distinct from the combination of integrated origins. In other words, the entity that is a community is a hybridization of comprised they-selves or integrated community.

Orr (2004) writes that western culture has not nurtured the human spirit and that this has led to a dominance of the analytical mind; an absence of care for the body (symbolically and literally); and an overall imbalance among mind, body, and spirit. Plumwood (2003) supports Orr's perception of imbalance by arguing that the increase of environmental degradation and the domineering attitude toward nature is due to Descartes' philosophy of a dualistic mind and body. Louv (2005) provides statistics of physical and mental ailments among American youth due to lack of contact with nature. There is a great deal of support for the need to restore a balance among humans and the natural world and doing so would incorporate the realization of the role that nature and community largely play in the development of self.

Leopold's (1949) land ethic makes evident that his sense of community-self includes the surrounding ecosystems of the natural environment. "The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land" (p. 242). "In short, a land ethic changes the role of Homo sapiens from conqueror of the land-community to plain member and citizen of it. It implies

respect for his fellow-members, and also respect for the community as such" (Leopold, 1949, p. 244). West (2004) advises that our "most valuable sources for help, hope, and power consist of ourselves and our common history" (p. 6). By adopting or adapting Leopold's land ethic, we are given a common denominator to work with when recognizing samenesses, the commonality of connection to the land.

There is no greater commonality than recognizing our (meaning all humans) connection to land and rest of natural world. This is because we share elements. We share life with other living creatures, but we share elements with everything. Life cannot exist without the non-living aspects of ecosystems, such as water and air. We, humans, thus must also have an affinity toward nonliving components of an ecosystem. As living beings, we are composed of *water* that hydrates our cells and plasma; of *air* that fills our lungs before refreshing our tissues and organs with oxygen; of *earth* in the form of nutrition that provides amino acids for the formation of our physical being; and of *fire*, from the sun and otherwise, that drives the food chain, weather and climate, and human innovation. Extending from Aristotle (384-322 BC), humans share elements with the rest of world. Physically, we are composed of Earth.

While Wilson attributes human evolutionary success to biophilia, Morrison (1999) provides support for another reason - the formation of communities. Through genetically connected cultural behaviors, such as longer-term pair bonding in marriage and altruism within tribes, human communities have provided protection for our slow-maturing species. Altruism, not only among humans but extending to nonhuman species is necessary for human survival in an uncertain future of diminishing wild places. Because of this, teaching ecological connectedness is also our responsibility. The

understanding that humans need other humans and other species, as well as nature itself for survival is not difficult to realize once one understands that food comes from nature before the grocery store.

Communication, collaboration, design of tools, and imagination of nonexistent events and circumstances enabled our ancestors to migrate and prosper. Equally importantly, Morrison (1999) identifies a fifth factor: "We are obsessive mysticizers... It provides the clever neurochemistry that allows us to disengage the rational brain enough to the point that we can fall in love, pray to our gods, sacrifice our lives, and commit genocide" (p. 90). This factor of mysticism, or spirituality, has empowered us to expand, prosper and fool ourselves into thinking we are removed and greater than the processes of the Earth. Spirituality is our Excalibur, and language is its jeweled sheath, manifesting itself in culture, disguised by our genes through emotion and altruism and acting as a tool of self-manipulation, both essential to our survival and the source of our demise. Emotion signifies the conflict of genetic imperatives, such as morality and instinct; spirituality comes to our rescue in these times with "Love, Honesty, Truth, Justice, Loyalty, and Family Values" (p. 226). In this manner, spirituality actually saves humans from the reality of lived conditions or historical precedence. We guard ourselves from reality through progressivism, or the idea that we are not prone to making historical mistakes or "going back".

West (1993a; 1993b; 1993c; 2004) urges us to connect with others and to (re)establish bonds of community. In addition, West (2004) applies the concepts of *space*, *place*, and *face* to the African American predicament he describes: "Is death the only black space (home), place (roots), and face (name) safe from white supremacy?" (p. 106).

West's use of *space* is not to be confused with place, as is evident in the aforementioned quote. Space can be defined as follows: "Since ancient times in India, space has been understood not as a static entity framed by material objects, but rather as something that can be perceived only by moving through it" (Pandya, 2005, p. 20). Through this description, moving through space is understood as an event or a process, thus allowing the concept of space to be understood as having the added dimension (when compared to place) of the present. This is helpful in visualizing the process-orientation of prophetic pragmatism. Additionally, *face* speaks to the continuous processes of identity formation and hybridization that happen through transactive experience with one's environment (including humans and everything else) (Dewey, 1916).

Orr (2006a) explores the importance in education of *place*, a concept that refers to a constitution of an environment with associated experiences. Having a *sense of place* separates temporary residents from more permanent dwellers, who become rooted in a particular place with knowledge, care and love. Historically, dwellers are good neighbors and psychologically healthy due the development of mind with natural environment. They contrast sharply with the modern day "cult of homelessness" -- wanderers -- resulting from the "unraveling of community structure and ecological integrity" (Orr 1992, p. 131). Orr (2006b) emphasizes that relations with particular places are not an endeavor of humans alone, and that although a lifetime of schooling is irrelevant to what is required to live well on the land, school is a significant place to start. These relations with place develop by no other means than time spent in the natural environment.

Summary

For the purpose of summarizing, I ask what is the connection between race and the ecological problem inherent within West's prophetic pragmatism? Racial issues in America are geographically linked in more ways than one. It follows that they are linked ecologically as well (Gruenewald, 2003). First of all, racial issues in America emanate from a feeling of oppression, a connection that is understandable given the history of slavery that most African Americans share as a commonality when discovering how their ancestors came to this country. This history is not exclusive to African Americans, but instead realized more fully as the condition of modern American life. To not acknowledge the sense of loss or homesickness for one's homeland, that remains apparent centuries after the African slave trade or decades after moving to the city for work, is to admit complacency regarding history, humanity, and life in general.

Our American history involves the dispossession of land from tribal communities. This occurred not only for African Americans whose ancestors were taken from their native homelands, but also among Native Americans who were forced from their homelands by European settlers. These are grand scale examples. Dispossession happens to a smaller extent often in our modern times as well—think consumerism, such as, for example, when farmers lose the land their families have nurtured for generations. It happens when families or individuals are forced to move as land is purchased and cleared for the construction of housing developments and megastores. The dispossession of land has been documented in a condition called solastalgia (Albrecht, 2006).

Nature, the land, our natural environment is part of the make up of our identity. Not realizing this is to not realize our selves, literally. Most of us do not know our selves.

We instead continue like zombies on a pathway of consumption. Loving life, or biophilia is embedded in our genetic makeup; it is the basis of our cultural evolution and has determined human biological evolution. Community, along with altruism and even spirituality, are important aspects of human evolution, when recognized not in dualism but as a continuum of experiences that help us to navigate the unknown. In addition to calling for our recognition of commonalities, such as those that are discovered (along with differences) upon community formation, West (1993a) urges us to "never [lose] sight of the humanity of others" (p. 5). Aspects of humanity, those that make us human, are integral in the ecological communities that we form and reform through love.

Formation of ecological communities will work to heal our feelings of solastalgia and homelessness, giving us a sense of belonging and ownership. Without a sense of connection with one's place, reciprocal relationships of care of that place are often lacking. One's place is not always (or usually) the pastoral setting that Leopold describes. For instance, Bullard (1990; 1994) and, Stone and Barlow (2005) give accounts of low-income neighborhoods that are the places of closest proximity to toxic waste dumps (environmental justice issues) and how these situations are found to be connected through issues of injustice based in race in poverty. These accounts mark the intersection of social justice and environmental justice and bridge West's humanistic prophetic pragmatism to our ecological foundations through awareness of oppression and injustice due to otherness.

This bridge between society and ecology can be made through action gardening. By applying West's philosophy to the work of gardening outdoors at school, prophetic pragmatism amended with biophilia can serve as a catalyst for establishing relationships

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among facets of life not previously understood as relational, increasing the integrity of equitable relationships among humans, and extending that integrity to nonhumans. The result can be an integrated socio-ecological understanding of community that sees connections among social and environmental wellness and injustice.

Based in the connections made in chapter three regarding the importance that community plays in establishing a sense of self and realizing the physical, genetic, and elemental relationships that humans share with nonhuman species and the rest of the Earth, we now turn to chapter four to establish a theory of action gardening for science education. In order to develop a theory for action gardening, I first make apparent the firm historical foundation of school gardening and its promotion of growth among students and in communities. This is followed by a section defining action, providing a deep description through examples and experiences of its application in different facets of science education. The third major section of chapter four describes how enabling school gardening can lead to action for others that is radically democratic – the major claim of the theory of action gardening - a progression that follows the movement from love to radical democracy that is presented through West's prophetic pragmatism. In this manner West's philosophy serves as a model for envisioning the physical, mental, and spiritual growth among students and communities that can occur at school through incorporating gardening in a manner that promotes radically democratic action. Let us now examine a theory for action gardening as it is presented in chapter four.

CHAPTER 4

PROPHETIC PRAGMATISM AS ACTION GARDENING: TRANSFORMING

PHILOSOPHICAL THEORY INTO SCIENCE EDUCATION PRACTICE

<u>Introduction</u>

In chapter three, I examined areas within Cornel West's work, namely, his assumption that love can stem from lovelessness, his prevailing insistence upon the presence of crisis, and his self-recognized lacuna in extending his philosophy beyond the social boundaries of humanity to the natural environment. Further, illumination of these three areas was intended to modify West's philosophy, broadening the scope to include visions not possible before. With an amended image of West's philosophy, chapter four extends prophetic pragmatism into the field of science education through the context of school gardening. In this chapter, I first present a history of school gardening along with an analysis of gardening metaphors. Next, I connect experiences in the garden to various expressions of action in science education. I then extend these connections to West's version of action, radical democracy.

West's philosophy of prophetic pragmatism serves as support for my central claim that *school gardening should be incorporated in science education to cultivate action and to provide practice for decision-making*. More specifically, I am claiming that growth in the garden leads to *action-for-others*. I base this claim not only on West's philosophy of prophetic pragmatism but also on the grounded praxis of everyday life in the garden - a process of growth, building on the past for a better future. Moreover, a

school garden is a context for the development of care for other living beings that coincides with an empowered sense of self that extends into the community. In the context of school gardening, issues within the community become apparent as a result of a heightened awareness of others, and taking action toward the resolution of these issues follows through the practice of decision-making and democratic agency. Support for this claim can be found in the theory of action gardening.

Action gardening is a theory that translates Cornel West's (1989; 1993a; 1993b; 1993c; 1999; 2004) philosophy of prophetic pragmatism into science education practice. Building on the strong history of gardening in America and in school science, action gardening connects with commonalities of humanity, namely, non-market values, such as care and love, to highlight the continuity and process that is educative growth of the individual and the community. Relationships of care that are established in the school garden lead to actions for others. These actions can in turn lead to transformational change for all of society.

<u>Roadmap</u>

This chapter chronicles a history of school gardening in American education, highlighting the role of the garden at Dewey's University of Chicago Laboratory School. A brief introduction to the use of metaphors in education will be presented, followed by a section on the metaphorical use of the term growth by Dewey and how it relates to the school garden. The literal and figurative uses of growth serve as a model for the manner in which the term garden is used in the remainder of the chapter. This is followed by a section that begins a description of a theory for action gardening. As a visualization of prophetic pragmatism in practice, the theory of action gardening starts with love of self

and others that can be manifested in reciprocal relationships of care in the garden. I theorize that love and care can extend into action for others and potentially into radical democracy, a form of action that is of societal scale. The term action is defined and claims regarding its inclusion in various areas of science education are justified and described with evidence. Next, radical democracy as a form of prophetic action and goal of prophetic pragmatism is defined and described through the justification of claims regarding its place in science education. The description developed through the presentation of examples of radical democracy serves to provide an image for the potential enactment of action gardening theory.

<u>Roots: The History of School Gardening in Education</u>

The idea of gardening at school is not new and has deep roots in America's historical connections with the land. *Gardening*, meaning the intentional cultivation and management of plants, has different purposes - for food, medicine, wildlife, or ornament - and has been an aspect of American life since pre-Columbian times. In fact, America's story as a nation includes its "discovery" by westerners as explorers searched for new routes for the expansion of the spice trade. Once Europeans began arriving, their lives became stories of struggle. Settlers learned how to survive in a new environment of different climate, plants, and animals. This story continued as people migrated west across the country's diverse landscape. With the freedom associated with open space came different agrarian challenges associated with the land. Gardening is deeply part of human cultural history, whether larger scale agriculture, small family plots, or the management of entire regions, such as the setting of prairie fires to encourage grass

regeneration for bison grazing. Many of these practices were learned from indigenous peoples.

In terms of educational practice over the ages, gardening is an important part of the history of schooling as well. In Europe, the idea of school gardens dates back to the 16th and 17th centuries in Italy where botanical gardens, common in cities, were extended to schools (Subramaniam, 2002). In the 18th century France, Rousseau (1762/1979) developed his philosophy on social reform and recommended school gardens to support his theory of learning through education in nature. Rousseau perceived man to be most free to develop a sense of self (Boyd, 1911). In 1869, Austrian law mandated a garden in every school leading to a count of over 18,000 gardens in Austria and Hungary by 1898 and over 100,000 in Europe by 1905 (Dunnigan, 1999). In the mid 19th century in Switzerland, Fröebel coined the term *kindergarten*, literally meaning "children's garden" in reference to the methods he had developed for the education of young children, including singing, dancing, and gardening along with "free work" (Liebschner, 1992). A similar concept of "work," or purposeful child-driven activity that enables a closeness with nature, particularly in the adolescent years, is central to the Montessori pedagogy that was also developed in early 20th century Italy (Standing, 1957). While aspects of school gardening exist in cultures all over the world, there is no doubt that these roots of European school gardening helped to establish the garden movements among schools in the United States.

For example, in America, connections were made between the land and education through the garden. Benjamin Franklin (1749), the founder of the American Association for the Advancement of Science and early American elementary science education,

established the first schools, which included course work in agriculture and gardening. The Transcendentalist movement of the mid 19th century inspired the establishment of primary and college preparatory schools on farms where students paid their tuition and board through work in gardens and stables (Delano, 2004). The First Morrill Act in 1862 was passed as response to the intense unrest of the Civil War. Officially titled "An Act Donating Public Lands to the Several States and Territories which may provide Colleges for the Benefit of Agriculture and the Mechanic Arts," the act granted federal land to states for the purposes of education (Duemer, 2007; Key, 1996).

Overlapping this time period, the American Industrial Revolution (1820-1870) brought many changes, such as the railroad, electricity, coal-powered factories of machines for manufacturing, and a shift in the way that people desired to live. New jobs in city factories spurred mass relocation of people from farming communities to urban centers. America changed from an agrarian society to a national market system of mechanization. The times included lifestyle revolution, and some Americans struggled to cling to the old ways while others fought to forge new ones, all with an "American" sense of empowerment for standing up for individual beliefs. Industrial agriculture made sense.

In the midst of all of this, "transformative nature study" became a fashionable pastime in Europe reflecting Queen Victoria's (1837-1901) interest in botanical history. It was not long before the aristocratic "hobby" made it to America. Its arrival, combined with the efforts of recovery from the Civil War, the separation of the general public from the American landscape to work in the city, and the establishment of places for higher learning on gifted federal land, set the stage for the onset of "American Nature Study" (Bailey, 1909).

<u>Nature Study and School Gardens</u>

The introduction of Nature Study in the late 1800s (Armitage, 2009; McComas, 2008) came at a time of romanticizing nature, partly influenced by Rousseau's philosophy, and partly because of the movement of people from the country to the cities during this time period. Ideas of nature preservation and conservation were becoming more prevalent as people realized that they were losing their association with the land. For example, natural history columns became common in newspapers with advertisements such as this: "Nature cared for, and nature uncared for: The result upon the hearts of men" (Lockyear, 1879). This sentiment is reflected as a reason for Nature Study -- not only teaching for learning but "to teach it for loving" (Comstock, 1911, p. x).

An observed loss of "practical knowledge" of nature and agriculture with the first generation city dwellers triggered President Theodore Roosevelt's 1908 establishment of the Commission on Country Life and the appointment of Cornell University horticulture professor, Liberty Hyde Bailey as the Commission's chair. The purpose of the commission was to revitalize country living by encouraging people to stay "on the farm" (Bailey, 1909; Kohlstedt, 2010) or to promote a return to an agrarian lifestyle through education of the general public and also the establishment of a nationalized extension service (Armitage, 2009). Bailey's colleague, Anna Comstock, developed a curriculum for Nature Study, dubbed *Handbook of Nature Study* (1911) and headed up teacher training sessions for its implementation into public schools (Kohlstedt, 2010). (Incidentally, the emphasis on Nature Study continues at Cornell University with citizen science projects, including the Christmas Bird Count, which has been active since 1900.) Nature Study was put into practice in schools around the country, including Dewey's

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Laboratory School at the University of Chicago an example that will be presented in detail later in this chapter (Harms & DePencier, 1996).

In the *Handbook of Nature Study* curriculum, Comstock (1911) defines Nature Study as consisting of, "simple, truthful observations that may, like beads on a string, finally be threaded upon the understanding and thus be held together as a logical and harmonious whole" (p. 1). For each lesson, the handbook included a leading thought, a description of methods, and a guide for observations. Topics of study included taxonomic groupings of birds, fishes, trees, and collections of lessons on garden plants and cultivated crop plants. The design of the Nature Study curriculum was to promote learning about nature while in the environment, promoting the slogan coined by Nature Study forerunner paleontologist and glaciologist Louis Agassiz (1885/2004), who encouraged students to study nature, not books.

Nature Study corresponded with the school gardening movement of 1890-1920, and curricular materials like Comstock's *Handbook* and Annie Engell's *Outlines in Nature Study and History: A Text-book for Pupils in Elementary School [1900]*. These books assisted teachers in guiding students' learning in the garden. Jewell (1906) reported that Nature Study could be found in almost every large city, and encouraged students to study the plant, the animal, the soil, themselves, and other citizens. Consequently, school gardens were found in cities and rural areas alike. They epitomized a unified vision of theory and practice and the integration of school and society. These ideas were foundational understandings in progressive education of the times, encouraged by projects such as Dewey's Lab School and normal schools throughout the country (Kohlstedt, 2008). The school gardening movement lasted through World War I but

gradually lost momentum as the novelty among teachers and their students wore off, ironically when gardening at school seemed too similar to the work done at home (Kohlstedt, 2008). In the years following World War I, organized sponsorship of the gardens waned, in spite of the establishment of the National War Garden Commission in 1917 and United States School Garden Army that shortly followed (Lawson, 2005).

School gardens, and the incorporation of Nature Study as a method for learning science diminished as the more systematic but rote methods for learning science indoors were introduced. Interestingly, there are still remnants of the original intent of the nature study movement in national conceptions of science education. For example, the National Association of Biology Teachers (NABT) "believes that biology teachers should foster a respect for life" (BSCS, 2002, p. T19). The school gardening movement of 1890-1920 reflected this impetus as Kohlstedt (2008) notes that school gardens during that time period were as much about learning about nature as they were a moral uplift.

This observation is echoed by Marye (1933) in her account of school gardens in the Atlanta area that were constructed not only with the purpose of teaching science but also for conserving and supplying both food and morale in the years of the Great Depression. She writes, "The school gardens are laboratories. Here the children experiment, test soils, learn the needs of different plants, how to improve drainage, etc. – all with the basic idea of having each child carry back to his own home the desire to build a garden" (Marye, 1933, p. 433). School gardens in Atlanta served as nurseries for seedlings that were transplanted to more than 15,000 home gardens in 1931-1932, a service Marye (1933) calls the "pass-on" custom of school gardens (p. 434). Produce was grown and served in school cafeterias and distributed to homes of the unemployed,

leading to school gardens coming to be known as community gardens as unemployed adults worked alongside the children (Marye, 1933).

The Victory Gardens of World War II inspired another wave of widespread gardening in America. Victory Gardens were generally established as community gardens in parks and private lands much more than on school grounds. Building on the school gardening movement of 1890-1920, Victory Gardens grew nationwide into an enormous collective effort, numbering 20 million in 1944, to help support the national food supply (Lawson, 2005). First Lady Eleanor Roosevelt is attributed with spurring the gardening craze as she worked without the approval of the United State Department of Agriculture (USDA) in the planting of a Victory Garden on the While House lawn. Today, the White House lawn once again models support of school gardening nationwide with a community-sized kitchen garden and bee hives, driven by First Lady Michelle Obama's focus on the need for improved nutrition and fitness among America's youth (Obama, 2012). Despite initial resistance to First Lady Roosevelt's 1943 inspiration for widespread Victory Gardening, attitudes changed, leading to the establishment of the Department of Agriculture's Committee on Victory Gardens and the National Victory Garden Institute comprised of railroad and power companies and manufacturers who supported the effort (Lawson, 2005). Participation in the Victory Garden movement proved to be empowering for many people. It provided a sense of solidarity in the cultivation of food during a national unrest of wartime. Despite the renaissance of gardens nationally, the movement hinged on war, and when war ended, so did the excitement around Victory Gardens.

The Korean War of the 1950s is considered "forgotten" or "unknown" presumably because of its close proximity in time to World War II, and this is reflected in the lack of response among the American public in the form of gardening or otherwise. The 1960s and 70s brought a resurgence of gardening in the form of community and urban gardens as a counter-cultural response to the unrest associated with the Vietnam War and the Civil Rights movement (Lawson, 2005). Gardening during this time was fragmented, though, not reaching the scale of "movement" and short-lived due to the pressures of the suburbanization. During the 1980s, relocation of people and jobs from American cities to the suburbs peaked; (sub)urban sprawl and car dependency took on a life of its own; the natural environment was exponentially degraded as a result of construction and commuter pollution; attention was turned to technological developments and materialism; and the isolation of the indoor entertainment age of television and video games ensued (Louv, 2005).

In spite of the changes in perspectives that have taken place over the decades, there are areas of the country in which school gardens have remained active since the times of the school gardening movement of 1890-1920. Consider Cleveland, Ohio as a case in point. Cleveland is unique in that the story of the continuing school gardening movement is an extremely poignant one. In 1922, as the school gardening movement was dissipating around the country, a tragic fire occurred in Lakewood Elementary School in Cleveland killing 172 students. Lakewood had been an active participant in the school gardening movement. The community's participation in the school garden prior to the fire led families of the victims and citizens of the city at large to plant a memorial garden at the site of the remains of the school (Mader, 2010).

Recognizing the healing effect that gardening was having on the community, the Cleveland Public School District established the Department of School Gardens within the year. Tract gardens were constructed in vacant lots adjacent to schools, and new schools were built on nearby farmland with student horticulture programs such as the Benjamin Franklin School as an extended response of the school district to the tragedy (Mader, 2010). The district ended the project in the 1970s, and many school gardens were preserved as community gardens or urban gardens, as was the response-to-war trend of the times. The community garden at Benjamin Franklin School remains vibrant with activity today. In constant operation since 1922, it is now under management of the Community Development Corporation, as it has been for thirty years, and grows thousands of pounds of fresh produce for local food banks each year, an expression of continued renewal in the wake of extreme loss.

In the past decade, the trend towards school gardens has been growing. Around the country, there are programs to implement and promote participation in community, urban, and school gardens. The national government is even involved with USDA Farm to School programs (see http://www.fns.usda.gov/cnd/f2s/). At the same time, guerilla gardens are appearing as people engage in acts of civil disobedience. Parking lots and buildings are suddenly adorned with streetscape gardens, planters, flowerbeds, and green roofs. Perhaps the garden movement is a "response to war," this time beginning with an attack on *American soil*. The history of gardening in America clearly shows that we seek peace in gardening.

Perhaps the present insurgence of school gardens is a response to economic recession, environmental disaster, or fear – the fear of food shortages, water shortages,

childhood obesity, food security, or the unknown in general. Perhaps it is a genetic inclination towards the natural environment, something along the lines of biophilia. Regardless of the reason, the response is one of taking action, a shifting of control from outside of self to inside. While gardening, we put down roots, establish relationships, reconnect with the land, experience growth, and create spaces of belonging. There is moral reciprocation for living things that connects with the elements of democracy found in Cornel West's philosophy (1989; 1993c; 2004), such as respect for diversity, biodiversity, nurturance, commitment, and voice.

History reveals that progressive methods of learning science, such as those associated with school gardening, are often considered to be passing trends. Ten years from now, will we drive past the now rejuvenated neighborhood school garden to see the tool shed and raised vegetable beds leveled and red dirt showing through an eroded wannabe lawn? Gardening requires work, an investment of self, time, and energy. In addition, school gardening requires collaboration and organization of teachers and community members. It requires that caregivers of students also agree to become caregivers of gardens, not only during the school year, but also during the summer. Responsibility is required, along with the belief in the value of the benefits.

Why Gardens and Not Some Other Context for Learning Science?

There are ways other than school gardening to go about cultivating moral epistemologies while developing content knowledge in school science. However, school gardening also simultaneously nurtures other aspects of youth development, such as the promotion of community relationships, democratic citizenship skills, and environmental awareness. Based on the firm history of school gardens in America and the recurrence of

their incorporation throughout time, it is evident that gardening is recognized as being beneficial in education, at least in time of perceived crisis.

In the following sections, I will defend reasons for engaging in school gardening in a manner that lasts beyond times of crisis and transcends trendiness, supporting instead a notion of *sustained wellness* composed of the many developmental benefits available in the garden. Rather than being perceived as a *short-lived reaction* to political and economic fears, school gardening can be recognized for potentially promoting *long-term action* for others by building on the inherent connection that humans have with the cultivation of life. School gardening has strong roots in history, but it also is firmly grounded with empirical evidence in various areas of youth development, including *health*, *academic achievement*, *pro-environmental awareness/attitude/behavior*, and *community-building*. To these areas of youth development, the theory of action gardening (to be developed in this chapter) will add the area of *spirituality*, recognizing the importance of nurturing mind, body, *and* spirit.

In the area of youth *health*, physical activity outdoors, such as that which occurs when gardening, has been shown to improve and prevent conditions of childhood obesity (addressing the doubling of children's body mass index (BMI) in the past thirty years (Ogden, et al., 2006)) and related illnesses, such as high blood pressure and diabetes (Bell, Wilson, & Liu, 2008; Cleland et al., 2008; Dyment & Bell, 2008) as well as musculoskeletal, gastrointestinal, renal, endocrinal, neurological, and pyschosocial illnesses and issues (Ebbeling, Pawlak, & Ludwig, 2002; Kuo & Taylor, 2004; Taylor & Kuo, 2011). Living or spending time within a higher percentage of vegetative green space (as detected from satellite images) and the active "greening" (adding vegetative mass) of

an area correlates with lower BMI within two years (Bell, Wilson, & Liu, 2008).

Activities and curricula in school gardens and community gardens have been shown to

encourage better eating habits among youth (Allen, Alaimo, Elam, & Perry, 2008) with

direct correlation to lower BMI (Bell, Wilson, & Liu, 2008) and to promote a willingness

to try different vegetables and behavioral changes in food choices (Morgan et al., 2010;

Ratcliffe, Merrigan, Rogers, & Goldberg, 2011) by improving students' knowledge of

plants, of fruits and vegetable, and of nutrition in general (Morris & Zidenberg-Cherr,

2002).

In the area of *academic achievement*, significantly higher scores on achievement

tests were observed when activities in the garden were integrated simultaneously with or

as reinforcement of science learning objectives (Klemmer, Waliczek, & Zajicek, 2005;

Smith & Motsenbocker, 2005), scores that were also found to coincide with improved

behavior outdoors (Lieberman & Hoody, 1998). Other studies note the prominent

inclusion of aspects of scientific process, namely, inquiry, observation, and collaboration,

in gardening activities (Graham et al, 2005; Rahm, 2002), as well as an increase in

perceived relevancy of science - in education and in life in general - through the

discovery of commonalities among cultures (Barton, 2001; Fusco, 2001; Hammond,

2001). In addition, gardening is associated with demonstrated improvements in literary

achievement (Eick, 1998; 2011), which is a significant metric in light of the Common

Core Standards approach to integrating literacy within the sciences. Blair (2009) and

Ozer (2007) report an overall enhancement of achievement through gardening due to the

establishment of relationships among students and teachers, specifically leading to better

attendance and homework completion (Hawkins, et al., 2001).

Gardening allows regular contact with the natural world helping to develop a foundation for the establishment of *ethical attitudes and behaviors* toward the environment (Jaus, 1982; 1984; Milton & Cleveland, 1995; Schultz, Shriver, Tabanico, & Khazian, 2004). Gardening activities specifically can play a role in changing attitudes toward the environment from negative to positive (Larson, Castleberry & Green, 2010; Larson, Greene, & Castleberry, 2008). In addition, gardening introduces students to moral characteristics that are found to be influential in pro-environment consumer behavior (Oyserman, 2009). School gardens are associated with positive *environmental attitudes* and *environmental responsibility* (regardless of garden type, flower or vegetable) (Skelly & Bradley, 2007; Waliczek & Zajicek, 1999), a point accentuated by the opportunity that the garden allows for introducing environmental issues (Zeidler, Berkowitz, & Bennett, 2011). Middle school and high school students tend to make more responsible choices in the form of taking fewer potentially irresponsible risks when involved in community projects, such as gardening (Billig, 2000).

Participation in community projects, such as gardening is central for youth in learning how to take action by establishing agency and self-efficacy that are essential for youth to find their voices in democratic discourse (Chawla, 2008; 2009b). Knowledge of one's place in community and in the natural world and the development of a sense of belonging almost always require adult participation in youth experiences (Chawla, 2006; 2007; 2009a). Moreover, gardening connects with public knowledge of science that is acquired leisurely and through family social learning structures (Falk, Storksdieck, & Dierking, 2007). Based on these examples, gardening is an obvious bridge between school and community in a larger sense.

Such a connection was the underlying philosophy of Dewey's Laboratory School at the University of Chicago where he was able to put into practice his perspective of society and schooling as being inseparable. Dewey firmly believed that education in America should prepare children for life, basing the school's pedagogy on pragmatism, or "the comprehensive art of the wise conduct of life itself" (Dewey, 1928, p. 25). With this in mind, let's take a closer look at Dewey's Lab School for an example of school gardening as an enactment of Dewey's pragmatism philosophy.

<u>Dewey's Laboratory School and Garden</u>

Dewey was founder and director of the University of Chicago Laboratory School between the years of 1896 and 1904 where his philosophical ideas were tested in a joint venture among students, parents, and teachers (Mayhew & Edwards, 1936). The Laboratory School also served as a context for educational research, and opportunities for putting into practice Dewey's educational theory, particularly the integration of practices of schooling and practices of society in such a manner that school merged with home life (Seigfried, 1996). Dewey's (1902) intent for the school was to provide continuity and relevance of abstract concepts for students through the familiar practicality of their own lives. In his creed, Dewey (1897) writes, "I believe that the school must represent present life - life as real and vital to the child as that which he carries on in the home, in the neighborhood, or on the play-ground" (p. 78).

Dewey was adamant about the placement of the child at the center of the educative process. This is evident in his 1900 lecture to parents regarding the intentions of the Lab School:

Now the change which is coming to our education is the shifting of gravity. It is a

change, a revolution, not unlike that introduced by Copernicus, when the

astronomical center shifted from the earth to the sun about which, the appliances

of education revolve; he is the center to which they are organized. (p. 16)

This child-centered focus differed from the other school founder, Francis Parkman, who

wanted the school to center on nature itself. They were able to merge their intentions for

the school by integrating the study of nature into the child-centered program (Harms &

DePencier, 1996).

The school integrated disciplines so well with community life that students lived

their societal lives within school. For example, school consisted of activities such as story

telling, sewing, cooking, woodworking, metal craft, and gardening in a manner consistent

with understanding the properties of the materials, history, and usefulness in everyday

life of society (Dewey, 1900). Dewey's students were guided collaboratively or

individually with projects in the context of activities that incorporated methods of inquiry

and analysis, in turn, serving as an introduction to biology, chemistry, and physics. For

example, the activity of cooking at the school included understanding the plants of the

garden, preparation of recipes, and implementation of the cooking process in a manner

that understandings of biological life cycles, built on and led to understandings of

chemical properties (Dewey, 1900).

Gardening was not included for the learning of the discipline of botany as much

as it was for learning life, as part of a movement toward freedom from dissident

disciplines (Dewey, 1915). The intention and the observed result of embedding the

garden and gardening in the curriculum was the cultivation of conceptual understanding

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of storage of a plant's energy in root or seed, and also, to think ahead to the planting of a spring garden (Mayhew & Edwards, 1936). Hence, "the garden" or gardening was also embedded in the knowledge of the child in a manner such that Dewey's leading metaphor of growth was made unambiguous with the obvious flourishing of both people and plants from nurturing care (Pudup, 2008). In other words, for Dewey's students, the content was not separate from reasoning and decision-making, and not separate from the moral development associated with gardens. His garden-science-education approach was a pedagogy process always-in-the-making.

As Dewey's philosophy is founded on transitioning theory into practice, the Lab School was a tool for bringing his visions to fruition. In addition, the establishment of the Dewey school represents in history an upsurge of progressivism in education with the goal of incorporating democratic methodologies in schools to reflect society. Dewey was instrumental in this movement. He wrote of the degradation of the community and related problems and the role that education would eventually need to play in resolving these issues. The Lab School emphasized communication and problem solving such that children, who were seen as ever-changing beings in an ever-changing world, would be prepared to make their own way through life, that is, not to fill a pre-determined slot in society (Mayhew & Edwards, 1936). Following the implementation of the Lab School and its use of gardening came widespread incorporation of gardens in European schools that supported Dewey's progressive ideas (Kohlstedt, 2008).

Branching Out: Growth in the Garden Leads to Action-for-Others

The garden is becoming the outer classroom of the school, and its plots are its blackboards. The garden is not an innovation, or an excrescence, or an addendum,

or a diversion. It is a happy field of expression, an organic part of the school in which the boys and girls work among growing things and grow themselves in body and mind and spiritual outlook. (Greene, 1910, p. 18)

West's philosophy of prophetic pragmatism is closely aligned with Dewey's classical American philosophy of early pragmatism. Dewey recognizes the benefits of including gardening as a learning tool as is apparent in his design of the University of Chicago Laboratory School. The school's focus on promoting continuity and relevancy in between the education of home and school is evident in the school's promotion of educative experiences based in life. To Dewey, the garden serves as both a means for learning and as a context that nurtures growth. In this section, physical and educative growth in the garden is extended to West's prophetic pragmatism for the cultivation of action gardening.

Dewey's Concept of Growth

Dewey's understanding of growth extends beyond literal physical growth in the school garden to a figurative sense of growth. Namely, growth in the figurative sense is a foundational concept of his theory of knowledge development. Although the metaphorical growth of a self can be compared to the literal, physical growth that occurs among plants in a garden, there are limits to the extent to which the two understandings of growth can be compared for science education. For example, for humans, as with plants and other species, physical growth is an organism's response to its environment based on a perceived equilibrium between needs and resources. As equilibria of organism-environment interactions are reached, new balances are set in response to

interactions with other members of the shared environment and their growth requirements (Dewey, 1936).

Consider the interdependent species of an ecosystem. Humans, plants, and other species have built into their genetic makeup the needs of hydration, nutrition, and reproduction in order to remain in the gene pool. Relationships with others in the form of competition, cooperation, mutualism, or parasitism affect the abilities of the interacting organisms to attain these needs. When needs are met, growth occurs and new needs are established based on the epigenetic organism that is now different – perhaps in size or development – as a result of growth. Metaphorical growth follows some patterns of physical growth but does not necessarily result in larger size or further physical development. Instead, the result may be the further development of cognitive or affective development, or meaning, purpose, or value, aspects of human life that are considered to contribute to success but that do not necessarily extend from biological growth (Diggins, 1994). This metaphorical conception of growth is embodied by Dewey's philosophy, and in West's philosophy, where it takes a different form.

Dewey's concept of personal growth (in a metaphorical sense) is based on his concept of *experience*, or what happens when human beings actively participate in transactions with other humans, other natural experiences, and their environments (Garrison, 1994). Dewey (1936) defines experience as not merely "an excitation on the surface" (p. 21) received through physiological sense organs but a more profound "adjustment of our whole being with the conditions of our existence" (p. 16). Experiences among beings can vary in value depending on the level of the "continuity and interaction in their active union" (Dewey, 1938, p. 43). Experience can occur between humans and

objects as well, as with a work of art through which the observer can feel the emotions of the artist (Dewey, 1936), inspiring growth through composition of interactive relationship and reflection. Lemke (2001) adds, "An experience in the special Deweyan sense… stirs us to a heightened vitality" (p. 309), as does, say, strolling through an herb garden that has been warmed by the sun.

To Dewey, growth is also the gain of knowledge, occurring as a result of a process of experimentation following the emergence of a problem or question in the consciousness (Demetrion, 2004), or an approach that follows Peirce's basis of the fixation of belief on experimentation rather than *a priori* assumptions. In addition, growth is a striving for betterment or melioration of self or society and for this reason connected with morality (Dewey, 1927). It is the "cumulative movement of action toward a later result," or the "ends-in-view" (Dewey, 1916, p. 41), and the only end that can be referred to as an "end-in-itself" (Boyer, 2010). Growth, to Dewey is therefore a compilation of means-of-growth and ends-of-growth toward a common-end-of-growth. To Dewey, growth, as both process and goal, defines itself.

While West's prophetic pragmatism builds on Dewey's pragmatic philosophy, his approach to growth branches in a different direction. As West does not specifically address issues of education or environment other than mentioning that they are issues that stem from a greater problem, he rarely uses the term "growth" literally or figuratively, at least not in a positive sense. As a cultural critic, West (1993a) writes of "growth" predominantly in a manner that condemns the "sacred cow" of economic growth and over-emphasized market values in American society (p. 60). For instance, West (1993a; 1993b; 1993c; 2004) and Smiley & West (2012) use the term "growth" to refer to the

narrow yet magnified focus placed on economic progress, the unbridled expansion of poverty, and the increasing development of power over marginalized members of society.

According to West (1999b), it is because of growth in these areas of the market and emphasis on market values that non-market values, such as love, care, and justice, have become diminished leading to a societal state of spiritual impoverishment. To West (2004), a void of spirituality is at the center of societal issues – a void that can be filled by love. Thus, rather than referring to Dewey's concept of growth, West (1993b) places great emphasis on spirituality as a necessity for the amelioration of humanity. While Dewey's pragmatism is founded on growth toward wisdom, West's is centered on ethics (Milligan, 1997). West (1993a) describes prophetic pragmatism as concerned with identifying and analyzing forms of evil, such as oppression, and providing vision and hope for moving beyond them (Yancy, 2001). As such, growth to West is interpreted for the purposes of this dissertation to be a concept of spirituality, a concept that can be simplified to a common human denominator of love.

I want to be clear that for Cornel West, similar to Dewey, (1916) *education* should embody growth. "Growth [to Dewey] does not mark a fixed state of fulfillment to be attained, but rather denotes a process of continual improvement and progress" (Boyer, 2007, p. 17). Growth, to Dewey is an enlargement of experience, not a move beyond it (Boyer, 2010). Theoretically, from Dewey's perspective, growth as an end is never actually reached - at least not in life – for life is considered by Dewey (1916) to be a "self-renewing process through action upon the environment" (p. 4). Within communities and societies, Dewey (1916) acknowledges education as allowing for the continued self-

renewal of the group through the educational growth of its immature members, viewing immaturity (not of a particular grade level or age) as potential for societal growth.

Ironically, in America today, dependence of the immature on the mature members of society is promoted in a manner that stagnates growth and even leads to what Dewey (1916) considers to be "ungrowth" (p. 50). In other words, the dependence of child-on-adult, or the "becoming adult," is required to some extent in the process of growth in establishing a balance of security and freedom, but the relationship of child and caregiver adult might be better interpreted as one of *interdependence*. This reciprocal view of growth is needed for the care of a child and the care that a child emanates *and* generates in adults (Dewey, 1916). This is essentially the establishment of a reciprocal relationship (Noddings, 1984).

Similarly, West's acknowledgement of the connection in American society between a lack of spirituality and a state of nihilism conveys his recognition of a need for spiritual growth to inspire societal rejuvenation. By acknowledging that a lack of spirituality has led to a diminishment in quality education, in turn leading to a dissolution of community bonds, West (1993b) sees improvement in education as connected to spiritual growth within a society. Such improvements can be made by emphasizing interdependent relationships between youth at schools and members of the community at large through shared experiences of gardening. The literal benefits of gardening in health, achievement, attitude, and community-building were presented in the previous section. Now, let us take a closer look at the figurative meaning of gardening in education.

Gardening is an epistemology of action, and, language is an interpretation of our experiences in nature (Abrams, 1996). The garden and actions related to gardening are commonly used metaphorically in language. Some of these terms are "sowing," "planting," "tilling," "farming," and "cultivating," - all which reflect the giving of one's self in time and energy in the form of work to something outside of one's physical self. Before exploring this idea further, I want to emphasize examples: "reaping" and "harvesting" signify returns or rewards for one's work while "weeding" symbolizes discernment and choices. "Rooting" is thoroughly investigating while "setting roots" means here to stay. A "seed" is a unit of great potential, linking the past and the future. To Tobin and Tippins (1996), a seed is "a new experience that is initially conceptualized in terms of something that is known" but that differentiates with new experiences into something unique (p. 716). Ideas of students can be thought of as seeds-in-the-garden-of-the-mind.

Like metaphors in general, the act of gardening can be used in teaching, not prescribed as a required methodology but instead introduced to the teacher as a possible resource for inclusion in his or her toolkit (Nichols, Tippins, & Wieseman, 1997). "Gardening" itself is a metaphor for caring, nurturing or generally tending to the needs of others. "Gardener" can be a metaphor for teacher, connecting through language and culture to different epistemologies from objectivism to constructivism depending on how the plant/student is considered (Tobin & Tippins, 1996). The "garden" has come to be a symbol of transcendence from the struggles of the everyday world with aspects of nature

that are sacred and unknowable --- a place of balanced security and freedom and a place of healing.

<u>Growth beyond Metaphor</u>

Growth in the figurative sense could also be seen as metaphorical. However, growth by definition, particularly in the manner it is used by Dewey is not confined to one definition, category, or label, as can occur with metaphors. Instead, growth grows beyond definition; yet, the action of growth as a concept can still be understood metaphorically. Metaphors are commonly used in education, for they help us describe how our minds make sense of the world (Lakoff, 1995). Thayer-Bacon (2000) agrees by acknowledging that the traditional ways of thinking about the construction of knowledge is through the recollection of things already known. "Root" metaphors help us as educators to convey ideas to students, as is often done when we analogize the human body or the school to a factory or a city (Botha, 2009). Through conceptual metaphors, such as these, we are able to describe one thing with another that is known (Lakoff & Johnson, 1980).

However, metaphors are value-laden and lead to assumptions of structure and worldview, especially when they are taken-for-granted (Cook-Sather, 2003; Postman, 1996). For example, we are "born" into metaphorical systems imposing objectivism, relativism (Bullough & Gitlin, 2001), or economism that is taken to have universal meaning in language, shading out more localized and sustainable epistemologies of environment and culture (Bowers, 1993; 1997; 2001). Mass media plays a strong role in presenting metaphors that shape our perception, along with how we communicate, think, and act (Liu & Hanauer, 2011). Metaphorical, or assumed ways of thinking can actually

hide ecological attitudes associated with longer dwelling peoples, allowing metaphors of consumerism and mechanism to blindly become part of schooling in the United States (Mueller, 2009; Mueller & Bentley, 2007). Let me explain how metaphors play a role in either limiting or creating action through gardening to make this point clear.

The metaphor of *the garden* may bring to mind a composition of plants perhaps with a human-intended theme or purpose, such as a vegetable garden that is planted to grow food or a butterfly garden that has the purposes of providing nectar for butterflies and teaching about life cycles. Likewise, the metaphor of the garden may bring to mind a more wild (less-human-controlled) composition of plants that exist beyond human intent. Regardless, the term "garden" in two examples symbolizes a composition of plants. There are exceptions. In other words, metaphors can carry assumptions that do not always apply and that can be considered to be exclusive. For instance, to some a book can be considered to be a garden of written words. In this case, the garden is not a composition of plants but instead a composition of words.

In further defining "the garden," it could be argued that "composition" is one-sided, objective, and even exclusive, suggesting human intent and thus negating variations of "wildness" that may be included in one's metaphorical understanding of the garden. In the given examples including plants and words, the composition is comprised of more than one component, and the components are relational to one another; they are dynamic and work together to create a different meaning than would be possible in isolation. In addition, relationality implies movement, dynamics, and reciprocity. For a composition of relational plants, "the garden" implies life, an implication that can be extended metaphorically to a composition of words as well. It is this implication, that the

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garden entails an underlying assumption of life (including all aspects of a life cycle of which death is an integral part) with which "the garden" will be defined in this dissertation. The garden is a relational composition of life – including death.

There are different perspectives to take when viewing the relational composition of life that is the garden. One perspective is to focus on the relationships. In a garden of plants, one can focus on one particular plant or on the garden as a whole – there are different scales of perception. When focusing on one particular plant, there is a perceived independence. For instance, in the historic garden where I work, the *Franklinia* resides in a container because it is presumed to be susceptible to a soil-borne fungus of the roots if planted in the ground. Because it is planted in a pot, the plant's roots are less protected from cold in the winter than they would be if planted in the ground, therefore the plant is taken inside into a greenhouse if the temperature is extremely cold. The *Franklinia* is perceived as independent of the garden when in the greenhouse. However, while in the greenhouse, the plant requires a human to care for it, at least to occasionally moisten its roots while in its dormant winter state and to keep the greenhouse at an appropriate temperature for sustaining life. The *Franklinia* in the greenhouse is not independent; it has merely changed gardens.

The garden as a relational composition of life can be viewed from different perspectives. In one perspective the garden is an ecosystem comprised of interdependent species and the elements they require for survival and growth. Plants require the relationship of bees and other pollinators that pollinate flowers in exchange for nectar, or the human that pollinates the flowers by hand in exchange for the fruit that will form if reproduction is successful. Plants in the garden need microbes in the soil to breakdown

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organic matter for plant nutrition while roots provide needs for microbe life. In the absence of nutritious soil, fertilizer can be added to provide the elements needed by the plant for growth. In the absence of rain, plant life depends on humans to provide water that combines with carbon dioxide in the air and the solar energy to make sugars for plant growth, subsequently leading to nutritional growth for caregivers who eat the plants.

In a second perspective the garden is cultivation. Like the ecosystem, this perspective is also about relationship but specifically between the gardener and the garden. The garden needs a gardener, for through the provision of essential needs for growth, such as water, sunlight, and nutritious soil gardeners care for plants. The gardener cares for the garden in a manner that is balanced, guiding the continuation of growth in a controlled manner. Reciprocally, the garden provides care for the gardener through his or her actions in the form of healthful physical activity and mental therapy. Because the understanding of the garden as a place for actions-of-care-for-others is so widely recognized, "the garden" and "to garden" commonly represent actions of caring (Liu & Hanauer, 2011).

As a cultivator of the garden, I am able to work through issues of plants that I observe like, say, an infestation of aphids. Last summer, the tobacco that I was growing as an educational example of important historical plants were yellowing due to the extraction of chlorophyll from their leaves by aphids. Garden volunteers and I searched the garden for ladybugs (considered "beneficials" because they are predators of "pests" like aphids) and placed dozens of them on the tobacco leaves. The ladybugs, combined with a top-dressing of the soil with compost, allowed the tobacco plants to recover with new healthy green leaves. Care as a reciprocal action that cultivates growth among the

living beings in the garden, as in the tobacco example, extends to love. Love is the ultimate form of caring (Frankfurt, 2006). West (1993b) describes love as a catalyst for action that begins with self and spreads to others, perpetuating itself through care.

In a third perspective, the garden is nature. Nature is a broad topic with various meanings. It can refer to one's character or genetic make-up, or it can refer to one's environment. In reference to the environment, definitions of nature can vary as well. For instance, one definition is that of Ian McHarg (1969) who defines nature as everything that is not made by humans. While this definition gives great importance to the plant and animal life of the garden, it does not necessarily include humans in nature, a potential omission that can in turn bring into question the inclusion in nature of the garden itself if it is considered to be "made" by humans. Nature is difficult to define in a manner that includes humans but that is not overwhelmingly anthropocentric.

Seeing the garden through the perspective of nature enables one to see beyond the instrumental value of a garden as a whole, to the intrinsic value of individuals that comprise it. This perspective allows a view of "wildness" that extends past the known relationships of the ecosystem and beyond the predictability of human cultivation into the borderlands of the unknown. The perspective of the garden as nature allows one to see that living beings have intrinsic value regardless of setting in line with Taylor's (1981) view of seeing each living entity as having a purpose to its own end beyond what its observer can know. This perspective assists in further defining the garden for the purposes of this dissertation.

The garden can thus be viewed as a model ecosystem with interdependent components, as an expression of human cultivation extending from love and care, and as

a showcase of nature both beyond and including the realm of human manipulation, a mere three of many potential perspectives. In addition, the garden can also be a source of inspiration beyond words. When the setting sun paints a backdrop for the garden in colors not possible to mix from any watercolor set, taking with it the last hot rays of the day and queuing the rest of the world to settle down for the evening performance of frogs and crickets, there arises a feeling of peace that kindles an eternal, yet often overlooked, love of life.

Liu and Hanauer (2011), writers on the topics of economics and politics, extend the metaphor of the garden to democracy. Recognizing that America's history has been structured around the metaphor of the machine, they acknowledge that this is a mismatch to the innately caring nature of humans. Liu and Hanauer (2011) point out that the garden is living, evolving, and comprised of complex ecosystem relationships, a stark contrast to the simple system of the machine with replaceable independent parts. Because of its fluid characteristics, the garden serves as a more realistic model, for our economic and social systems are often perceived as static and separate when in actuality they are dynamic and interdependent, in turn reflecting the interdependence and reciprocity among families, neighbors, and community members. In the garden of democracy, it is recognized that self-interest is actually mutual interest (Liu & Hanauer, 2011). Growth is an integral aspect of the garden, both literally and figuratively that represents progress toward a desired goal regardless of scale, local or national, whether in reference to an individual or a society.

Thus, the garden, like the concept of growth, grows beyond any one metaphor but serves as a starting point for discussion. Drawing from Rorty (1991) the intent of

metaphors should be use and not content, recognizing that each extends from a unique context such that none is equated with truth. In other words, this dissertation is not about any particular type of garden with a specific design or purpose. Instead, it is about the growth that occurs with the action of working through issues, such as that which is done in the garden. With this in mind, the garden is presented in this dissertation in a manner that is reminiscent of ecologist Odum's (1971) words that an ecosystem is greater than the sum of its parts. Similarly, the garden represents a composition with greater meaning than a collection of individual components for it is comprised of relationships, growth, and life/death.

Why Outdoors?

Along that line of thought of seeing the 'big picture,' it is important to point out here that our sense of *biophilia* (Wilson, 1984) that was used to amend West's prophetic pragmatism, does not require the outdoors. Instead, the human inherent "love for life" that has enabled the survival of our species throughout time is evident in any situation that involves other living beings. This could be apparent in the care we give a single houseplant, for example, or a pet iguana in an aquarium. Regardless, of what the living being is, through biophilia, there is a connection made with life. Biophilia is not restricted to the outdoors; it is possible anywhere. However, when outdoors, one can potentially be surrounded by living beings making these connections more fully realized as one realizes his or her self in-relation-to-others.

Indoors, we cannot come to understand plants in relation to the soil, the earthworms, and other species that live there. When we study mounted butterflies indoors, we can see their anatomical features, but we cannot observe their fluttering

motions or understand autumn as the choice season to make such observations, in the southeastern US, at least, where I learned while indoors to associate them only with spring. As a gardener led by biophilia, I have learned through observations that prevalent sightings of butterflies are accompanied by a certain crispness in morning and afternoon temperatures, a shortening of day length, and a change in the angle of light that coincides perfectly with butterfly plants reaching their full potential for the season. Similarly, drawn by biophilia to the garden, I have learned through practical experience that cabbage and collards are winter crops in the southeast US, bolting to flower and seed in response to the quickly warming temperatures in the spring, providing understandings not only through relationships with other living beings but also with weather, climate, and season.

Likewise, "the garden" can refer to a place that provides a nurturing environment, cultivates growth, and promotes reciprocal relationships of care, whether outdoors or indoors. I recognize that action can potentially be cultivated in any setting and with any activity. However, for the purposes of this dissertation gardening is intended to refer to outdoor environments that are associated with the school garden or outdoor classroom and that are within the constraints of schooling and in relation to the school day. I base my reasoning for situating action gardening outdoors in the work of authors and philosophers, empirical research findings that support the healthful benefits of spending time outside, and my own experiences of feeling emotionally uplifted after spending time outside.

As a holistic (meaning mind, body, and spirit) approach to youth development, action gardening connects with the work of modern day author, Richard Louv (2005;

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2011) who recognizes contact with nature as promoting the mind/body/spirit balance needed for human physical and mental health. Louv (2005) speculates about an innate human sense of spirit that has enabled our survival over millennia through the promotion of humility in the natural world; this spirit exists today in mere remnants that are amplified when in nature. I acknowledge that the sense of spirit that Louv perceives as being heightened in nature can occur indoors as well as outdoors. Indoor gardens can allow for experiences of "heightened vitality" just as outdoor gardens can – possibly to a greater "height," I would argue, depending on the scenario. For instance, an indoor garden of tropical plants in the Arctic can potentially create an experience that is exceptionally heightened when compared to an indoor tropical garden in Miami due to their juxtapositions to the typical outdoor setting. On a much smaller scale, a single live plant or even cut flowers can greatly liven the emotional outlook of a patient in a hospital room. While Louv (2005) does not specify what he means by "nature," it is obvious through his various descriptions that he perceives "nature" as residing outdoors.

In addition to connecting with Louv's ideas, action gardening incorporates the tenets of ecological literacy (Orr, 1992; 1994; Stone & Barlow, 2005). This theory developed by David Orr rests on six foundations: all education is environmental education; environmental issues cannot be understood through a single discipline; environmental education requires dialogue with place; process is as important as content; experience in the natural world is essential to understanding it; and education for sustainability requires the understanding of natural systems (Mitchell & Mueller, 2011). Ecological literacy has become the cornerstone for several programs that serve as examples of action gardening, similar to the Edible Schoolyard Projects in Berkeley and

New York. In these projects, reciprocal relationships of care are established and nurtured among participants that grow into long-term action promoting community health among humans and the natural environment. To participants, their experiences growing, harvesting, and preparing healthy food alongside community members during everyday schooling in science, social studies, mathematics, and literature has become their way of life, dissolving the boundaries between school and society. Experiences at school are created that are memorable, for each day the plants tended are at variable stages of growth and the foods prepared from the harvest differ from the day before, centering learning on activities that embody the senses.

I have many memorable experiences, but gardening at school is not included in them. None of the schools I attended had a garden. I do have vivid memories of field trips to gardens elsewhere and not-so-vivid recollections of dusty, trampled playing fields at school. Of my memories in general, those that I remember most clearly involve relationships established through my senses outdoors. My childhood memories are filled with outdoor scenes from around the house where I grew up and my grandparents' backyard. In particular, I remember sitting beside the *Aucuba* shrub by the back door (we called it the "lemon-lime bush") and mourning the loss of my kitten to the neighbor's dog. I remember collecting tent caterpillars as a gift for my mother when she was sick, building forts with a friend, and swinging from a rope/jungle vine that was really a weeping willow branch. For me, the outdoors in these memories represents a place to work through issues toward peace. The school garden can be a similar place - providing materials for invention, inspiring imagination, and offering consolation as we strive for

freedom from the struggles of life. In the open space of the outdoors, nature offers a place where the real meets the unreal, for transcendence in the present moment.

As an adult, the outdoors has continued to provide momentary opportunities for transcendence of everyday issues for me, tapping into aspects of genetic memory that Wilson would call biophilia and Louv would call a sense of humility with the natural world. As an undergraduate, I walked to class through the arboretum although it was the longer route; as an intern after graduating, I was often sidetracked on my way home from work by an area in the park filled with foxgloves; and today, as a teaching assistant, I take a few extra minutes to clear my mind in the teaching garden outside of the education building. I realize that as individuals we each find our own path to peace; for me it is outdoors, for others it may be elsewhere. Learning outdoors is but one way to learn outside of the traditional notions of modern schooling; however, if the topic of learning is the natural sciences, the outdoors is replete with opportunities and examples. In addition, the outdoors offers diverse examples of growth. Keeping in mind the concept of growth that has been examined in this section, along with ideas of biophilia, hybridized community-self, and integrated socio-ecological community that were presented in chapter three, we now move to toward developing a theory of action gardening that like West's prophetic pragmatism, begins with love and grows toward radical democracy through action.

Toward a Theory of Action Gardening

Action gardening is the theory that through school gardening, youth develop the epistemological practice needed to take action for themselves and for others regarding issues of social and environmental justice. Stemming from the intellectual traditions

associated with America's strong history of school gardening, the garden can be understood as a place where relationships among youth, teachers, community mentors, and Elders are established that strengthen community. In the forthcoming sections, evidence will be provided that relationships formed in the garden can lead to profound interests in social and environmental issues, epistemic development, that in turn cultivate actions-for-others – actions that are potentially expressions of radical democracy.

West's philosophy of prophetic pragmatism and my argument for a theory of action gardening are in tune with Dewey's pedagogic creed and life's work of connecting school and society. Action gardening extends beyond the school grounds into the community surrounding the school through work, but not as a habit of repetitive action (Dewey, 1916). Rather, action gardening is situated in the work required in the present moment for the promotion of growth in the garden - tending to the survival needs of individual living beings that is analogous in many ways to tending to the learning needs of the individuals of a science class. "We always live at the time we live and not at some other time, and only by extracting at each present time the full meaning of each present experience are we prepared for doing the same thing in the future" (Dewey, 1938, p. 51).

In the past decade there is a growing recognition among gardeners of the long-term benefits of soil conservation through traditional practices, such as no-till farming, cover cropping, and permiculture. Action gardening is similar in that it acts as a remedy for the practices of ungrowth that have become the standardized education system of America, withstanding the erosive damages that have been incurred to American communities and societies through poor educational understandings. As in the metaphorical perspective of the seed that begins with a known concept and differentiates
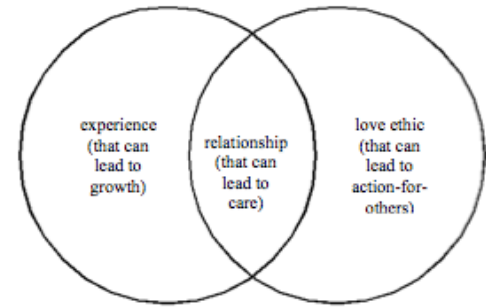
into something new (Tobin & Tippins, 1996), action gardening begins with a garden created for the purpose of producing food, attracting butterflies, or learning science and differentiates into action-for-others.

Through action gardening, the process of gardening is broken down into its elements. The elemental action or most basic growth through gardening results in a form of *unlearning*, a process that exemplifies West's approach to philosophy and is best described by fellow philosopher George Yancy (2001) as "unlearning sedimented and often stultifying patterns of behavior, normative rules and paradigms of 'intellectual excellence'" (p. 2). West with his method of unlearning realizes the magnitude of redefinition that is needed in our processes of everyday life. In order to move on it is important to understand the key point of this argument that clearly distinguishes the contemporary pragmatist perspective of growth versus ungrowth.

Incorporating action gardening as a method of unlearning can materialize in an infinite number of ways. What makes action gardening different from other forms of action is the depth for which it resonates in the hearts and souls of people through love and care. To bring awareness to social and environmental injustices activist songs of the 1960s and 70s, included lyrics such as, "They paved paradise and put up a parking lot" (Mitchell, 1970). Similarly, action gardening brings perennial effects of the passing on of traditional knowledge of communities and ecosystems from generation to generation. Instead of (or while) humming along to a no-longer-understood oldie but goodie, science students pull up the parking lot and plant paradise. Unlearning is the remedy for ungrowth. And its effects are long lasting. Recognizing the child, we begin to see this remedy vibrantly.

Pragmatism in the Garden: Care Cultivates Action-for-Others

As with "growth," the literal and figurative meanings of "garden" can apply to education and schooling. Dewey (1902) incorporated the school garden at his Laboratory School as practice of his theory that educative growth among students can be cultivated through experience. Analogously, the school garden is a place of practice for the theory of action gardening whereby action-for-others can be cultivated through the love ethic (West, 1993a; 1993c; 1999b; 2004). Action is to West, as growth is to Dewey. Based on this analogy, it follows that the love ethic that inspires acting-for-others is analogous to the heightened vitality that is felt through Deweyan experience. Assisting in the visualization of this analogy is Noddings' (1984; 1995) concept of care through reciprocal relationships. Care can be viewed as extending from genetically based biophilia and altruism; humans have the capacity to care for others essentially as a form of self-preservation. Through biophilia our actions can be governed by a sense of care that is reinforced by visual cues - cues received from living beings when our actions are successful in promoting the enhancement of their lives, such as when we provide water to a wilting plant. This concept is more difficult to understand, however, when considering how our actions affect living beings with which we have no relationship due to remoteness or in ways that we cannot see, such as the diminishment of non-renewable natural resources for the future. The importance of relationship that is highlighted in Noddings' concept of care is a common factor of both West's love ethic and Dewey's experience.

Another analogy, or rather a parallel can be made between West's prophetic pragmatism and action gardening as a theory. Prophetic pragmatism begins with love that leads to action-for-others that can potentially be radically democratic. Likewise, action gardening begins with care that develops into action-for-others that can potentially be radically democratic. The difference is between love and care, two non-market values considered to be related but not necessarily the same. The concept of care that sparks action-for-others is based in Noddings' (1984) work and requires reciprocity. Although love has been said to be the ultimate form of care, loving others does not require reciprocity. For example, as with agape or self-sacrificial love, one can enact loving actions for others without expecting anything in return. However, West's prophetic pragmatism, like the ideas of Dewey, Peirce, James, Rorty and other American pragmatists, is based in recognizing the influence of environment, context, and relationship. For this reason, although love like agape may be the spark that ignites propheticism, prophetic pragmatism based in the love ethic entails reciprocity by definition. Therefore, action gardening's care parallels West's prophetic pragmatism's love.

Another area of parallel is action. West's prophetic pragmatism involves propheticism, or a profound urge to respond from which one cannot turn away, beginning with witness of injustice and emerging as action to promote justice through social change. Action gardening begins with physical action - touching the soil, hearing birdcalls, and visually observing growth among plants while feeling the air outdoors - engaging the senses in a manner that promotes relationships through a merging of self with one's environment. In essence, action gardening begins with experiencing elements of nature in

the garden while working through the issues presented through the act of gardening. In addition to enabling relationships with the natural environment outside of the school building, action gardening promotes connections with community mentors and Elders through their participation in garden work. Through work, reciprocal relationships of care develop.

"Work" is a key term, in action gardening; action begins with work, or applying one's energy and abilities to an issue. The Greek root of the word "pragmatism" is equivalent to "work" or "act," signifying the work embodied by American pragmatism, i.e., putting thoughts into practice, weighing consequences toward resolutions of issues, and equitably considering those involved. Based on West's (1993a; 1993b; 1993c; 2004) ideas, pragmatism is working through struggles to promote societal betterment. Classical American pragmatist Peirce (1958) sees working through issues pragmatically as involving a merging of self, considering each merging of self with nature or with other selves as the establishment of a different reality, or Self; multiple Selves are connected in continuum. James (1890) views experience, or rather "experiencing" as he refers to it, as belonging to the personal self, including connections, continuities, relations, transitions, tendencies, and the goal toward which one is experiencing. Thus, according to James, a personal self includes all of its relations. Dewey's (1916) description of experience builds on these understandings of Peirce and James, recognizing context and environment as playing a defining role. These concepts established by founders of classical American pragmatism support the ideas of community-self and communitization that were presented in chapter three to describe the understanding that through biophilia and Leopold's land ethic, the self extends to all of one's community, ecological and social.

Building on ideas of the founders, contemporary pragmatist Thayer-Bacon (2003) describes what Peirce terms as different realities as relational ways of knowing, or relationality. West (2004) would agree that we cannot consider our selves without considering others. However, for Thayer-Bacon (2003) relationality is non-transcendental. West (1993c; 2004), by contrast, promotes a goal of transcendence, or rising from crisis, yet acknowledging that struggles are continuous throughout life. In other words, according to West, we cannot completely transcend struggle in our lifetime, but the goal or hope of doing so is what keeps us going. In a manner that seems to combine the thoughts of Thayer-Bacon and West regarding transcendence, the philosophy of environmental pragmatist Val Plumwood (2003) grounds the concept of relationality by connecting specifically to nonhuman species, place, and the sense of spirituality that can be found there. These understandings of American pragmatism, both classic and contemporary, vary but are similar in that they acknowledge the importance of experience with relational others. This understanding is extended to form the underlying notion of the action gardening theory that reciprocal relationships of care are developed through hybridizations between self and community and can lead to actions for change.

Understanding the ideas of the founders of American pragmatism and how these have grown with contributions of contemporary pragmatists is necessary for the development of action gardening as a theory. It is particularly important when relating these ideas to the act of gardening to realize how they extended from the response of early settlers to the American landscape (Pratt, 2002). Although American pragmatism is specific to America as a place, the questioning that it entails regarding human

relationships with each other and the rest of the natural world is ancient and world wide.

For example, Buddha is considered to be a pragmatist by some for his philosophy in the

practicality of existence (Abelsen, 1993). The Four Noble Truths of Buddhism include

the truth of suffering, the cause of suffering, the cessation of suffering, and the eightfold

path to cessation of suffering. Peace, as a profound sense of freedom, is attained when the

cycle of suffering is broken; the first step is acceptance of suffering (Abelsen, 1993).

Granted prophetic pragmatism is not concerned with any one particular religion,

however, West's inclusion of suffering bears resemblance to Buddhism as a pragmatic

practice. Because action gardening parallels prophetic pragmatism, it follows that

similarities can be perceived in the garden also.

Beyond the Garden Borders

The garden, like sign language, music, or love, although unique to specific

cultures, also transcends invisible cultural boundaries. Although the boundaries of a

garden are often delineated, its inspiration is like the language of love and knows no

bounds. The language of pragmatism, namely, experience, community, relationship,

interaction, diversity, critique, and continuum translates into the language of gardening.

Thayer-Bacon (2010) explains that, "pragmatists want philosophy to act like science in

terms of being able to question one's theory at a deep level" and that "pragmatists seek to

connect experience to the outcome of directed action" (p. 89), placing greater importance

on experience than the goal. It could be viewed that in a similar manner, *gardeners* want

philosophy to act like science, or gardeners want *art* to act like science. From either

perspective, gardeners engage in practice much like pragmatists do; inquiry, process, and

learning from experience to work toward a better outcome is all a part of gardening. Gardening has its roots in science, and like pragmatism, it is an experiment of life.

The garden encompasses more than philosophy, art, and science, however, for nature extends beyond human constructs. There are different ways of understanding nature. Take for example, the physical growth that can be observed among plants. In one view, growth in nature can be scientifically explained, biotic organelles in a plant respond to abiotic factors. Elements of carbon, hydrogen, and oxygen are combined, electrons are transferred, and molecules of sugar are in turn combined into leaves and roots. Biological, photosynthetic growth continues with the extension of stems, the appearance of flowers and the progression of the life cycle in steps that work through challenge to a goal of growth. This scientific representation of nature could also be seen as closely resembling the concept of growth in pragmatism, if the objective viewpoint were to take on a perspective of subjectivity, emphasizing experience over assumed outcome. Neither science nor philosophy can fully describe nature, however. Although nature includes cycles and systems that are predictable to a certain extent, and we appease our discomfort with uncertainty by assigning the notion of an assumed outcome, there is not outcome, goal, or purpose to nature. It *just is*.

Both science and pragmatism are human constructs, and although humans are included in nature, our growth can be limited by logic and rationality. For example, in the garden last summer, I observed one green *Echinacea* flower, petals and all, among dozens of others of the same species that were showing the expected, typical, yet beautiful, pink and orange flower heads. The mutation that caused the flower head to remain green can be explained scientifically as being caused by a virus; it can be justified

logically if applying human logic to the perspective of the virus. However, logically explaining the virus overrides any logic associated with "typical" plant growth. The virus causes the disc and ray flowers to remain immature and unable to reproduce. In order to promote growth and reproduction, energy is expended to follow the flower's genetic blueprint. In this case though energy is expended, but the flower produced is not capable of its usual functions (e.g., attracting pollinators, providing nectar, and producing seeds). What is the "logic" of the virus other than to replicate itself and to interrupt the reproduction of the flower? In the grand scheme of things, by replicating itself, does the virus not contribute to its own end? When viewing nature from a perspective broader than that of science or philosophy, we can see that beyond human explanations, both the virus and the flower *just are*.

Humans have made a place for mutant flowers in the ornamental horticulture trade because plant enthusiasts will pay extra money for the rare flower colors and forms created by viruses. However, to consider this use as the "purpose" of the virus is to only see from an anthropocentric point of view, a perspective that cannot be ubiquitously applied to the whole of nature in a manner that is sustainable into the future, for humans or for any species (Plumwood, 2003). In fact, Plumwood (2003) sees the human inability to see nature beyond its "purposes" as a form of irrationality – driving humans to orchestrate their own end, similar to the way in which the virus in the Echinacea diminishes the reproductive ability of its host. The virus challenges scientific assumptions, but it does not completely escape the realm of human logic, particularly when the virus and the human are considered relationally (Thayer-Bacon, 2003), and

humans begin to promote the replication of the virus because of the aesthetic pleasured gained from experiencing a green flower.

Neither science nor pragmatism completely describes nature – for what can? However, elements of both can describe gardening. The garden is a place for experiencing nature, for formulating understandings of science, for pragmatically working through issues with acts of gardening, and for establishing relationships within the community – societal and ecological. In addition, the garden is a place for the development of action-for-others and the promotion of social change, for in the garden we can cultivate action as well as plants. The following section will provide a definition for action, followed by the presentation and defense of five major claims that move us closer toward a comprehensive theory of action gardening in science education.

<u>Action's Relationship to Activism and Advocacy: A Definition</u>

In science education literature, the term action and *activism* are related terms with varying usages in science education literature is used practically interchangeably with the term *activism*. For instance, Calabrese Barton (2001) has noted that in science education, "linking research with action has been critiqued for being more about activism than about scholarship" (p. 914). This perspective suggests a relationship in which "action" is a general term, and "activism" is a collection of actions In one perspective, "action" can be understood as a general term that refers to the product of acting and "activism" as a term that gives greater emphasis to the specific products or the outcome of acting (process/product). A second perspective, however, presents activism as a subset of action, as in the Roth and Désautels (2002) book *Science Education as/for Sociopolitical Action* that dedicates a section to essays on environmental activism as a

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subset of sociopolitical action in science education. In another perspective, activism, as a genre of action, can be viewed as being composed of a collection of actions aimed at a particular issue. In this view, the actions, or the events of acting with a particular intended aim are quite specific. "Action," thus, can be used both in a general sense and in a specific sense. This section will focus on defining action in its "specific sense" as a tool for addressing particular issues with particular intended outcomes. In order to better define this specific sense of action, it is helpful to define what it is not.

In addition to action and activism, there is a third term, *advocacy* that is also used in science education research and curricula. Advocacy can be considered to be both a form of action and a form of activism. It is generally understood to refer to the act of speaking in support of others in a positive manner (i.e., agency). Advocacy is typically associated with acts that are generally accepted as beneficial. For instance, in the National Science Education Standards ([NSES] NRC, 1996), teachers and administrators are described as advocates of learning. Learning is beneficial, therefore advocating for learning in science education is beneficial for an advocate of science education with respect to the NSES.

By contrast, "activism" does not necessarily have beneficial connotations. In fact, the term activism is used at times to refer to controversial situations that may be in conflict with the acting-on-beliefs of others, or is associated with extreme actions that may be violent and do not necessarily take into consideration the perspectives of all involved stakeholders. For example, the term activism is associated with Earth First!, an environmentalist organization, considered to be radical, that is known to take "direct action," meaning acting beyond speaking for a cause, to say, damage logging equipment

or, worse, to spike trees marked for logging to harm the logger. Additionally, in environmental education, the term "activism" has been noted to be associated with "environmentalism" – a term which carries with it an even longer reputation of being biased or lacking the information needed to support a position from science (Sanera, 2008). Furthermore, the "ism" suffix of activism and environmentalism signifies a set of principles, doctrine, or dogma. West (2004) sees dogma as authoritarian and anti-democratic. Dewey (1938) considers, "any movement that thinks and acts in terms of an 'ism becomes so involved in reaction against other 'isms that it is unwittingly controlled by them. For it then forms its principles by reaction… instead of by… possibilities" (p. 6). I argue that action falls somewhere between advocacy and activism. Let me explain.

The notion of action in association with science education is not new, nor is incorporating school gardening as a method of action in science education. Action, according to Roth et al (2004),ction in science education is identified as beginning with an inherent "power to act". Calabrese Barton and Vora (2006) refer to this feeling of control as "agency," relating it to purposeful engagement in science and further defining it as "individuals and groups acting upon, modifying, and/or giving significance to the world in purposeful ways, with the aim of creating, impacting, and/or transforming themselves and/or the conditions in their lives" (p. 209). From this perspective, realizing one's own power to act, or sense of agency, results in the will to change a situation.

Rodriguez (2008) views agency in a broader perspective, as collective action conducted by groups of individuals who are inextricably linked to their cultural and environmental contexts. Rodriguez (2008) provides an example of agency from this point of view among a group of individuals in Hawaii, who see themselves as environmental

stewards and work together to protect and maintain the environmental health and authenticity of their island. Agency in this manner is understood as being longer-term, or more sustainable, rather than as an isolated response to a single situation.

West (1993a; 1993c) connects agency to the need for action in American society that he sees as in a state of crisis. West (1993a) says: "Large numbers of people in the world… don't believe that they make a difference… hopelessness becomes the conclusion and walking nihilism becomes the enactment of it. How do you preserve agency... in an environment void of self-worth, self-regard, self-esteem, self-affirmation?" (p. 91). He answers that the best way to preserve agency is to engage in action (West, 1993c). "Hope is more the consequence of action than its cause. As the experience of the spectator favors fatalism, so the experience of the agent produces hope. A preference for acting over watching has been the most important consequence" (Unger & West, 1998, p. 11).

Taking action for social change, or for hope as Unger and West (1998) describe it requires applying one's energy and abilities to an issue. In other words, action requires work. The Greek root of the word "pragmatism" is equivalent to "work" or "act," signifying the work embodied by American pragmatism, i.e., putting thoughts into practice, weighing consequences toward resolutions of issues, and equitably considering those involved. Based on West's (1993a; 1993b; 1993c; 2004) ideas, pragmatism is working through struggles to promote societal betterment. Peirce (1958) sees working through issues pragmatically as involving a merging of self, considering each merging of self with nature or with other selves as the establishment of a different reality, or Self; multiple Selves are connected in continuum. James (1890) views experience, or rather

"experiencing" as he refers to it, as belonging to the personal self, including connections, continuities, relations, transitions, tendencies, and the goal toward which one is experiencing. Dewey's (1916) description of experience builds on these understandings of Peirce and James. Thayer-Bacon (2003) describes what Peirce terms different realities as relational ways of knowing, however, she does so in a non-transcendental manner. West (1993c; 2004) recognizes a goal of transcendence, or a goal of rising from crisis, but he also acknowledges that struggles are continuous throughout life. In other words, according to West, we cannot completely transcend struggle in our lifetime. These understandings of American pragmatism, classic and contemporary, support the importance of acknowledging the ability to change according to experience with relational others. With specific foundations in West's philosophical perspective, these understandings of pragmatism are necessary for the development of action gardening as a theory.

Now I will defend the beginnings of a theory of action gardening based on five areas of action within science education: *sociopolitical action*, *environmental action*, *cultural historical activity theory* (CHAT), *Actor-Network Theory* (ANT), and *civic action*. Each of these areas will be defended with examples that for the most part have occurred while engaging in science activities "in the garden". However, keep in mind that action can be gardened anywhere; its potential cultivation and growth should not be considered to be confined within borders. Let's begin with sociopolitical action.

Sociopolitical Action

In the garden, we can connect with other people. *Science teaching and learning that is student-centered and open to contributions can encourage an awareness of social*

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issues that inspires sociopolitical action. The results could include meaningful scientific and sociological epistemological developments. Empirical justification for sociopolitical action can be found in science education research through examples of promoting participation in and implementation of action. I will now defend this claim with empirical justifications, consequential reasoning, and evidence from experiences.

Awareness of social issues and inspiration for sociopolitical action can occur in school science when the environment is open to student contributions. For example, Calabrese Barton (2000; 2001) notes that as educators, it is important to be willing to take on the perspectives of students, to put aside the role of teacher as knower and accept a role of learner in order to welcome the ways of knowing science that students bring with them. Results are empowered students with more confident voices and greater willingness to participate (all of which are characteristics of citizenship) (Roth & Desautels, 2004; Roth et al, 2004). Educational researchers note that allowing change to happen, rather than trying to create change is a more ethical approach to youth action, for action allows youth to be the "change they want to see," rather than mandating a change for them (Chatterton, Duncan, & Routledge, 2008, p. 270).

Calabrese Barton (2001) recognizes that research in science education is driven by a need for social change when she writes, "all the writing on oppression, marginalization, or even on empowerment cannot substitute for real-world actions" (p. 914). From her perspective, science praxis is a starting point for taking action by enacting power within one's own environment (Calabrese Barton, 2001). Action in science education begins by incorporating an understanding of socioeconomic and sociopolitical issues alongside an introduction to thought processes and strategies for resolving issues, a

combination that potentially leads to an understanding of power enabling youth to advocate for themselves (Calabrese Barton & Yang, 2000).

As claimed above, the implementation of action encourages the development of scientific and sociological epistemologies. Action, like science, emphasizes process, and does so through deliberate sociological strategies of planning, organizing, and decision-making (Emmons, 1997). Context gives action specific meaning, such as the ability to relate to local issues with personal sociological ties in informal settings; a local scale is more effective in promoting attitudinal and value shifts required for action and preparing students for sociological and political decision-making processes in government and commerce at larger regional and global scales (Hodson, 1999; 2003). Relationships formed between youth and mentors within the local community are particularly effective in encouraging a willingness to engage in action (Roth, 2009).

In other science education research, Fusco (2001) establishes the community garden as a place where science becomes relevant for urban teenagers, creating a space for "shared reasoning and activity situated in real-world cultural contexts" (p. 860). Hammond (2001) shows that the establishment of urban gardens fosters cross-cultural understandings of science and sustainability education, presenting the garden and gardening as commonalities shared among children and families speaking a diversity of languages. Nichols & Simon (2006) present an example in which the sharing of stories among students and community Elders about agriculture and gardening led to a neighborhood revitalization streetscaping project (p. 189). Gardening as a scientifically relevant activity transcends the boundaries of culture, language, and age.

Based on the aforementioned, sociopolitical action implies an awareness of issues and participation in the promotion of change. If youth are not engaged in opportunities for developing awareness and interest in social or political issues at school or elsewhere, West (1993a) is concerned they will have little experience in discerning what is important within their own cultural lives and the community. West (2004) acknowledges the lack of community support systems in today's society; these systems in the past have aided in the provision of "cultural armor to navigate the terrors and traumas of life" (West, 1993a, p. 195).

The cultural armor that West (1993a) mentions is especially needed in the early teenage years, when youth are already citizens with buying power as well as reproductive power (Mitchell & Mueller, 2008). To not introduce youth to sociopolitical issues and strategies for addressing these issues is essentially withholding information, perpetuating childish behavior among youth in a form of authoritarianism, one of three major dogmas pinpointed by West (2004) as obstructing American democracy. What we want for our children and students as parents and educators are health and happiness that comes with feeling successful at life. Yet, an over-emphasis on economics and market values in today's American society conveys a misconception that the only pathway to success is through economics (Orr, 1992; 1994; West, 1993a; 1993b).

I have first hand experiences observing feelings of success – that are not economically based - among youth when they are allowed the space to share their voices regarding an issue. As an educator, an example comes to mind of an unprompted conversation I overheard among students in an 8th grade science class following a laboratory activity. We had been making our own circuit boards with copper plates and

etching solution. The activity led into a discussion about the enormous amount of water required to dilute the chemicals enough to make them safe for the environment. As one student lab partner rinsed forceps in the sink, another lab partner shouted, "Are you trying to poison us?" A third student was concerned with wasting water. The three students decided among themselves that instead, they should rinse the forceps with a squirt bottle over the container that we had set aside for collection of the used etching solution. They immediately adopted the name of "The Rinse Crew" and took on the responsibility of rinsing everyone's forceps in a manner that did not waste water or put chemicals down the drain. In this example, the garden is the science classroom laboratory where action is cultivated as students connected our lab activity to the natural environment and human water supplies, made choices, and took action.

Another example connects action to the garden as an environment that allows the emergence of action-for-others. The UGArden, a student volunteer-run vegetable garden at a university, began as sociopolitical action among students of various disciplines who were interested in growing their own fresh produce. Following the expression of their interests to the University of Georgia Department of Horticulture, a faculty advisor stepped up, a piece of land was re-appropriated, and the growing began. The garden began

UGA Office of Service Learning. (2012, October). *UGArden Campus Kitchen Kick-off event.* [Brochure]. Athens: University of Georgia.

and still operates as a community garden that teaches traditional and sustainable farming practices to its student volunteers. However, within the first year, the garden grew enough

produce for its volunteers to give hundreds of pounds of fresh vegetables to the local food bank. Now, a mere three years old, the garden is the hub for the Campus Kitchen program, a joint venture of the UGArden and the UGA Office of Service Learning that serves meals to the elderly and economically impoverished prepared from harvested UGArden vegetables as well as produce that is rescued from local markets before going to waste. In addition, a low-income farmers market was started this year to bring nutrition to areas of public housing in the surrounding community. From student interest in taking control of their own nutrition has grown a force of action for the health and nutrition of others (Lewis & Woodhead, 2010; Miller, Lee, & Berle, 2012; Shearer, 2011; Techo, 2012). I see this university garden as a model example for what a school garden, at say, a middle school, could "look like" as an "action garden".

As the curator of a historic garden, I work alongside volunteers of different ages and backgrounds. We discover commonalities, "samenesses," as well as differences through conversations centered in care. Conversations begin with the care of plants. What do the plants need today? How can we promote their growth? Discussions based on observations of plants soon branch to the environment in general, weather forecasts, historical facts, other plants, other gardens, and other relationships. We talk as we work, sharing concerns that we have for family members and friends. We express opinions regarding politics, economics, and the combination of the two. We talk about the past, the present, and the future. When we leave the garden, the plants show response to our care; the garden in general looks "happy" and well-cared-for as finished blooms have been removed, leaving flower stalks standing straighter. My coworker and I are happy also for we have worked through issues together, starting with care for plants and finishing with

care for each other developed through talking and listening as a form of action. This example of sociopolitical action cultivated through the formation of relationship while gardening, although small in scale, carries over to life beyond the boundaries of the garden as my coworker and I exchange emails with information regarding health concerns, call to recommend a good mechanic, or save a magazine clipping with an interesting recipe until the next time we work together. In the garden, we can connect with other people through care. Sociopolitical action is nurtured through empowering voice and enabling participation in activities that address sociopolitical issues.

Sociopolitical issues are often related to environmental issues, for human society is inextricably linked to its ecological foundations (Orr, 1992; 1994). With this connection in mind, let's take a closer look at addressing environmental issues through environmental action.

Environmental Action

In the garden, we can connect with other species. *Experiences in the natural environment enable the development of knowledge of one's geographical and ecological place as well as an understanding of one's surrounding human and human-built community. Engaging in activities outdoors affords opportunities for understanding the natural environment that are not possible indoors. These understandings can lead to the development of a sense of care that in turn can lead to action-for-others. Environmental action that more fully considers other species and entire ecosystems can be inspired through action gardening.* I will now defend this claim with empirical justifications, consequential reasoning, and evidence gathered from experiences to move toward a theory of action gardening in science education.

As with sociopolitical action, empirical justifications that support environmental action as a meaningful topic for learning science can be found in the science education literature. One example that links learning in the natural environment to the establishment of a foundation for environmental action is in the work of Smith (2004) and Smith and Williams (1999). These scholars work with students in gardens and other settings in the natural environment to develop understandings of ecosystems along with a sense of ethical concern for others. According to Smith (2004), ecological education is about fostering a sense of care – care among humans and between humans and other species. Conducting the teaching and learning of science in a manner that fosters care can develop an awareness of interdependence among species as well as a sense of stewardship for sustaining these relational connections, developments that also prepare youth for community participation (Smith, 2004; Smith & Williams, 1999).

Connecting the work of Smith (2004) and Smith and Williams (1999) with that of Thayer-Bacon (2003; 2010) helps to explain the claim that understandings about the natural environment can lead to care that in turn can lead to action-for-others. By incorporating Thayer-Bacon's (2003) perspective of relational epistemologies, including personal relations, w/holistic relations, ecological relations, and scientific relations, we come to realize our ways of knowing as being embodied and embedded in our relationships with others. Thayer-Bacon (2010) argues as pragmatists before her that wisdom is not transcendentally located somewhere else but instead is situated in common everyday life.

Thayer-Bacon (2010) dissolves dualisms, such as that between body and mind, through feminism and pragmatism connections. This w/holistic perspective is reflected in

Smith's (2004) observations of students learning science in an atmosphere of care that extends to entire ecosystems. As Smith (2004) points out, time spent outdoors during repeated visits to sites where students participate in ecological restoration projects allows opportunities for greater attentiveness to the natural environment as relationships with other species and habitats are established. For instance, time outside in a school garden allows one to observe Monarch butterflies on their migration to Mexico just ahead of the first frost, or to hear a group of cedar waxwings as they excitedly take turns flying back and forth from their perch in an oak tree to nearby holly shrubs gathering berries. To enable experiences in the natural environment is to enable the development of w/holistic relational epistemologies that include nonhuman species and entire ecosystems.

In a manner that similarly recognizes the interconnection of living beings and their habitats that come to be understood through time outdoors, Williams and Brown (2011) promote sustainability education by linking pedagogy with pedalogy, or the study of soil. By establishing relationships with the living soil beneath their feet, youth are allowed to develop their senses, as well as a sense of place and biocultural diversity while engaging in practical experience (Williams & Brown, 2011). According to Smith (1998), ecological sustainability depends on the development of a knowledge base that recognizes the dynamics of ecosystems and a society that is deeply committed to place. In a manner that is reminiscent of Dewey's (1907) ideas for connecting school and society in practice at the Lab School, Smith (2002) acknowledges that children value knowledge that is based in their social reality and that allows them to be of service to others that they love and respect. To make choices that promote ecological sustainability over those that do not is to take environmental action.

Another example of science education research that shows how incorporating experiences in the natural environment can lead to environmental action is found in the work of Pauline Chinn (2007). Chinn (2007) takes a "human-in-ecosystem" approach that includes students, teachers, scientists, and indigenous practitioners in learning projects that monitor and restore the natural environment. By integrating traditional and modern practices for environmental place-based education in the K-12 curricula, Chinn has developed the Malama I Ka 'Aina curriculum that serves as an example of ongoing environmental action through the work of the Kulia Team. Comprised of students, teachers, and administrators throughout schools in the Hawaiian Islands, the Kulia Team integrates Malama I Ka 'Aina to develop place-specific versions of the curriculum that incorporate local outdoor field trips, community values, and cultural practices, such as those surrounding traditional culinary dishes (http://manoa.hawaii.edu/coe/kulia/kulia_team.html).

The inclusion of opportunities for environmental action in science education curriculum has the potential to enable the development of understandings of the place of humans within ecosystems rather than outside of them. These understandings may in turn lay foundations among youth for realizing the impact that human actions have on ecosystems, hopefully guide their choices as consumers, community members, and ecosystem members. If lessons regarding connections among humans and the natural environment are excluded in the teaching of science, the message is conveyed to youth that this information is insignificant to science education. In other words, as educators, in addition to teaching youth by what we include in the curriculum, we teach them by what we exclude; for all education is environmental education (Orr, 1994).

As an educator of various aged students, I have had the opportunity to observe first hand how diverse one's understandings of human associations with the natural world can be among elementary, middle school, and university students. Granted, I am not suggesting that understandings should be uniform. I am however, noting that that simple concepts, such as the water cycle that are learned through diagrams on the SMART Board™ are not typically integrated with, say, one's understanding of where rainwater (or other substances, such as oil that leaks from a car) goes after it hits the pavement. The majority of students that I have come in contact with do not think beyond the boundaries of their own skin or their own species, leading to actions with little thought of consequences to the ecosystem and its ability to sustain us.

There are exceptions, of course, to the lack of understanding of consequences extending from our actions on the environment. One such example is found in the Emerson Avenue Community Garden, a joint project of Orville Wright Middle/Magnet School and the greater Westchester community of Los Angeles. It began with concerns of parishioners at a neighborhood church regarding food security in an era peak oil, scarce phosphorus, and climate change. These concerned citizens formed a group called the Environmental Change-makers that have worked with other organizations to found three gardens within their community where gardening classes are designed to spur grassroots change that informs policy. Starting with the reoccupation of an area that was designated for horticulture education and left untended more than a decade ago, the Emerson Avenue Community Garden is a composition of efforts of the school, neighbors, and the city to create a shared space that promotes health and community. "Located on more than 34,000 square feet owned by the Los Angeles Unified School District, the Emerson

Avenue Community Garden has 38 community plots plus 20 plots used by students at the school to grow the soil, the vegetables and themselves"

(http://www.facebook.com/pages/Emerson-Avenue-Community-Garden/155192944545677?sk=info). Now, in its second year, the garden thrives as an outdoor classroom while school is in session, and as a place for gardening classes, a weekly farmer's market, and community gatherings in the evenings and on weekends – so far an example of continuing and sustainable environmental action.

Another example of how a student-driven learning experience led to long-term environmental action can be found in the STRAW Project (Students and Teachers Restoring a Watershed) (Stone, 2005, p. 161). The project began when a fourth grader, whose class was studying endangered species in the tropical rainforest, wondered if there were any endangered species in his local environment.

PRBO Conservation Science. (2013). STRAW Project. Retrieved from http://www.prbo.org/cms/192

His teacher allowed the class to research the question, and they found that there was a species of freshwater shrimp that had once been prevalent in their local California streams that had sharply declining numbers. The students designed a project for restoring the banks of the stream where it traversed a cattle rancher's property. The project involved communicating with the property owner, obtaining willow and other tree saplings, and planting them to reinforce the stream bank. One project grew into a series of similar long-term restoration projects, and the shrimp population has recovered along with bird and plant biodiversity along the stream banks. One student was noted as saying, "It changed everything we thought we could do". There is no doubt that these students

felt empowered by investing themselves through work in restoring the natural environment for the sake of other living things, beginning with the California freshwater shrimp. I imagine they feel a sense of love for that place. Years later, students of the original project who were interviewed on their college graduation day remarked that being involved in (what became) STRAW was one of the most memorable and life-changing experiences for them (Stone, 2005).

The STRAW story makes me think of my own life-changing stories. The most vivid are those that I return to repeatedly, and they take place outdoors. I return to them because of the feeling they give me of being empowered and belonging. They connect me to life in a way that transcends society. Accepted by the Earth as the human that I am, I realize my capabilities for using my brain and body to accomplish tasks and work through struggles as they arise.

One of my fondest memories is in Costa Rica. I am surveying the density of hemi-epiphytes in two tracts of tropical rainforest. I have with me only a map, a pencil, and a three meter long piece of bamboo. There are two pathways into the smaller of the two forest tracts. The pathway to the north requires the crossing of Rio La Suerte by walking on a fallen tree. The tree is solid although not wide, and I use the bamboo to help me balance like a circus performer. I go alone every day although I am strongly encouraged not to. I am not afraid, even as I realize I am eye-to-eye with a hognose pit viper. I am at a deep level of understanding of my place and purpose in the universe; my energy is matching that of the snake. It is not afraid either, so we both continue on our way.

The bamboo is long so that I can measure three meters into the forest on either side of the trail, and it can be awkward if I am not concentrating. I mark where the hemi-

epiphytes are on my map and identify them by family of which there are only two

possibilities, Moraceae and Clusiaceae. The most common example I find is a member of

the Moraceae family, the strangler fig. Beginning as a seed dropped by a bird or other

creature onto a branch in the forest, germination produces a sprout with roots. The roots

are able to absorb water from the humid air and the plant grows vigorously. Eventually

the roots reach the ground, first like vines, then like trunks of small trees. The plant

reaching down from the branch above is able to take roots in the soil and continue to

grow stronger until it eventually envelops the tree upon which the seed first landed. The

plant is fascinating in the way that it makes its place in the forest.

The Moraceae individuals are not difficult to locate in my survey for as members

of the fig family, they produce figs. Fallen figs on the pathway direct me to the locations

of their parent plants. Figs fall as I approach, oddly directed at me as if being thrown. I

realize that they are being thrown at me, by a group of howler monkeys. (To hear the call

of the howlers at dawn can be terrifying. During my first days there my mind tried to

describe their sound as a train or tornado, the first of which was impossible given the

remote location, and the second of which became equally unlikely when the sound

stopped and repeated rhythmically. I soon grew to look forward to their call that marked

the day like military revelry or Taps.) I realize the howlers are amusing themselves. I

pick up a fig and bite into it. They laugh amongst themselves and toss a few more figs to

me, more gently than before. I thank them, measure the fig tree, and go on my way. The

relationship we formed in those few moments in that magnificent tropical rainforest

garden remains strong in my memory. When I left, I felt and still feel that I left part of

myself there. I still feel a deep sense of love and care for that place and those fellow creatures and a prophetic urge to take action for their benefit.

Taking action for the rainforest is difficult from Georgia, although not impossible. There are organizations that enable action regardless of where we are, such as the Rainforest Action Network (RAN) (http://ran.org/). The action enabled by RAN is large in scale, involving online money donation and petition signing for the purpose of putting pressure on powerful corporations and policy makers that cut rainforests and burn coal. There is a feeling of disconnect, however. This sort of action from afar, although it may originate with a profound urge to take action, is not prophetic in the manner described by West (1993a; 1993b).

There may have been a similar feeling among the fourth grade STRAW students who had profound urge to act combined with a sense of disconnect in space from the endangered rainforest species they were studying. Their teacher made all the difference by recognizing the urgency to act among her students and working with them to find a way to make action happen locally. By enabling connections to be made between local issues and her students' propheticism – or in other words, their feeling of being drawn to address an issue and to invest themselves through work and care - this teacher was action gardening, even though their garden was a stream bank on a local rancher's land. By arranging for her students to actually do the work required to begin restoration of the stream bank and to come in contact with the life there – to see first hand the endangered freshwater shrimp, the willow trees that would grow to stabilize the bank, the birds that would eventually perch on the trees, and the rancher who owned the land – provided for more profound understandings of the ecological basis of the issue and a more meaningful

experience. As evidenced from interviews of the students twenty years later, their concepts of themselves now also include that experience; the effects have been long lasting.

As an environmental educator, I remember beginning a hike with summer campers on one particularly hot morning. Many of the campers were already dragging their feet after several days of hiking, sweating, and mosquito bites. However, as we entered the woods, one camper spontaneously and exuberantly shouted, "I love nature!" I completely agreed, but I knew everyone was not sharing her sentiments, at least not at that moment. While I would hope that time outdoors would promote such heart felt connections with the sense of life detected there, I realize that we are all different and bring with us to camp or to the classroom – to the garden – the connections that we have previously made and the epistemologies that we have developed based on them. The school garden allows opportunities to share these epistemologies while investing ourselves through work toward a goal of growth. In the garden, we can connect with other species. Additionally, this section highlights the connections between environmental awareness and ecological understandings that can be established while spending time in one's natural environment. The connections to environmental action made in this section are also linked to action culturally and historically as will be examined in the next section.

<u>Cultural Historical Activity Theory</u>

In the garden, we can connect with culture and history. *Action gardening can make connections with history and culture while encouraging personal investment in projects promoting plant growth. The results may include meaningful understandings of*

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science that are similar to the outcomes of learning science outlined in cultural historical activity theory (CHAT). The following paragraphs define CHAT and provide examples of elements of CHAT in science education. I will now defend this claim with empirical justifications and evidence from experiences.

CHAT is an approach to learning that is founded in experience, and involves recognizing social and cultural aspects of learning, such as the role that language plays in bridging theory to practice. CHAT is a system based approach and thus considers the entire system involved in learning, not merely one actor (Roth & Lee, 2007). For example, in approaching an issue that requires decision-making, we gather information from the situation in the form of observations and verbal and non-verbal communication. In this manner, language and sensorial experiences serve as tools for establishing an understanding of a situation and guiding our actions regarding the issue (Tobin & Roth, 2005). We gather information through "productive activity" which, rather than merely 'being busy' is activity with the intent of reaching a particular goal (Roth, 2009).

Empirical justification for the incorporation of CHAT or similar frameworks in science education is found in the work of Roth (2009), Roth and Lee (2004), and Roth and Desautels (2002). Roth and Lee (2004) make the point that incorporating productive activity is a method of contextualizing science that reorients the teaching and learning of it to a goal of completing a project; science is learned along the way instead of being the main goal from the start. Roth (2009) uses CHAT to work with students and community members to restore a channelized drainage ditch into a healthy creek that can support trout; hence, the envisioned goal is the healthy creek, not school science in a creek setting. In addition, the activity encompasses more than the creek but the entire

watershed and the aspects and stakeholders embodied by it, including science and education and also socioeconomic, political, cultural, and historical issues (Roth and Desautels, 2002).

Krasny & Doyle (2002) and Krasny & Tidball (2009a) apply a "systems approach" to students participating in the community through community gardening, to demonstrate how intergenerational interactions lead to local social and environmental action and support community and cultural sustainability. For example, the Garden Mosaics program, implemented by Marianne Krasny at Cornell University, brings together middle school and high school youth along with mentoring college students and Elders in community revitalization gardening projects in vacant lots of New York City. These continuing projects allow the sharing of scientific, historical, and cultural knowledge of plants, gardening, food, and life in a manner that can be sustained into the future, in addition to resulting in a sense of pride and attitudinal uplift within the neighborhood (Krasny & Tidball, 2009b)

The work of Calabrese Barton and Osborne (2002) integrates concepts of CHAT into science education without fully incorporating activity theory. More specifically, these scholars include aspects of history and culture by emphasizing that our *sociohistorical* lives are included in science education through concepts of "homeplaces," meaning the experiences, values, and ideas that students bring to the science classroom, transforming the science being engaged in there. Calabrese Barton and Osborne (2002) note the importance that memories, or "acts of remembrance," play as tools in the recreation of science for social action. These acts of remembrance include experiences, values, and ideas that have shaped our understandings of science outside of school

science. Integrating acts of remembrance in school science enable us to "reimagine nature to the urban landscape where we live" (Calabrese Barton & Osborne, 2002, p. 132). The reconstruction of homeplaces that results from reimagination includes recognizing commonalities in "roots of a shared history and common anguish," or experiences of oppression (Calabrese Barton & Osborne, 2002, p. 141).

The remembered experiences that students bring to science class, like snapshots of history and culture, can be pieced together in scrapbook-style for the development of classroom community. When parents' and grandparents' remembered experiences are included, examples of gardening are likely to appear as a commonality among the families of several students, considering the prevalence of Victory Gardens and other similar trends in recent history. Regardless of what experiences appear, there are commonalities to be discovered that can be explored further in science class. These "snapshots" of history and culture are like "seeds" for learning science. The class together can design the garden with the available seeds and share the work of tending it through the applied interests of individuals, toward the cultivation of scientific understandings that potentially can grow into action through community relationships.

As evidenced in the above examples, the incorporation of methodologies such as CHAT can lead to scientific knowledge that is embedded in social and cultural aspects of our everyday lives. It may be argued that technical skills of science are not addressed in a manner that supports preparation for careers in science, for this is an ongoing debate among supporters of traditional versus progressive approaches to science education (Bracey, 2007; Labaree, 2005). However, learning science in a manner such as that

described with CHAT does support the goal of improving the public understanding of science by making connections between science and personal lives.

Among my own learning experiences, some of the most prominent in my memory are ones involving scenarios similar to those outlined above, building on history and culture while working with others to establish relationships in the community and in the natural environment. The experience I best remember is a sixth grade science/social studies project that centered on the "issue" of how to go about building a shelter out of available natural materials. As a class, we had recently visited Old Salem, a preserved and restored Moravian village, first settled in the 1700s that today is a living museum and archaeological site. At Old Salem, trades historically practiced in the village are reenacted daily for educational purposes and include blacksmithing, pottery, bookbinding, spinning, and weaving, to name a few. In addition to being shown demonstrations of the crafts and trades of the time period, we were taught about the craft apprentice program that was employed in the village, we were shown artifacts that had been unearthed around the restored buildings, and we were given a tour of the apothecary's house. This is where I remember first smelling lemon balm, a calming herb with antibacterial and antiviral properties and one of my favorite scents. One focus of the tour was to present the village as a place where cultures convened, namely, Moravian (from what is now Germany), African American (introduced by slave laborer tradesmen), and Native American cultures (integrated through associations with guides and traders in surrounding area).

After the field trip, our class engaged in a follow-up activity at school in which we were allowed to role-play aspects of colonial life that we had learned about during the

tour. Collectively, we decided that we were particularly interested in how settlers would have gone about building houses without power tools. One student suggested that settlers would have brought knowledge of building houses with them. Another brought up the possibility that the trees and building materials would have been different from where the settlers came. Yet another student proposed the idea that Native Americans of the area may have offered tips on how to work with the vegetation of the new settlement. As a group, we chose to incorporate these ideas and set about distributing labor amongst ourselves. I volunteered to collect plant material for the shelter and assigned myself the added role of apothecary. I slightly remember that several lean-to shelters of sticks and brush were constructed, for we could not agree on one design. My memory is not about the shelters, though; it is about the process of building them, or perhaps the freedom that we felt we had in building them. I do remember picking different plants around the schoolyard and getting stung by a yellow jacket.

The lessons learned during the shelter building activity included topics of Native American culture, American history and natural history, native habitats, soil types, and plant taxonomic classification. Integrated into these topics were lessons in physical science, simple engineering design, group collaboration, and communication. Granted, the "issue" of this experience was not one of great importance. It was, however, student-driven, and as such, led to a sense of authenticity within our sixth grade minds. I remember that sixth grade project today because the process was meaningful to me, perhaps because it was student-led, perhaps because of the yellow jack, or perhaps because of the lemon balm. Regardless, of the exact reason why, my memory is definitely related to being guided in activities "outside the traditional notions of modern schooling".

I relay this memory now because it depicts a moment in time when I established a connection to another species, *Melissa officinalis*, or lemon balm. This connection has grown into a relationship of care, and even love, not only for that one species but for the species surrounding it in my garden today. I care about the bees that visit its flowers in the spring and about the earthworms in the soil around its roots. I also care about my children who always choose the lemon balm leaves when they "cook" with sticks and empty flowerpots in the garden. Because I care, I take action to promote the life of the lemon balm by weeding it, and I encourage a sense of care within my children by reminding them not to take too many leaves. I pass along what was established during my sixth grade field trip because when I reflect on my memories, I know that caring for others has made my life richer.

Gardens are recognized as holding special places in human memory through care and cultural expression throughout history (Blair, 2009; Francis, 1995; Louv, 2005). The strong and recurring history of gardening in America and worldwide is evidence that it is related to meaningful and positive experiences. The connections to aspects of human culture made in gardens differ from those of a watershed (e.g., referenced in Roth, 2009) but are still integral to the ecological-sociological system addressed by CHAT. These connections can include cultural expressions, such as descriptions of human-nature relationships conveyed through art. For example, a patron of Life Lab in Santa Cruz, CA links ecology and sociology as she expresses her gratitude for the children's garden programs that they offer in an essay that connects childhood memories of finding peace in nature to historical works of poetry and literature (http://www.lifelab.org/wp-content/uploads/2010/12/birthday_essay1.pdf).

An example showing how connecting with others through culturally- and historically-founded activities leads to action is found at Cornell University. There the Cornell Garden-Based Learning Program in partnership with the cooperative extension service immerses high school and middle school students in leadership roles regarding food security. Teens serving in roles of farm manager, workshop trainers, community organizers, and conference keynote speakers help to educate the general public in methods of traditional and sustainable gardening and train other youth from around the state of New York in farming methods and leadership roles. Through the Garden-Based Learning Program teens both learn from community members and teach others, empowering them as leaders and teachers of adults and youth alike while conserving traditional knowledge through farming practices and caring for the environment (Bennetch, 2011).

In the historic garden where I work, we held a seed swap last spring. We had grown many varieties of beans the summer before and saved the seeds, and we had too many to sow or to store. It seemed logical to see if the general public were interested in growing them at their homes. I had been to a seed swap years before after Virginia Nazarea, an anthropologist, had been a guest lecturer in an anthropology course I was taking. She talked to us about her work in the Philippines with what she terms "memory banking" which is basically the collection of indigenous knowledge that surrounds agriculture and gardening. Nazarea (2006) notes that great strides have been made in increasing awareness regarding biodiversity conservation in seed and gene banking, but the cultural knowledge surrounding seeds has been overlooked. Nichols, Tippins, Morano, Bilbao, & Barcenal (2006) recognize the significance of this knowledge and

extend Nazarea's (1998) concept of memory banking to generate data regarding the historical influences of sociocultural, political, economic, health-related, religious, and environmental ways of thinking on scientific understandings. To me, the seed swap in the historic garden was memory banking on a small scale, involving the collection of sociocultural, environmental,

Photo of my "bean box" Melancon, M. (2012). Georgia FACES Retrieved from http://www.caes.uga.edu/applications/gafaces/?public=viewStory&pk_id=4397

and historical information in the form of personal stories of community members regarding their memories of gardening. For the swap, I made a personal collection of seeds and stored them in a plastic box with different compartments. My children had received the box as a gift filled with beads that they had used for making necklaces. I got the idea to make the bead box a bean box from a picture in Nazarea's (2005) book *Heirloom Seeds and Their Keepers*. I was excited to share my seeds.

Several community members attended the seed swap, including entire families. As we talked about the varieties of seeds that we had brought, we realized that each variety of seed has a story. For example, one tan-colored speckled bean variety is called 'Turkey Craw.' The bean was given the name by a hunter who decades ago found it in a gizzard of a wild turkey. Noticing that the bean looked different from other beans he had grown before, the hunter saved it and grew it the next summer. The bean variety proved to be a "keeper" with strong vines, vigorous growth, prolific production of bean pods, and a great story as well. Similar stories surround heirloom seeds that have been treasured for their differences, saved, passed down for generations, and carried to new places as a food source as people migrated to new places.

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In a sense, seeds are like suitcases of culture (Lane, 2006). For example, the history of the African-North American slave trade does not typically include an image of the people being traded carrying anything with them. However, Africans in the slave trade brought plant knowledge. This is evident in hoodoo medicine, a form of herbalism that originated in western Africa but has been adapted to the plants of North America and is still practiced among the Gullah people of the South Carolina and Georgia coast (Mitchem, 2007). In addition, they brought seeds. One example is found in the story of the pigeon pea, or *Cajanus cajan* that was brought to North America from Africa in the 17th century (Mitchell, 1999). The pigeon pea is rumored to be the namesake of the popular New Year's Day dish in the American south known as "Hoppin' John." The name of the dish is based on the French pronunciation of the pigeon pea (pwa peeJON), a name that Africans shared with English settlers along with their knowledge and culture surrounding the pigeon pea. Having a long natural history in western Africa, the pigeon pea has since been revisited in research for its high protein content and as a drought tolerant, nitrogen-fixing perennial, characteristics that are extremely important in an area with shortages of food and water (Duke, 1983).

The seed swap in the garden enabled the sharing of personal knowledge surrounding plants, seeds, and history that we did not realize we had. In the garden, we can connect with culture and history. The key points of this section include the importance of understanding how ecology and sociology are intertwined in one's community, such as through cultural and historical connections. Similar to the seed that connects people and places through the culture that it carries, ecological and sociological connections are carried forward through cultural and historical activity. By extending

these connections even further, we can see a web of relationships among participants of action, or actors. These multifaceted connections become more apparent as we examine more closely Actor Network Theory.

<u>Actor-Network Theory</u>

In the garden, we can connect with a network of actors. *Learning science in the school garden immerses the learner in a context that reflects the interrelated nature of ecological and social systems. This broadened perspective of interconnectedness is also reflective of the inclusive nature of Actor-Network Theory (ANT). Through ANT, people and others who engage in gardens are linked (biologically, but also more importantly, socially) to many of the nodes within the community (social organizations, knowledgeable others, Elders, scientific institutions, fisher-persons, etc.), resulting in a strong network for action.* I will now defend this claim by providing empirical justification as it is found in science education research and personal experiences.

ANT is a method of social theory that reconstructs the concept of "social" that is perceived as having been objectified in modernity (Latour, 2005). The "theory" is described as more of an ongoing theorizing through description than a settled theory. ANT views individuals and objects as actors in networks that are continually made and remade by "tokens" passed among them (Latour, 2005). Tokens are representations and meanings found in language and symbols of culture and experiences. Because of the passing and changing of meaning, ANT is at times referred to as "sociology of translation" of "hybrid thought" (Blok & Elgaard Jensen, 2011).

Pierce (2007a; 2007b) further describes the reassemblage of the social by outlining the connections of networks and democratizing them, focusing on the anti-

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democratic characteristics of science and technology in educational philosophy. Pierce democratizes by illuminating the roles of actors not typically considered, in turn making apparent networks of connections that typically go unnoticed. For example, Pierce (2012) traces the connections of genetically modified salmon ecologically, sociologically, and economically and by doing so raises questions regarding the ethics of modern science and technology and genomic realities that have gone unasked by society due to ignorance or indifference. The salmon is thus democratized as an actor in a network that previously was not visible or only noticed from the human perspective and not at all from the perspective of the fish. In this sense, ANT is a pedagogical tool for scientific literacy (Peirce, 2013).

While Pierce highlights sociological networks and connections that often go unnoticed, West (1993c; 1999) notices sociological connections that are missing. West laments over the lack of community support for youth, acknowledging the difficulty of raising children in our market value-laden society. West (1993c) calls for the establishment of networks to provide mentoring services for youth that can also exemplify the democratic strength that can be gained through joining forces in organizations, alliances, and coalitions. Pierce (2012) opens the conversation to other species and other epistemologies, such as traditional ecological knowledge, in ways that could strengthen West's arguments. For example, West acknowledges his own oversight of addressing ecological issues, and he is deeply troubled by the lack of nonmarket values in American society. There are aspects of traditional ecological knowledge that integrate both of these concerns while also emphasizing, as West does, the strength that is found in community.

Pierce (2012) writes that education is failing society by not preparing for new understandings of socio-ecological settings. He maintains that present society is failing future society through the lack of recognition of voice and perspectives of all actors. The collection of individuals that can be a community in the science classroom/the garden - including teachers, learners, and members of the greater school community - is also a network of actors. Recognizing their voice and perspectives in the process of teaching and learning science is an initial step in preparing for new socio-ecological understandings. Enabling communication and experiences in science education contributes to the development of these understandings.

  As a teaching assistant in an ecology course, I have the opportunity to set the stage for experience as I take adult students, some for the first time, to conduct a bioassessment of macroinvertebrates in a local stream. Equipment in tow, we trek through the forest on a well-worn trail to the water's edge. Groups are created, tools dispersed, instructions clarified – everything is in order. We follow the instructions; we take measurements; we sample thoroughly; we find nothing - at least not anything that we are supposed to find. Education is like this sometimes.

We did find five salamanders, a huge bullfrog, baby crayfish, and a barred owl. We heard lots of birds and the babble of the water. We breathed fresh air, felt the warm sun, and saw the first turning leaves of autumn. We took a group picture, and we talked about school, home, roommates, football, frat parties, and the frog. For one short hour, we did not follow the protocol. Were we successful?

The next week when we are analyzing our (lack of) data, I explain to the class that the place we were sampling gets sampled by every ecology class, as well as by education

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classes and elementary school students on field trips. The site must be oversampled.

What can we learn from our findings? They are confused because we did not achieve the goal that we set out to achieve. They ask about how they are supposed to complete their lab report without any data. I remind them that we do have findings, albeit not numerical ones, and about how much we achieved in the process. Nature is like this. Education is also like this sometimes - hopefully more times than not.

To fill the time that is left in our lab session (that would have been filled with calculations) we pull up the Upper Oconee Watershed Network (UOWN) website. We see maps of our watershed, campus, and stream. We find the watersheds of their parents' homes on the map and see how they are all connected – how they all join together on their journey toward the ocean. We see photos of the macroinvertebrates that we did not catch. We see that there are future dates posted for quarterly stream sampling in the area, and they ask me how they can participate. We were successful! We grew.

The lessons we learned in those two lab sessions were about connections. Sampling a stream is not only about data. In fact, the lack of "data" allowed us to make even more connections than we would have if we had found lots of macroinvertebrates - or at least different connections, similar to those described as socio-ecological or ecologically-sociological that Latour and Pierce write about. The network that became apparent to us at the stream as we were enabled to make these connections brings to mind a poem by Janisse Ray (2011) that reflects her connections with the Altamaha River:

Invitation

My body is a river

Way down in the capillary of my wrist

Is a little branch you can drink from.

My heart is a salty ocean, heaving back and forth,

Prisoner to moon. When the blood comes in,

Mullet fill my veins, so many

They are a silver thrashing bridge.

You could walk across them. (p. 2)

In Camden, New Jersey, a lawyer turned director of a children's garden works with local youth to install community gardens and teach residents how to sustain them. The Camden area is considered a food desert due to the lack of grocery stores, the subsequent result of extremely high crime and poverty for a city of its size. As a result of the initial community garden initiatives that were started in 1985, Camden City Garden Club was formed and more than one hundred gardens have been created. The Garden Club works in conjunction with individual residents, faith-based organizations, and the City Public Works Department's Adopt-a-lot program for 12,000 abandoned city lots to provide food security and a sense of hope to this extremely depressed community. The Garden Club's efforts gained the attention of researchers in the University of Pennsylvania Center for Public Health Initiatives who have joined forces to collect data used in grant writing for funds to keep the gardens going (Vitello, Nairn, Grisso, & Swistak, 2010). This is not an example of charity but of the strength found in networks.

One morning in the garden after an exceptionally hot day, I find a black rat snake caught in deer netting. The netting had cut into the snake's skin in several places, evidence of the struggle the creature must have endured as its life left its body. I cannot help but imagine how terrifying it would feel to be restrained, immobilized against every

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bit of one's will and in the scorching sun at that. I remember seeing that snake before and being glad, for there is a large population of cotton rats in an adjacent field that chew the ornamental annuals off at the base, leaving empty voids in the flower bed. The netting is to keep the deer from the surrounding woods away from the watermelon plants. They are 'Moon and Stars' watermelons, an heirloom cultivar from seeds that have been saved and passed along through a century of generations and eventually passed to me.

As I relay the story to my friend, I express my feelings of guilt. Because I placed the netting over the watermelons, I killed the snake. Why had I not noticed the snake the day before as it fought for its life in the hot sun? My friend smiles as she tells me that by looking at the situation differently, I can instead view the snake as giving its life so that I may see that it is time for change. I take the snake to the woods where its body can be recycled into elements of the soil, and I remove the netting. The garden as an ecosystem requires a continuing review of the network's actors' roles and a perpetual willingness to broaden perspectives to make connections apparent. The garden is a model for life, a microcosm in which, as West (2008) reminds us, death is a part of life; our lives gain meaning by working through struggle.

My key points for this section are that through the lens of Actor-Network Theory, entire networks of relationships are realized that were not visible before. Recognizing these ecological and sociological relationships and their continually changing nature gives a more realistic view of the present and future, aiding in formulating action that is more ethically positioned for the inclusion of previously marginalized actors. In the garden, we can connect with a network of actors. As we realize the connections of our

network, we can also establish a sense of citizenship based on these relationships and find opportunities for civic action, as will be discussed in the next section.

Civic Action

In the garden, we can connect with a sense of citizenship. *Through participation in democratic practice we can engage in civic action and realize citizenship. Reciprocal mentoring relationships among students, teachers, parents, and community members enable us to learn from each other the most effective and intellectually founded ways to go about engaging in civic action together as a community. The garden is a place for the formation of such relationships and for engaging in civic action.* I will now defend this claim with justifications and evidence found in research, literature, and experiences.

West (2004) calls for *engaged citizenship*, echoing Benjamin Franklin's warning that without it, America will eventually become like Britain, ruled by a single entity with absolute power. Summarizing West's ideas, columnist Merlino (2010) defines engaged citizenry as:

> first, a deep questioning of the government and the society around us; second, a profound engagement with that society in an effort to effect change; and, third, the sense that good and evil are often wound together, success is elusive, and even though life can beat you down, that's not a reason to stop trying. (http://dougmerlino.net/cornel-west-on-engaged-citizenship-the-socratic-and-prophetic-traditions-the-blues-and-democracy/)

Essential to engaging as a citizen is realizing citizenship. In other words, one must be willing to participate in society through democratic practice. In order to do that, one must realize a sense of community, or one's personal voice in relation to others.

Throughout history, democracy and education have had similarly aligning goals of supporting citizens as they ethically and equitably make their place in society. Both have the goal of developing citizens who can govern themselves, and who can understand the workings of nature and industry. The idea is not different from that of my mentor teacher whom I mentioned in chapter one as saying, "I am teaching you not to need me." In addition, the goals of democracy and education similarly share points necessary for their attainment, such as recognizing individuals' rights to life, liberty, and the pursuit of happiness (Rothstein & Jacobsen, 2006), as well as rights to physical and intellectual fitness recognized by Benjamin Franklin (1749). Goals such as these are difficult to reach among groups of individuals with varying abilities and different definitions of happiness, equity, and ethics. Democracy carries with it an understanding of shared intentions, established through participation and deliberation in the form of sharing one's voice and listening to others (Laclau & Mouffe, 1985), as well as a sense of justice (Boss, 1999).

Within the field of science education, scientific literacy can be seen as essential to democratic society, for science incorporates a more expansive and informed way of thinking; to be scientifically literate, thus implies a way of being in the world that is less dogmatic, more tolerant, willing to review reasoning that supports various sides to an issue, and more open to finding solutions to new problems (Tippins, et al., 2010). To be scientifically literate implies an acceptance of uncertainty. Granted, "science for all" can also be viewed as a slogan that opposes human values (Tippins et al., 2010) or that suggests that there is only one way to see or do science (Hildebrand, 1998). Other scholars maintain that literacy in general is essential to democracy (Franklin & Snow-Gerono, 2007; Snow-Gerono & Gregory, 2009). Along the same lines, the work of Orr

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(1992; 1994) supports the idea that ecological literacy is essential for democracy. Citizen science is but one way in which this assertion is implemented in science education and in society (Mueller, Tippins, & Bryan, 2012). The garden offers a gathering place for all of these points - for various scientific perspectives, for opportunities to see the natural sciences that are typically separated into different disciplines occurring collectively in nature, and for participation of citizens in the democratic practice of science and society. It sounds simple, right?

As a parent, in reaction to difficult decision-making situations, I am guilty of playing the role of the pretender. Under the pretense of operating democratically, I instead at times take what seems to me to be the path of least resistance and mandate the next activity by limiting choices and controlling the outcome. I imagine most parents would admit that they do this as well, for there is always the reasoning that "parents know best," especially if there is a question of safety. This could, however, be considered an authoritarian practice – a top-down approach - an exclusive action void of patience and democracy. Similar situations arise in the classroom when, as educators and scientists, we are so drawn to a particular outcome that we forget the process of democracy. Instead, we move forward as if our thoughts were those of everyone, not noticing the connections and not hearing the voices of others. The garden is not exempt from this sort of control. The gardener can over-tend a garden by, for example, not paying attention to the visual cues of the plants in response to their environment – the already wet soil, the shade, the forecast for rain - and causing root rot by over-watering. The garden, like the classroom can also be a place of ungrowth, when it is without care in the way that Noddings talks about it, or when it is over-cultivated. What I am arguing for

is a practice for growth - growth as a result of the reciprocal relationships of care within a network of community in which plants and gardeners are both important.

The work of author Judith Boss (1999) provides just such a vision of community that encourages growth. Boss calls for a shift from what we perceive as scholastic knowledge represented by Gardner's (1983) multiple intelligences. She states that in order to grow into fully participating citizens, we must find our place in the web of community life. In order to allow this to happen Boss maintains that we need to establish a vision of the world along the lines of Thayer-Bacon's philosophy (2003) that sees all of life as connected knowledge. Boss (1999) compares this vision with that of Dewey's (1938) theory of connecting school with society and education with the rest of life. With this shifted and expanded view, the natural environment and nature in its entirety is perceived as a source of knowledge. This expanded vision fulfills Leopold's (1949) plea for humans to see themselves as members of the land-community, rather than conquerors of it. It promotes a vision of self extended to community that is integral to some collectivist cultures. *Pueblo*, represents this, a metaphor depicting connectedness among people and the natural environment through tradition, and also the name given by Spaniards to some Southwestern Native American tribes (Cajete, 2000). A connected sense of community such as this can play a role in the development of citizenship. In the garden, we can realize citizenship as an aspect of both societal and ecological communities.

Connecting to one's natural environment in the garden through an expanded sense of community can provide opportunities for *youth participation* in civic action. Checkoway and Gutierrez (2006) describe youth participation as a process of involving

young people in decisions affecting their lives. Youth are recognized as citizens, consistent with the United Nations Convention on the Rights of a Child, by emphasizing their involvement in civic activities rather than their age. Underlying principles for promoting youth participation is a shift from 'caring about' young people to 'empowering' them as "competent citizens with a right to participate and responsibility to serve their communities" (Checkoway & Gutierrez, 2006, p. 3). Shifting the focus to what youth *can* do, rather than what they cannot, is consistent with a view of "youth as resources" rather than the view of "'youth as problems' that permeates the popular media, social sciences, and professional practice when referring to young people" (Checkoway & Gutierrez, 2006, p. 2). Recognizing youth in this manner is integral to changes associated with participatory practice in a diverse democracy (Checkoway & Gutierrez, 2006). The garden is a place that allows opportunities for new perspectives in democracy, or as my grandmother would say, "for a set of fresh eyes," such as those incorporated in youth participation in civic action.

Environmental philosopher and pragmatist Val Plumwood (2003) illuminates the importance of soliciting "the voice from below," to promote "widespread popular participation, choice, and involvement in decision-making," meaning that we should listen to voices that we typically exclude, such as those of youth and other species (p. 91). She warns that intentional and unintentional exclusion of such voices can narrow democratic participation in a "rationalist and inegalitarian direction" (Plumwood, 2003, p. 91). She considers participatory democracy that possesses "more ecologically sensitive and communicative relationships with the natural world" to be crucial in developing a greater human equality that sees beyond reason/nature dualism (Plumwood, 2003). The

garden is a place for democracy that includes the voices of youth and other species.

One way of promoting youth participation through civic action in school is with *participatory democracy*. Through participatory democracy, youth stand up for their rights to get an education. The notion of participatory democracy draws on Thomas Jefferson's ideas that a well-informed citizenry can take a role in policy and even lessen their reliance on government by handling most of their concerns by private means – an understanding that is based in the goal of democratic enlightenment (Gutierrez et al., 2005). Participatory democracy is one approach for empowering youth to engage in civil action as citizens who take responsibility for their actions, say, for example, in dispelling violence in society and in the classroom (Gutierrez et al, 2005). Participatory democracy requires a rethinking of the classroom dynamics and an allowance of student voice. In areas of extreme violence this seems counterintuitive. However, violence is often a reactive behavior to a feeling of lack of voice due to an authoritarian method of control, and participatory democracy allows practice in democratic processes that students would otherwise not have.

McGowan (2009) provides suggestions for developing frameworks and curricula that incorporate participatory democracy as opportunities for youth as citizens to become politically active. McGowan (2009) draws from Dewey's theories connecting democracy and education; seeing democracy as educational and education as democratic, "democracy and education… are both forms of continuous communicative renewal" (p. 72). McGowan (2009) outlines the incorporation of participatory democracy in the educative process as including "role-plays, simulations, and collaborative group work" (p. 36) combined with other approaches from the "use of projects, inquiry and problem

solving approaches, to mixed-ability and non-segregated classes and schools" (p. 72).

Incorporation of participatory democracy requires the presentation of forms of knowledge

that allow students to critique conventional understandings of society, structures, and

relations in the promotion of a societal "counterbalance" (McGowan, 2009, p. 60).

However, this manner of actual participation in democracy among citizens (as opposed to

merely recognizing the right to vote as is often the case in civics curricula), particularly

as a form of societal critique has at times met opposition of administrators and parents

(Westheimer & Kahne, 2000).

Lane and Barnett (2011) emphasize the importance of participatory democracy,

noting that the primary reason for the start of public schools, beyond literacy, was the

recognition of the need for citizenship education in maintaining a democratic society.

"America, unlike most of the world's nations, is not a country defined by blood or belief.

America is an idea, or a set of ideas, about freedom and opportunity…[that] must be

taught and learned anew with each generation" (Lane & Barnett, 2011, p. 21). Thus,

citizenship and civic action must be learned through political participation along with the

knowledge, skills, and virtues that it requires. These understandings are considered to

have "moral primacy over other purposes of public education in a democratic society"

(Gutmann, 1999, p. 287).

The Constitutional Rights Foundation (CRF) promotes political participation by

helping schools develop critical thinking skills for responsible civic action among youth

(http://crf-usa.org/). CRF has developed a mock trial program that has been implemented

in several school systems in the state of California to promote understanding of the

judicial process. In addition, the foundation develops curricula for teacher to aid in the

incorporation of participatory democracy in the classroom. The CRF curricula are based on six basic steps. These steps guide teachers and students in: choosing a problem on which to base a civic action project; implementing the program through research, media analysis, and interviews; and conducting an evaluation to identify areas in which to improve.

One example of a CRF civic action project is the MOSAIC (Making Our School An Inclusive Community) Project in Fremont High School in Sunnyvale, CA (http://www.crf-usa.org/brown-v-board-50th-anniversary/implementing-a-civic-action-project.html). MOSAIC began with twelve students who established a forum within their school for addressing diversity issues. This led to the development of a curriculum, including activities to develop leadership skills and encourage the valuing of various perspectives of race, culture, ethnicity, gender, sexual orientation, faith, and family. Outcomes have includes youth who are integrally involved in and responsible for the cultural climate of their school.

Another example of a CRF project can be found at Los Angeles Roosevelt High School (http://www.crf-usa.org/brown-v-board-50th-anniversary/implementing-a-civic-action-project.html). While studying the school's history, the students (now mostly Latino) discovered that at one time the school had a large Asian population and a Japanese garden that was destroyed during WWII. Students researched the garden by locating old photographs and interviewing community members and former students. With assistance from the community through monetary support, labor, and skills, the students rebuilt the garden according to the information that they gathered. The garden is

dedicated to Japanese-Americans who were relocated to internment camps in WWII and to former students of Japanese descent who have fought for our country.

Similar stories play out in communities around the country as students realize their voices and capabilities, as well as their responsibility as community members. In Detroit, MI students demanded safety on their way to school. Their voices were heard by the Kellogg Foundation, and the foundation donated $1.5 million. The funds were used by the city to enhance police presence (Nichols, 2012). Another example is found in Oakland, CA where students banned together to demand a safe place to go before and after school. The new Youth and Family Center at McClymonds High School is a collective initiative of Oakland Unified School District, the local children's hospital, the county government, and non-profit organizations (http://oaklandlocal.com/article/mcclymonds-high-school-gives-youth-safe-place-go-after-schools-out-oakland). This full-service community center offers various programs and resources to promote physical and mental wellbeing as well as educational and career guidance from community mentors.

Chawla and Cushing (2007) note that acting collectively, such as with the formation of a collective democratic voice in the Detroit and Oakland examples, is most effective in moving major powers of businesses and government. The authors outline the development of civic action as beginning with role models and mentors at home and elsewhere in childhood. They emphasize that schooling plays an important role in providing opportunities for confrontations with social inequities and experiences through involvement in community service organizations and school council that allow feelings of success associated with civic action (Chawla & Cushing, 2007). Checkoway and

Gutierrez (2006) echo the importance of mentoring in the development of democratic voice, among peers as well as teachers and community members. In each of these examples, it is important to realize the common element of reciprocity. The students are not the only ones gaining from these projects. Through participation, the students are giving back to their community while developing a sense of citizenship that will help to sustain democracy.

The idea of reciprocity, such as that which is inherent in reciprocal mentoring relationships and civic action makes me think of my daughter's mentor. When my daughter was in kindergarten, following the concerns of her teacher, the guidance counselor suggested that my daughter be assigned a mentor through the school system. My daughter was not making connections with classmates, schoolwork, or schooling in general in a manner that was considered to be on par with kindergarten standards. As parents, my husband and I were at first reluctant. We were under the impression that mentors were reserved for children from single parent homes or with "deeper issues," such as those associated with mental or behavioral health. Did this mean that our daughter has "deeper issues"? We started looking into physicians and counselors who could diagnose what was "wrong" with our daughter, yet we held onto a false pride, rejecting help from others and fearing a label outside of the "norm".

We eventually signed the papers that allowed our daughter to meet her mentor, and we started seeing a change. Our daughter actually started trying to make connections on the pages of books and to share this with us, where as before she had adamantly refused. For whatever reason, her mentor enabled a connection that we were not able to provide for her. On her next birthday, our daughter asked only that we invite her mentor

to dinner, so we did. Four years later, my daughter is on reading level with her grade, and as a family, we are making plans to enable their relationship to continue by way of Skype following her mentor's college graduation in a few weeks. To me, this is an example of reciprocal mentoring. My daughter and her mentor established a shared language that both have benefited from (as my daughter's mentor tells me). This, however, would not have been possible without the suggestion of the teacher, the arrangements made by the guidance counselor, the willingness of my husband and me to allow a new relationship, and the unwavering commitment of my daughter's mentor.

A similar example of reciprocal mentoring is promoted by an organization of parents and school administrators in which I have recently become involved called Parent University. Through involvement in the organization, parents serve as mentors for each other as they learn how to become more involved in their children's education process. As reluctance to become involved has been found to stem from a sensed lack of understanding, this program helps to bridge those gaps by providing information and community support (http://www.bostonpublicschools.org/parentuniversityzz).

Education has its origins in the mentoring relationship between teacher and student, whether that origin is thought of with an image of Socrates and Plato, parent and child, or other relationships among community members. In U.S. tertiary education, mentoring relationships are often associated with pre-service teacher field experiences. Mentoring is considered beneficial for the provision of moral support and other reasons, but relationships are complex with many variables to overcome in their formation, including differences in interests, beliefs, communication skills, teaching methods, and more (Tripp & Eick, 2008). Traditionally, in university education, pre-service teacher

field experiences are typically characterized by relationships involving a cooperating, seasoned teacher and a novice student teacher (Eick, 2002), a model that has been heavily critiqued for the uneven power structures it creates. However, mentoring relationships can exist in various forms or structures including reciprocal mentoring relationships that can serve as models for empowering youth through participation in civic action.

The traditional American form of mentoring relationship involving one teacher and one student is at times scrutinized for being one-directional, or for perpetuating the unchallenged ideas and habits of the cooperative teacher. This "pipeline" model of conveying information – in other words, one-directional with little regard for social context or environment - can potentially lead toward a situation of ungrowth. Britzman (1992) considers the traditional mentoring structure as giving the impression of being mechanistically pre-assembled in ways that promote normalization. She challenges the overdependence of teaching field experiences on positive mentors or role models, for it incorporates an assumption that the community to whom the role models are directed is in some way negative or "diseased" (Britzman, 1993, p. 38). Furthermore, Britzman (1993) sees the role model structure as promoting an idealistic myth that teaching experts are self-made, ignoring social reality and the community of mentors within and beyond the school. Instead, Britzman & Pitt (1996) suggest mentoring should be an educative, helping relationship that encourages growth beyond the structure and consultation with mentors within the entire school community, not merely the transference of thoughts and behaviors of one prescribed role model in a classroom.

A mentoring model that promotes growth within the entire school community, such as that suggested in the previous paragraph can be found in the idea of

coparticipation (Tobin & Tippins, 1996). This model is based in the understanding that teachers and students bring with them to the classroom multiple discourses reflecting the communities in which they live. The goal that follows is to create a classroom community through the development of a shared language. Within this community, change is expected and viewed as beneficial and occurs in a manner in which coparticipation is maintained. This model applies to the formation of teacher-student relationships regardless of whether the students are youth or pre-service teachers. The coparticipation model represents a relationship of reciprocity, similar to the garden-gardener reciprocal relationships of care integral to the theory of action gardening.

Another mentoring model can be found in Japan as presented by the work of Tippins et al. (2000). Rather than promoting an image of the teacher as standing alone in front of spectators, or supporting a scenario in which student teachers merely learn to copy their mentor teacher, similar to 'when in Rome, do as the Romans do,' in Hiroshima "attached" schools the model for student teaching is much different. There, student teaching is engaged in "as a community of practice" (p. 192). According to Tippins et al. (2000), instead of one prospective teacher being assigned to a single cooperating mentor teacher, three, four, and even ten students may be assigned to a classroom; the students collaborate in the design of science lessons, observe each other while teaching, and join with the cooperative teacher to analyze how lessons can be improved. Critique with particular focus on ideas for continual improvement that can be gained from the perspectives of others is a large part of the learning process (Tippins et al., 2000). This community of practice model is useful in envisioning a collaborative type of mentoring relationship that can be incorporated in the theory of action gardening.

The garden provides a place where the seeds for such mentoring relationships can be sown. I draw from my experiences with gardening in making this connection. My interests in gardening began gathering green beans and "stringing" them at my grandparents' house, planting marigolds with my mother, and playing among rows of corn stalks as my father collected ripe ears. For me, my interest began with "helping" with the work. This form of mentorship surrounding the care of plants continued in my first job at a botanical garden as my supervisor shared her knowledge of plants and their care with me. As I have continued to work in gardens, I have realized through conversations with coworkers, volunteers, and the general public that plant knowledge is often considered personal, deeply connected to one's own history and particular perspective. The garden allows the opportunity for sharing perspectives in a manner that is not so different from voices coming together in participatory democracy. The garden can provide practice for democratic civic action.

As mentioned earlier, democracy can be seen as a garden (Liu & Hanauer, 2011). The mutual relationships and interdependence that are found in the living, evolving, and adaptable ecosystem of the garden describes the cooperative and emotional nature of humans and the intent of democracy – not the image of isolated and replaceable parts that is perpetuated by the metaphor of the machine. By taking on the perspective of democracy as a garden, we recognize citizenship as a form of self-interest that is mutual interest, involving relationships that are reciprocal rather than selfish. Likewise, the garden can be seen as a democracy by recognizing that relationship is not limited to humans or even living species, such as in the perception of Nature as Teacher or in the reciprocity between the garden and the gardener. Through the establishment of reciprocal

mentoring garden-gardener relationships, plants and other species are in a sense, given a "voice" – the garden promotes the survival of living beings while learning from nature how to do so. Mentoring relationships in which the participants have equitable voices and shared languages are at the foundation of community within the family, the classroom, the garden, and the democratic society.

The key point for action gardening from this section is found in the recognition that connecting the individual to community through reciprocal relationships of mentoring, similar to the models of coparticipation and community of practice, is the first step toward participation in democracy. As citizens in a democratic society, the practice of participatory democracy in schools is essential to understanding one's rights and finding one's voice for defending these rights. In the garden, we can connect with a sense of citizenship, not only as citizens of a human society, but as citizens of nature as we extend, establish and sustain reciprocal relationships of care. In the garden, democracy can be presented in a form that allows youth to gain knowledge of their rights, establish relationships that support them, and gain confidence to speak for themselves. If these lessons are not taught in schools, where do citizens learn them? The garden can be a place for developing reciprocal mentoring relationships and democratic practice, solace and acceptance, as an aspect of school but outside of the traditional notions of modern schooling.

I am arguing that the five major ways that action emerges in education can be the source of epistemological development and the capacity for building further action and democratic principles among youth in gardens. In the garden, sociopolitical action can be nurtured through empowering youth voice and enabling participation in activities that

address community issues. Reciprocal relationships of care can be established by investing one's self through work in the garden. In the garden, an awareness of one's ecological location can be established that supports investigation into and understanding of local environmental issues. Ecological understandings can be developed that build the strong foundation that is necessary for environmental action. A sense of care and a feeling of love for place can be nurtured in the garden that supports long term interest in action. In the garden, sociological connections can be made with one's community, providing cultural and historical background that is integral in taking action to address local issues, such as that which can result through cultural historical activity theory. Cultural and historical connections support relationships and the sharing of knowledge. In the garden, entire networks of ecological and sociological relationships become apparent, as is possible with the incorporation of Actor-Network Theory, providing understandings that assist in the implementation of ethically positioned action for previously marginalized actors. Most importantly, in the garden, participation in democracy can be practiced through the formation of reciprocal mentoring relationships among youth and adults, connecting the individual to the community with strong bonds that are essential in the cultivation of civic action for democracy. The perspective of democracy as a garden will be continued in the next section as radical democracy as a specific form of action is examined.

Sowing Seeds of Change: Radical Democracy

As depicted in the previous section, the garden can inspire action in various ways. In the garden, sociopolitical and environmental action can result as connections among students, teachers, and community members are established in respect to the cultural and

historical aspects of a geographic place, as in CHAT. These connections can lead to the realization of the dynamic networks of human and nonhuman actors that are associated with action and activities, as in ANT. Connections such as these can lead to civic action as one realizes his or her role as citizen in society. The garden fosters the cultivation of action by providing a place where connections with one's community and the natural environment can be established and developed. These connections extend beyond the garden, taking root in nurturing places. Just as love knows no bounds, seeds dispersed by winds of change know not the boundaries of the garden. In this section, radical democracy as a specific action for others will be described and defended as an embodiment of prophetic pragmatism in practice. This analysis of radical democracy will serve to further develop both a theory of action gardening and the garden as a place for its enactment.

The garden is also a place for teaching and learning science, for the garden can incorporate different pedagogical approaches to science education. In one approach, gardening activities are recognized as grounded in science content and process, with the goal of contributing to scientific literacy. In another approach, the community connections that are made and the understandings of citizenship that are established can provide opportunities for democratic practice. This approach is in line with the perspective that the promotion of scientific literacy *is* democratic practice (Tippins et al, 2010).

In addition to being a place for cultivating action and engaging in science, the garden can literally and metaphorically promote the establishment of relationships. In a literal sense, the gardening of plants is based in garden-gardener reciprocal relationships

of care. The gardener extends actions of care to promote life within the garden. In turn, the life within the garden responds with growth to further inspire the care of the gardener. Metaphorically, the gardening of action (also known as action gardening) begins with the sowing of seeds for reciprocal relationships within the human community and the natural environment as awareness of connections to sociopolitical and environmental issues are illuminated. Action gardening can begin in the literal garden.

To summarize understandings established in the previous section, the garden-gardener relationship formed in the literal garden can serve as a model for understanding reciprocity. Similarly, the garden as a metaphor is associated with the concept of care. Liu and Hanauer (2011) view the sense of care and community that is associated with the garden as providing the vision needed for American society today; they see democracy as a garden. Likewise, the garden as a composition can be viewed as a potential model for democracy, not dissimilar from the manner in which Dewey (1902; 1916) saw school as a mini-society in his promotion of continuity between schooling and societal life. However, life in the garden encompasses relationships other than reciprocity and care. Mutualism is an important relationship, such as that which exists between a flower and a pollinator and the exchange of nectar for the service of pollination. However, there are other relationships that are also important. Competition, parasitism, and commensalisms all share the work with mutualism in making the world go 'round.

While mutualism can be viewed as similar to the reciprocity of Noddings' (1984) care, what role does this similarity play in the theory of action gardening, and how does it relate to West's philosophy of prophetic pragmatism? Thus far, the garden has been presented as both a setting for and a model of the potential development of action for

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others from care. The garden has been presented as a site where relationships of care and, potentially, love for other living beings, entire ecosystems, and nature in general can be established. However, also in the garden, praying mantises can be observed eating their siblings, and overlooked fruits on the vine decompose to a smelly, blackened, liquefied mess – images of reality that are often left out of school gardening activities.

West (1993a; 1993c) puts great emphasis on love; it is, in fact, at the very heart of his philosophy. However, West is not one to romanticize. He illuminates that we are born of "the stench" of the Earth only to be chained to a life of struggle, and he reminds us of the enormous part that death plays in life (West, 1993c; 2004). The philosophy of prophetic pragmatism that West promotes is a striving to rise above struggle and fear in spite of realizations of their eminence, and to do so not only for one's self but also for others. Therefore, to West (1993a; 1993c) life's struggles are necessary for the realization of love and integral to prophetic pragmatism. These understandings of prophetic pragmatism are foundational to action gardening: love, struggle, and their confluence in working toward equity and justice. The garden is a place to establish reciprocal relationships of care, to realize love, and to promote life, but it is also a home for struggle and death.

West sees the potential for propheticism as existing in each individual. In other words, to West we all are potentially prophets, and the capacity for change, for moving beyond struggle, lies among the populace. Teachers in particular are considered by some to potentially be prophets, for prophecy is a calling, much like being called to teach and serve the greater good (Bullough, Patterson, & Mayes, 2002). Propheticism is sparked by love and is founded in intelligence; it builds on the discernment developed from history

to recognize hypocrisy in the moment, it works toward a society that realizes democracy as it was envisioned at the birth of the American government – a balance of security and freedom (West, 1989; 2004). Because of West's belief in both the power of the individual and of love, his vision for America is one in which prophetic pragmatism is realized in the enactment of *radical democracy*.

In the previous section, evidence was provided that growth in the garden can lead to action for others. Action is a form of decision-making that can take place in the moment or in the future. Does the action for others that is encouraged in the garden extend into the future? Is it sustainable, meaning that it urges change at the long-term scale, or is it more impulsive, like a passing trend? The concept of radical democracy considers action for others as a way of being - participating in decision-making as a long-term promoter of change for the common good.

Roadmap

The following section expands on the understandings regarding action that were established previously to further develop a theory of action gardening. Radical democracy will be explored as specific form of action integrated in schooling and as a goal of prophetic pragmatism. Following an in depth definition of radical democracy, five major claims will be defended. These claims situate radical democracy in creativity, social justice, environmental justice, science education, and spirituality through action gardening.

Essential to making these connections between radical democracy and action gardening is a broadened perspective of the individual as inseparable from community. In conjunction with an understanding of West's prophetic pragmatism extended with

biophilia, human and ecological communities are understood to be one community. In addition, underlying these claims and connections is a goal of educative growth and an understanding that this can result from a broadening of perspective, such as that which happens with a change in environment or with the introduction of new participants to a situation. Furthermore, while growth experiences of some level may be possible among all humans - and perhaps all species - youth of K-12 school grades are of particular interest for the developing theory of action gardening. In a school environment, there is a decrease in the traditional concept of "home-like" care as youth are given more personal responsibility in organizing their own needs, caring for themselves, and extending their idea of self to include others, in their neighborhoods, school communities, and beyond. Connections made between radical democracy and action gardening coincide with this gradation of immersion into society by allowing practice in making choices that more fully consider others.

Continuing from the previous section, the garden will remain a metaphor for a caring, growing entity. The reciprocal garden-gardener relationship of care will be examined more closely as a union of nature and culture. Emerging from this examination, the metaphor of Nature as Teacher will be incorporated as a lens for analyzing radical democracy. With an inclusive image of community, an underlying goal of growth, and a consideration of Nature as Teacher, a theory of action gardening will be further developed. Integral in this development is the establishment of connections between radical democracy and the garden. Let us begin by returning to the roots of American government with a definition of radical democracy.

The Roots of Democracy

As members of a democratic society, it follows that many Americans generally (roughly) understand what it means to be democratic. In grade school we learn that democracy in America entails aspects of freedom, fairness, equality, justice, the active participation of the general public in decision-making, and a sense of security regarding rights of citizens (Held, 2006). According to West (2004), however, today in America, participating in "democratic" society has been reduced to casting a vote on election day, an action that is not necessarily living democratically in the manner that our country's founders intended.

Political theorist Lummis (1996) notes that the idea of democracy that we have in modern times is a western conception of democracy that has branched off from its origins in ancient Greece. There, under the leadership of Pericles (462-433 BC), power was shifted from an oligarchy to a democracy, giving Athenian citizens the right to vote and allowing them to hold positions of leadership (Kagan, 1991). Lummis (1996) adds that a return to the roots of enabling the power of voice among the masses hold hope for the return of a more foundational understanding of democracy in America. The term "radical" actually originates from "root". Therefore "radical democracy" literally means getting back to the fundamental roots of a government. In America, this was defined by founding forefathers as being by, of, and for the people (Tocqueville, 1840/2000).

Radical democracy as a strategy for political analysis was introduced by theorists Laclau and Mouffe (1985) to aid in moving beyond the confines of liberalism and conservatism of western democracy. Viewing the concept of government in America as being reduced to a metaphor of the "free" market (Giroux, 2004), radical democracy

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works to turn American government back toward the people, so that they can recognize democracy as a way of being in the world and not merely a superficial notion of technical process (Keenan, 1997). Reform is recognized as requiring cultural work in all aspects of life, that promotes the democratization of education, art, entertainment, and media - essentially a reorganization of society such that idea of labor for economic gain is subordinated to personal cultural expression typically associated with free time (Aronowitz, 1993; Trend, 2004; West, 1990).

The underlying intent of radical democracy is to dissolve divisions, such as those which exist between labor and free time, and liberalism and conservatism, and to speak out against injustices of marginalization, building on visions of freedom and equality that include difference (Laclau & Mouffe, 1985). It is realized that differences cannot - and should not, entirely - be overcome through rational discourse, therefore getting back to the roots of democracy requires the acceptance of, and even depends on, skepticism and antagonism with respect to all voices (Lummis, 1996).

Giving great importance to skepticism, West (2004) calls for radical democracy to address what he perceives as a deterioration of American society, the cause of which he reduces to three antidemocratic dogmas. The first is "free market fundamentalism," or an idolization or worship of the market and materialistic gain driven by the pursuit of "narcissistic pleasure" and "narrow individualistic preoccupations" (West, 2004, p. 4). The second is "aggressive militarism," characterized domestically (where poverty is treated as a crime), by unchecked male violence in spite of expanded police power and abroad, by colonial invasion and armed occupation (West, 2004). The third is governmental authoritarianism fueled by a "fear of too many liberties" and the limitation

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of public political dialogue by "market-driven media" (West, 2004, p. 7). The deterioration of American democracy in turn is associated with the degradation of non-market values, including care for fellow citizens and trust of government (West, 1993c).

West calls for a reinterpretation of American democracy that realizes basic elements of democracy, that entails a deeper and more profound political way of being, not merely advocating for, but enacting change. Included is a realization of the necessity of participation in struggle in order to attain the goal of freedom. West's approach to political and societal reform is inherent in his philosophy of prophetic pragmatism which entails building on the historical foundations of these dogmas and the "deep public reverence for" and "love [of] democracy in America" (West, 2004, p. 15) to speak out against oppression and work beyond the struggles of everyday life for the betterment of society. To West (1999; 2004), radical democracy as a form of action is the embodiment of prophetic pragmatism.

West (2004) founds prophetic pragmatism in the lessons of ancient Greece and the "radical iconoclasm of Socrates" through the incorporation of profound questioning within the "Socratic method" (p. 15). West often uses this methodology, as a form of *parrhesia*, or "frank and fearless speech" (West, 2004, p. 209) that scrutinizes "the guttural cries and silent tears of oppressed people" (p. 213). West views the highly skeptical nature of radical democracy as being applicable to any type of societal issue, such as inequities surrounding racial orientation and injustices of poverty. An example of enacting radical democracy is demanding that basic resources of food, clean water, clothing, shelter, education, employment, childcare, and healthcare be available to everyone (West, 1993a).

Awareness of societal issues and injustices requires an introduction to them in a manner that presents them fairly and thoroughly, such as that which can occur, say, for example, through the science education methodologies of cultural historical activity theory and Actor-Network Theory. From heightened awareness of societal or environmental issues, such as racial tensions in a place, questions of food justice, or of careless destruction of wildlife habitat, can emerge skepticism and questioning that promote democratic practice at the grassroots level of the science classroom, or the garden.

One way of envisioning a "back to roots" idea of democratic reform is with an understanding of "radical democratic communities always-in the making" (Thayer-Bacon, 2001). This concept builds on Maxine Greene's (1973) ideas for communities always-in-the-making that recognize the self-consciousness that is gained through conversation with others, by extending them with theories of radical democracy.

A radical democracy recognizes the interactive, interrelational, interdependent qualities of individuals-in-relation-to-others. While individualistic (classical liberal) theories give the individual the all-powerful role of affecting the community, and socially constructed (communitarian) theories tend to give the community the all-powerful role of affecting individuals, radical democratic theories… emphasize… an interactive, interrelational process. Dynamic changes take place with the self and the community, because of their interaction with each other, and all are affected. (Thayer-Bacon, 2001, pp. 14-15)

Radical democratic communities always-in-the-making analyze issues constructively and pluralistically, acknowledging the important role of caring relationships and

communication in addressing cultural influences and political power while considering decisions for the betterment of the community and society, or the common good (Thayer-Bacon, 2003). Consensus, in terms of agreement, is reached through the perspectives of participating constructors (Thayer-Bacon, 2001), rather than as the result of an authoritarian critique made by external analysts. The concept of radically democratic communities always-in-the-making is an approach that can be incorporated within the classroom, the garden, and elsewhere; this understanding will serve as a guide for envisioning discussion in the remainder of this section.

I will now defend five major points that further develop a comprehensive theory of action gardening through the incorporation of my interpretation of radical democracy as an embodiment of West's prophetic pragmatism. First, situated in citizenship, I examine *radical democracy as creativity*. As an aspect of social justice, *radical democracy as participation and deliberation* will be explored. *Radical democracy as environmental justice* will be presented with an understanding that human and ecological communities, often perceived as separate, are one community. Next, *radical democracy in science education* will investigate radically democratic practice that is specific to this discipline. Lastly, touching on a potential commonality among youth regardless of school discipline, *radical democracy as spirituality* will be explored the development of an ethic of the common good and the commons that is implemented through action gardening. Let us begin with an examination of radial democracy as creativity.

<u>Radical Democracy as Creativity</u>

Radical democracy describes the ongoing, dynamic actuality of meaningful social interaction among citizens, building upon history yet extending beyond historical

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epistemological structures toward innovative approaches to societal and political issues.
Action gardening embodies the creativity of radical democracy such that the urge to act
for others that is cultivated in the garden extends beyond its boundaries.

West (1999b) writes that American democracy "needs citizens who love it enough to reimagine and remake it" (p. 332). A preliminary requirement for the meeting of this need is "citizens." Assuming that requirement is met, the next necessity is imagination. To Maxine Greene (1995) imagination stirs us to "wide-awakeness" for seeing new possibilities of experiencing the world. To West (1993c), imagination can lead to creative tension, a "conflict among diverse groupings that reach a dynamic consensus subject to questioning and criticism… a tension that yields higher levels of performance to achieve the aim of the collective project" (p. 105). West establishes tension between struggle and hope, or realism and idealism. He "contends that this tension between realism and idealism is 'creative'… an inescapable part of his radical democratic project" (Cowan, 2003, p. 174). To remove the tension would deflate hope for liberation and silence voices (Cowan, 2003). Creativity is the origin of paradigm shift, with change being the goal of radical democracy.

The connection between social reform and creativity is the basis for West's (1990) *new cultural politics of difference*. In this proposal, West (1990) envisions a new intellectual consciousness with the following goals:

> to trash the monolithic and homogenous in the name of diversity, multiplicity and
> heterogeneity; to reject abstract, general and universal in light of the concrete,
> specific and particular; and to historicize, contextualize and pluralize by

highlighting the contingent, provisional, variable, tentative, shifting and changing.

(p. 3)

"To put it bluntly, the new cultural politics of difference consists of creative responses to the precise circumstances of our present moment" (West, 1990, pp. 3-4).

West (1989) draws on the ideas of creative democracy put forth by Emerson and Dewey. To Emerson, societal culture, including the striving of traditional philosophy for an ultimate truth, is a constraint of freedom; he challenges Americans to see beyond societal norms to the creative democracy that is revealed when one philosophizes with heroic ordinary folk (West, 1989, p. 33). West (1990), in his development of the new cultural politics of difference, merges Emerson's view with Dewey's thoughts of creative democracy. Dewey (1939) writes, "democracy as compared with other ways of life is the sole way of living which believes whole heartedly in the process of experience as end and as means" (p. 229). "Since it is one that can have no end till experience itself comes to an end, the task of democracy is forever that of creation of a freer and more humane experience in which all share and all contribute" (Dewey, 1939, pp. 229-230).

Emphasizing that democracy is a way of life that does not automatically perpetuate itself, Dewey (1939) acknowledges that crisis calls for even greater need for democratic creativity. Dewey's perspective has been criticized as being utopian (Noddings, 2011), and not extending beyond the white middle class (West, 1989). West (1989) resolves this issue by situating life in struggle and by inviting "all people of good will both here and abroad to fight for an Emersonian culture of creative democracy in which the plight of the wretched of the earth is alleviated" (p. 235).

Rorty, West's teacher, acknowledges along similar lines to Emerson that the purpose of philosophy is not to find an ultimate truth but instead, to make the pathway taken toward finding it more interesting. Challenging the norms of traditional philosophy, Rorty (1979) provides the creative perspective that knowledge is not a mere representation of nature, or a mirror that is polished with the re-utterance of philosophical language. Rather than seeing knowledge as a representation of nature, Rorty's thoughts can be extended to viewing knowledge as nature, and the life, living, and growth that it embodies. Rorty (1979) urges philosophers to turn from problems of philosophy to those of humans. Based on Rorty's ideas, it can be surmised that repetitive philosophical reflections are merely mirror images that offer no new perspectives, no growth. In carrying Rorty's philosophy forward, it can be understood that through creative redescription of the past and present, we create new perspectives and our own truths.

Rorty is known for his emphasis on critique (West, 1989). Yet, his critique is for the construction of new perspectives through the creation of realities that are not dependent on habits of the past (Rorty, 1982). Thus, rather than oppositional to the philosophy of Thayer-Bacon (2000) who transforms critical thinking with constructive thought, Rorty's work is similar. Like Thayer-Bacon's (2001) the notion of radical democratic communities is always-in-the-making, for Rorty, truth is always-in-the-making – or at least, potentially it could be. Unger and West (1998) warn us that the judicial elite of American government can easily snuff out the imagination of the populace. Dewey (1925) refers to this as governmental coercion. West (2004) sees coercion as the promotion of fear and the opposite of love. Thus, imagination and creativity are the sustainers of radical democracy and are therefore integral to prophetic

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pragmatism and action gardening. West (2004) refers to community members who creatively participate in the sustenance of democracy as *engaged citizens.*

Engaged Citizenship and Civil Disobedience

West is an example of a creatively engaged citizen. He, like Martin Luther King, Jr., Rosa Parks, and Henry David Thoreau before him are known for defying laws that they saw as unjust, at times putting themselves in danger, as they immersed themselves in acts of civil disobedience. West has engaged in acts of civil disobedience by protesting in response to unjust racial profiling and in anti-capitalism demonstrations. Martin Luther King Jr. organized and participated in the marches, boycotts, and sit-ins of the Civil Rights movement in the 1950s and 60s. Parks, after a long day of work, simply refused to give up her seat in the "colored section" of a bus to a white man. Thoreau defied the law by not paying taxes as an act of protest to America's invasion of Mexico in the Mexican-American War. These acts were radical in that they were prophetic, meaning that they were enacted in response to a visceral urge that could not be ignored. The meaning of the acts was so profound that the actors were willing to put themselves in danger, to risk their lives, for the sake of the significance for themselves and for others.

West has, like King, Parks, and Thoreau been arrested and experienced the loss of freedom through time spent in jail (http://www.cbsnews.com/2100-201_162-20121158.html). To West, it was important to be arrested, for as a public intellectual, a Princeton University professor, and well-known author at the beginning of a lecture tour called the "Poverty Manifesto" with Tavis Smiley, to remain silent in the face of injustice would be hypocritical. It could be argued (by those who do not know him) that West's arrests were suspiciously timely with the introduction of his and Smiley's new book, *The*

Rich and the Rest of Us: A Poverty Manifesto (2012), but protesting is not new for West. He is known in the media as an activist, particularly for his statements following his resignation of his position at Harvard on the grounds of disrespect from the university president regarding the release of a hip-hop CD, involvement in Al Sharpton's presidential campaign, and other perceived "offenses" (West, 2004). West has campaigned for President Obama but is also a staunch critic of his policies (http://ideas.time.com/2012/11/15/what-behind-the-bad-blood-between-cornel-west-and-obama/). Additionally, Dr. West is a 'man of the cloth,' exuding love through hugs for all of his brothers and sisters, who include all fellow men and women he meets on the street and elsewhere (Sharlet, 2009). His aim is unquestionably for the wellbeing of others, as is evident in his donations of lecture proceeds to foundations combating poverty (http://www.aceweekly.com/event/the-poverty-forum-with-tavis-smiley-lexington-convention-center/). Smiley and West (2012) urge the public to become informed and engaged citizens, not condoning civil disobedience merely for the breaking of rules. Instead, their message is to become engaged, not just through casting an uninformed vote, but instead through intellect, discernment of hypocrisy, and prophetic witness to injustice and inequality. West enacts creative democracy by living 'outside of box,' or in other words, against the *status quo* of what is expected and, at times, what is accepted.

Similar to West, Thoreau is a prime example of an engaged citizen of creative democracy. In his essay entitled "Civil Disobedience", Thoreau (1849) writes about his reasoning for engaging in civil disobedience and relinquishing his freedom for but one night:

> There are thousands who are *in opinion* opposed to slavery and to the war, who yet in effect do nothing to put an end to them; who, esteeming themselves children of Washington and Franklin, sit down with their hands in their pockets, and say that they know not what to do, and do nothing; who even postpone the question of freedom to the question of free-trade. (p. 11)

Thoreau's words reveal propheticism toward a situation from which he could not turn away and do nothing. In addition, Thoreau is well known for *Walden* (1854), a book about his experiment in "living well", as self-sufficiently as possible for two years, two months, and two days in response to the distancing from the land that he felt American society was experiencing as a result of industrialization. Thoreau's experiences with civil disobedience and at Walden are examples of radical democracy, chosen particularly for his creativity in radically and prophetically expressing his voice for the common good. This stint of time during which Thoreau occupied public lands by the edge of Walden Pond is considered to be one of first examples of guerrilla gardening in America.

<u>Guerrilla Gardening</u>

Guerrilla gardening is the occupation of public lands or neglected private land with gardens as a form of exerting one's opinion regarding land use. The term "guerrilla gardening" was first documented in 1973 in reference to the Green Guerrilla group in New York who through nonviolent direct action turned a neglected private city lot into a garden; however, the action of creatively taking the initiative to sow good deeds and food crops while beautifying neglected parcels of land in America goes back to 1801 with Johnny Appleseed (Tracey, 2007). Other famous examples of guerilla gardening in America include People's Park in Berkeley, CA establishing in the 1960s and Adam

Purple's urban garden that flourished in Manhattan from 1973 to the mid 1980s

(Reynolds, 2008). Targeting the enemies of "neglect, apathy, and the disintegration of

community spirit," guerrilla gardening "troops" are armed with seed bombs and shovels

to combat "neglect and scarcity of space to grow things" (Reynolds, 2008, p. 216). In

addition to beautifying communities and assisting in securing food sources, guerrilla

gardening carries with it a sense of public ownership of the commons through

responsibility and care.

Although guerrilla gardening as a concept has been present for decades, it is

experiencing a recent surge in popularity, including at one American high school, Manual

Arts in South Central Los Angeles. As part of the Seed Bomb Project and the University

of California at Berkeley, a covert group called Los Angeles Guerrilla Gardening

(LAGG) has worked in close contact with students to begin a garden near the school. In

addition, LAGG heads up workshops in making seed bombs, or balls of potting soil and

clay implanted with flower or vegetable seeds, and also in teaching students about

pollution and sustainability (http://www.laguerrillagardening.org/photos_seedbombs_8-

6.htm). The initiative took root, and following police questioning regarding their

gardening activities on city street corners, high school youth formed the South Central

Resistance with the motto of "protect the plants." The youth continue to pass along the

care for the environment that was encouraged by LAGG while taking pride and action in

their community as creatively engaged citizens of radical democracy

(http://uprisingradio.org/home/2009/03/13/high-school-students-take-up-guerilla-

gardening/).

Essential to becoming informed and engaged citizens, such as the youth at Manual Arts High School, is developing one's sense of self as part of a community. Thayer-Bacon (2001) considers that the sense of self – otherwise referred to as the soul, Will, one's being, or central self - is best described as developing one's *personal voice* in a manner that is not negative or positive but "just is" (p. 7). We develop our voices out of our relationships, "as socio-historical beings who daily co-construct their lives with others," such that community has a language (Thayer-Bacon, 2001, pp. 14-15). In a manner reminiscent of the images conveyed through Leopold's (1949) description of the land ethic, this sense of developed community-always-in-the-making can include humans as well as nonhumans in our ecological community. The development of personal voice-in-relation-to-others that is ecologically inclusive can occur in the garden.

As evidenced in the previous section, action can originate in the garden. This action can be radically democratic and be of longer-term, at least sustained long enough to be passed one generation as in the example of LAGG and the South Central Resistance. Radical democracy involves propheticism (West, 1993a; 1993c; 2004) and the continued development of communities based in relationship and communication (Thayer-Bacon, 2001). Radical democracy incorporates creativity as is required in the continued recreation of democracy (Dewey, 1939).

As a garden-mentor for my daughter's first grade class, I have the opportunity to spend time with kids in the school garden. After planting carrot seeds in the fall and harvesting our young carrots in March, we are ready to sow some seeds that are better adapted for the hot summer that we know will be along eventually. We discuss the possibilities and take a vote. Hands-down, sunflowers are the winner. I promise to bring

the huge 'Russian Mammoth' sunflower head full of seeds that I had saved from last summer's garden to my next school visit in late April.

Each time I visit, we begin with a routine of acting out the germination of seeds, followed by their growth into plants. As the plant life cycle is included in the first grade science standards, the teacher is happy to let the students participate. We begin crouched in a ball, then send out a foot as a radicle, then a hand as a cotyledon, followed by another hand and another foot. (At this point, we sometimes shed our "seed coat"). With feet firmly rooted in the soil and hands as leaves turned toward the sun, we grow taller and taller from our crouching position. I walk among the "seeds" and "plants" pretending to sprinkle water with my fingers. When they are completely standing, we review through conversation the process and the needs of plants: soil, water, and sun. This time we make sure to turn our faces to the sun, since we are sunflowers. We also act out an additional necessity of space to avoid competition by trying to tag each other without moving our feet.

I look on the Internet for a story to read to the children as they planted their seeds. I find the *Sunflower's Promise: A Zuni Legend* by Gloria Dominic. I look forward to talking to the students about how sunflowers originated in North and Central America – just as they all did – but are able to grow in many places around the world. Plus, sunflowers are grown as a food crop, are great in bird feeders, and have even been used to make paper! I also come across information about the International Sunflower Guerrilla Gardening Day, and better still, it is on May 1st, the Saturday after my visit to the school!

The kids are so excited about everything that day. We pretend to be sunflowers, we plant seeds, we share a story that relates our activity to traditional native culture, and we talk about different places in the world. When they finish planting seeds in their class garden bed, the flower head from last summer has so many seeds left over that everyone was able to take ten home with her or him. I tell them about the special day in the coming weekend and how it was started to remind us that we each play a part in making the world even more beautiful than it already is. They have so many ideas to share about where they are going to plant their seeds! We collectively decide that it will be acceptable to plant the seeds on both May 1st and 2nd because the 2nd would be SUNday. We figure the seeds would not mind.

Two weeks later, I attend the school's "Poetry Picnic," an end-of-the-year potluck event that showcases a sample of each student's poetry. My daughter's class has been given the prompt, 'My Favorite Things'. I am deeply touched when another mother points out that her daughter has written about planting sunflower seeds. While one aspect of science is about prediction based on what is already known, it is impossible to completely predict the future. I do not know if planting sunflower seeds as a young child leads to future decisions to take action for others. I do, however, know that the sunflower activity that we engaged in that day is an example of a radical democratic community always-in-the-making. I know that the children and I prophetically felt a calling to plant those seeds. I also know that we each helped to make the world a more beautiful place when, over the summer, I enjoyed the many sunflowers that were blooming around the neighborhood. I know that we engaged in creative radical democracy that day.

Radical democracy as creativity can exist in the garden in gardener-garden relationships. Guerrilla gardeners, through cultivation can express creativity regarding garden design and community beautification. The Nature of the garden expresses creativity as well. For example, climate, soil types, and topography can determine the choices of plants and the actions of maintaining them made by the gardener. In this manner, Nature can be a Teacher of radical democracy. Similarly, while gardeners can plant flowers in straight lines or other patterns, they cannot necessarily control where the pollinators go next to deposit the pollen they collected. The lizard that suns itself on the leaves within the garden boundary can also sun itself on leaves outside of it. The seed dispersed by wind from a plant inside the garden wall can go wherever it is carried. Nature does not 'color inside of the lines' arbitrarily created by gardeners.

This sort of creativity taught by Nature is important in radical democracy, for it allows for the continued renewal of perspectives beyond the boxes that we accidentally (or purposefully) draw ourselves into by way of habit. Nature allows us to experience life beyond the status quo and outside of the traditional notions of modern schooling in a manner that encourages heightened vitality. Nature enables the freedom to grow.

Mitchell, D. (2012). Freedom to Grow: Unschool.

Democracy must be continuously recreated (Dewey, 1939). Seeing democracy as a garden in which Nature is allowed to be Teacher (in a reciprocal relationship of care between garden and gardener) promotes *sustainability*. While sustainability is a term broader than the scope of this dissertation, the intent of its meaning for the purposes of

examining radical democracy is to describe action lasting longer in term than the whimsy of the moment, or even the length of the school year. In connecting the question of sustainability with radical democracy, the hopes are to unearth evidence that action gardening - the cultivation of radically democratic action for others through the establishment of relationships of care in the garden - is more than a passing trend. For this purpose, "sustainable" implies not a static balance to be reached but an acknowledgement of the flux of ecological systems' scale of time that is greater than an annual change of seasons.

Over time, the incorporation of the garden in schooling has exhibited an ephemeral showing, not of regular perennial reemergence but with a history that suggests strong roots. When we view democracy as a garden and examine its roots, we find a potential for sustainability that can accompany the commitment and responsibility of care. As a sustained expression of propheticism, care moves beyond the complacency that West perceives in American democratic society to inspire action. Action gardening as an enactment of radical democracy builds on history to address issues of the present and carries over into the future. As an aspect of radical democracy, creativity encourages freedom for growth and further supports the development of a theory of action gardening. Next, let's examine the role that participation and deliberation play in action gardening.

Radical Democracy as Participation and Deliberation

Radical democracy encourages public participation and deliberative reasoning regarding societal and political issues, welcoming argumentation. In this manner, radical democracy allows the merging of individuality into a unity in which individuality-

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in-relation-to-others is recognized and respected. Action gardening cultivates social

justice by nurturing radical democratic communities always-in-the-making.

Radical democracy is described by political theorist Lummis (1996) as joining

two aspects of the broader scope of democracy: *participation*, or engagement in public

decision-making, and *deliberation*, or the collective reasoning of society members in

making decisions regarding issues. Through the joining of participation and deliberation,

radical democracy takes on three main characteristics: responsibility in politics, equality

in democratic decision-making, and political autonomy, recognizing that each issue is

unique, just as each individual is. The *deliberate participant* in radical democracy is thus

one who is able to analyze a situation, challenge it, find it inadequate, formulate one's

own approach, and present it as an option of discussion within the community.

With the merging of any separate entities, such as participation and deliberation,

there can be tension. While, tension can be viewed as the origin of creativity (West,

2004) that in turn is necessary for the continued recreation of democracy (Dewey, 1939),

a general balance between participation and deliberation is needed. For example, voices

can be inadvertently silenced as the intensity of deliberation increases or with great

numbers of participants. For this reason, American democracy is understood to be not

"pure" in relation to the roots of democracy in ancient Greece because we elect

representatives to speak for the people, an adjustment considered necessary for the

governance of large numbers (Tocqueville, 1840/2000). In other words, the size of the

group of participants matters in the manageability of democratic deliberation.

There are aspects to deliberation other than size of the participatory group that are

perceived as "problems" in the democratic process. Deliberation can be viewed as

promoting consensus and denying confrontation, agonism (beneficial conflict), and antagonism that are necessary aspects of political life (Mouffe, 2000). In another perspective of deliberation, Plumwood (2003) describes it as coercing agreement with majority elitists. Yet from another point of view, deliberation in seen as promoting fairness and mutual respect among the participants that it supports (Rawls, 1997). Deliberation, thus, varies in how it is perceived and in its uniqueness to the issue that is being deliberated, just as the individuals who comprise the community of deliberating participants are unique.

As a replacement for deliberation in theorizing about moving beyond liberalism to a more democratic democracy, Mouffe (1989; 2000) suggests pluralism. Mouffe (2000) links pluralism to the acceptance of conflict and its potential benefits, called agonism, an aspect of democracy that she sees as a requirement in decision-making, adding that "the refusal of confrontation lead[s] to apathy and dissatisfaction with political participation" (p. 13). To Mouffe (2000), liberalism lacks agonism.

Thayer-Bacon (2008) agrees with the intentions of Laclau and Mouffe's (1985) and Mouffe's (1989) theoretical developments of radical democracy that acknowledge the foundation and continuing influence of classical liberalism, and yet attempt to move beyond its boundaries. Thayer-Bacon (2008) sees the embeddedness of America in liberal culture as a narrowing of our search for democracy. Extending Dewey's social transaction theory, Thayer-Bacon (2008) recommends a relational, pluralistic democracy to aid in moving America beyond liberalism. Thayer-Bacon (2001) describes pluralistic commitment as recognizing and embracing the "value of having our community be open in its membership, so that there are no insiders and outsiders, and all have the possibility

of belonging and contributing to the constructing of knowledge" (p. 10). Thayer-Bacon's (2001) radical democratic communities always-in-the-making are an example of how pluralism is "attentive to difference" through democratic inclusion of voices in participation and deliberation (p. 13).

Mueller (2009) makes the case for extending pluralism beyond human perspectives to include all living beings, and even further to consider abiotic needs for biological survival with Sterba's (1995) biocentric pluralism. (Mueller, 2009) notes that in times of increasing uncertainty regarding Earth's changes, a "different kind of thinking" is needed for making decisions regarding Earth's inhabitants and ecosystems (p. 1041), for "the more we learn about the nature and structure of ecosystem diversity, the more we are to encounter ecojustice issues and the ethical complexity of 'applied justice' in ecology" (p. 1048). Mueller's work exploring human-nonhuman "right relationships" unearths an important difference between pluralism and diversity that is applicable to epistemologies in schooling and in the world at large. While diversity refers to recognized differences, pluralism embodies the consideration of perspectives from the standpoint of each unique difference. Pluralism goes beyond recognizing that there are differences and different voices, to acknowledging the importance of listening to them - in developing personal voice and democracy.

West's goal of radical democracy supports plurality beyond diversity recognizing both individuality and universality in the continual addition of new voices in a continually changing polity (Cowan, 2003). From his perspective, individuality and universality are both integral to sustaining a balance between participation and deliberation. As with understandings of ecosystems, the balance between participation

and deliberation within radical democratic communities always-in-the-making can be understood as accepting the variation of flux rather than striving to achieve an a priori equilibrium (Pickett & Ostfeld, 1995), thus acknowledging change and uncertainty as well as making room for more voices. Such acknowledgements recognize the importance of difference, but we must not overlook samenesses.

Regarding humans, Thayer- Bacon (2001) notes: "Given that we are relational social beings who are fallible and limited by our own embeddedness and embodiment, at a micro level as well as a macro level, then none of us can claim Epistemological, privileged agency" (p. 11). In other words, in spite of our differences, we have a great deal in common, an acknowledgement reminiscent of Thayer-Bacon's (2002) concept of qualified relativism and her "both/and" approach to logic (beyond either/or). West (1993b) recognizes a sameness of love that contributes to democracy. "Democracy, Americans understand, depends upon *demophilia*, love of the people" (West, 1993b, p. 12). By recognizing connections between humans and the ecosystems of which they are a part, demophilia can be extended with biophilia, or the love of life, for without other living beings there are no people. In other words, to love life promotes survival.

Considering love and reciprocal relationships, observational research since Darwin (1872) has produced records of perceived emotions among species other than humans. Love can be considered as the ultimate form of caring (Frankfurt, 2006). Many species, including dogs, chimpanzees, elephants, and birds have been documented as exhibiting intense care for their young and other relatives and expressing emotions of joy, sorrow, and empathy (Bekoff, 2010; Goodall & Bekoff, 2002; Masson, 1996). For some reason, the love is at times not considered an emotion at all, but rather a motivation; when

it is seen as an emotion, it is given nobler status than other sentiments and reserved for only humans (Masson, 1996). However, I, myself have observed firsthand the intense sorrow among cows encircling a still born calf, as if holding a funeral, consoling the wailing mother by rubbing their noses along her neck as she hung her head. I find it difficult not to include love in the emotions that I observed the cows experiencing that morning.

Charles Peirce (1933) links emotion to reason, stating that sentiment is the impetus for attempts to escape doubt. In other words, the urge to logically explain something is driven by an emotional urge. Research verifies a relationship between emotion and reason in the anatomy of the brain, with emotional memory and instinctive emotions being triggered from the amygdala, a mass of nuclei centered in the internal core of the brain of Chordates, and with rational thought originating in the enlarged pre-frontal cortex of humans (Morrison, 2003). When instincts, such as fear or anger are triggered in humans, rationality is overridden, leading to an instinctive, "emotional" response that has a genetic history of promoting survival among all creatures with amygdala. Altruism - considered to be a moral response along with love, trust, and justice - is also a genetically linked behavior that promotes survival through the perpetuation of allele expression for altruistic behavior (Morrison, 2003; Wilson, 2012). My point is that there are more samenesses among humans and other species than many of us may think.

West (1993a; 1993c) recognizes among humans, a commonality of love. Although love is said to make the world go 'round, and there is much documentation that other species experience emotions of various descriptions, it is difficult to say if the love that

humans can feel is the same as feelings experienced by other species – mainly because we

do not speak the same language. Yet, we can still find connections, although difficult to

quantify, through experience with other species, with entire ecosystems, and with nature

in general. Abram (1996) writes, "by denying that birds and other animals have their own

styles of speech, by insisting that the river has no voice and that the ground itself is mute,

we stifle our direct experience" (p. 263).

Another commonality among species that is less difficult to quantify is food.

Everybody eats. Even bacteria require a nutrition source to survive. In furthering the

development of a theory of action gardening through participation and deliberation

among pluralistic radical democratic communities always-in-the-making that recognize

samenesses and differences, the subject of food lends an ear to the voice of every one.

However, including every living individual on Earth makes for a large group, and as

mentioned earlier, the elements of radical democracy degrade with large numbers of

participants. One way to scale down this approach to a size that is manageable in the

school garden is to consider the issue of food justice within human society.

Food Justice

Questions of justice with regard to food encompass many areas, including

everything from food availability and security, to jobs, health, nutrition, education, and

community organizations. Such questions begin with a consideration of human rights. In

America, democracy is closely associated with concepts of equality and equity, along

with others, such as security and freedom. Fighting for these rights holds a prominent

place in American history. The willingness throughout history of citizens to take a stand

for the rights of self and others on different points – civil rights, the right to vote, the right

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to free speech, to name a few - are a source of pride for American citizens. However, until recently, other than being considered by some as included in the right to "freedom from want," the right to food has not been an American issue. However, elsewhere, around the world it is.

The right to adequate food was declared by the 1948 Universal Declaration of Human Rights by the United Nations and is included in the 1966 International Covenant on Economic, Social and Cultural Rights (United Nations Treaty Collection, 2012). Every country has ratified their signing of the covenant as of May 2012 affirming a framework for supporting the right to food, except for the United States. While America does not have a nationwide framework for supporting the right to food in general, there are regional, state, and local government programs that enhance the availability of nutritious foods, in addition to federal programs, such as the USDA Farm to School initiative (http://www.fns.usda.gov/cnd/f2s/). In addition, in cities throughout America, organizations are banding together to address issues regarding the lack of adequate food.

Take, for example, the Detroit Food Justice Task Force (http://www.detroitfoodjustice.org/). This consortium of organizations is working together for social change regarding food justice in their city. The major focus of the task force is to campaign for food sovereignty with a first and foremost realization of food being a right of the people. In addition, the Task Force lists goals of protecting the commons, reclaiming of land for the growing of food, establishing a food and farm bill, organizing of community garden work days, hosting of community meals, establishing a network of food markets and jobs associated with them, and providing opportunities for education in gardening, malnutrition, and related health problems. In recent years, parts

of the city have been unable to draw supermarket businesses due to poverty and crime, which has led many areas to be considered food deserts. The Task Force is putting great effort into making available to the people of Detroit the knowledge, materials, and resources for taking control of the dire conditions of food availability and security.

Another example is the Atlanta Metro Food & Farm Network (AM-FFN) (http://amffn.wordpress.com/). This coalition exemplifies a radical democratic community always-in-the-making providing opportunities for participation and deliberation. AM-FFN brings together individuals in the community, civic groups, governmental bodies, and experts in the transformation of marginal unoccupied spaces into community food gardens with the goal of enhancing food security in the ten-county metropolitan area of Atlanta. AM-FFN began as a program of ECO-Action, Inc., an organization with a mission of helping communities confront combined issues of health threats, environmental degradation and toxicity, and social injustice. Communities at this intersection have historically been women, children, and people of color with limited formal education and resources. Healthcare providers, legal assistance, and environmental agencies combine efforts to inform and train citizens regarding their rights and taking action.

Through AM-FFN, community residents are trained and assisted in the establishment and maintenance of community food gardens, empowering citizens to take charge of their own health and nutrition. Community gardens are participants in the Food Commons, a re-visioning of food system of regional and local scale, as opposed to the industrialized nation-wide and global level of size to which we have become accustomed. The Food Commons integrates the ways of food procurement from an earlier time, before

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industrialization, with present day information systems and science of sustainable agriculture. Farming at a smaller, localized, manageable scale, like participation in general, has been found to give more fruitful results.

One example of an AM-FFN community garden is found in the Pittsburgh community in southwest Atlanta, an area with no grocery stores carrying fresh produce. Residents worked together with the Social Justice Committee of Georgia Institute of Technology to design a garden in a small green space between residential roads. Volunteers from a local high school, a local watershed organization, and a local community gardening program worked together alongside community residents to construct and plant raised beds. Residents maintain the plantings and reap the harvest. Any leftover harvest goes to the Food Commons that distributes food to other communities. The Pittsburgh community is but one in the AM-FFN coalition that serves as an example of how people, beginning at a small scale, can work together for the common cause of food justice at a large scale with the added benefit of city beautification, one garden at a time.

Yet another example, Seattle Youth Garden Works employs homeless and low-income youth to teach others about gardening and environmental awareness, to install urban gardens, and to assist in operations at city farmer's markets (http://seattletilth.org/sygw). The gardens that are created then serve as demonstration sites for cooking and gardening techniques, as well as centers of cultural diversity as gardeners of different origins garden in plots alongside each other. The urban garden sites provide a wealth of information as well as cultural learning experiences, nutritional food sources for others, and employment for the youth workers (Mares & Pena, 2010).

Teaching others, such as is done in Seattle Youth Garden Works is an act of altruism, for in the face of what is perceived as crisis - insecurity and injustice regarding the availability of basic survival needs of food – some can make choices to give of themselves to help others. Teaching youth how to grow their own food teaches them not to need us. It teaches them flexibility and confidence in making decisions in a world of increasing uncertainty. Teaching youth to teach others does so tenfold.

As in the above examples, participation and deliberation as integral aspects of radical democracy are also essential actions in the garden. Through engaging in work with soil and plants, establishing bonds of community, and sharing the fruits of one's labor, various levels of participation present themselves. These range from designing the garden, procuring materials, preparing and amending the soil, sowing the seeds, planting the plants, organizing gardeners in weeding and watering, harvesting the food, and deciding how to distribute it.

Deliberation is learned in the garden by the choices that are presented there. Take, for example, the following scenario. Two plants are growing in a garden. One plant may grow so vigorously as to shade out the plant beside it. The larger plant may then show a need for less water and the neighbor for more. Or, the branches of the larger plant may require pruning so that the smaller may receive more light. The branches themselves of the larger plant provide choices. Which should be taken for the benefit of all? The growth of the two plants teaches the gardener how to maintain balance and think with a broader perspective.

My experiences as summer camp counselor afforded me the opportunity to observe children as gardeners in a vegetable garden. Given only the elements of the

garden, meaning no toys or books – just plants, soil, and the critters that live there – the children's typical elementary school-aged behaviors were directed to the vegetables. They began to "hunt" for squashes hidden beneath leaves, hide themselves among the stalks of corn, and challenge each other to collect "the most" peaches that had fallen from trees. They sword-fought with bamboo stakes brought for the tomatoes and argued over getting to pick the longest bean pod – as kids will do. It was a joyful experience to observe them working/playing together in the garden. They also weeded, watered, and collected seeds to save for the next year.

In exchange for their work, they were able get to take some of the harvest home and hopefully eat it. Each child immediately wanted what the next had – but the garden that day did not have a squash, a tomato, and twenty green beans for each person. We entered into a discussion – a deliberation – regarding the fairest way of dividing the harvest. We talked about what vegetables they liked, their willingness to try new foods, and their ideas for how to prepare them to eat. We talked about choosing between wants and needs. Before long, individuals began to offer solutions: volunteering to give up a tomato for a squash and offering to trade beans for a cayenne pepper to give to an uncle who loved them. We all left the garden satisfied, and the next day I heard several stories of how the children shared the fruits of their labor. That day, as an example of a radical democratic community always-in-the-making, we participated and deliberated according to the situation that was presented to us. Although this did not take place as part of formal schooling, this still serves as an example that supports the development of a theory of action gardening.

Nature in the garden can be a teacher of lessons in radical democracy through participation and deliberation. In the above example, relationships were learned, similar to those that have been identified among other species within ecosystems. For example, I observed competition among some campers that became relationships of commensalism that following discussion, eventually morphed into mutualism. This serves as an example that although the theoretical vision for relationship in the garden, as well as in a democracy, is of mutualism or reciprocity, in reality, achieving that goal requires work.

Another lesson that I learned with the campers in the garden was about not taking more than we need. In our deliberation about want/need and how to divide the harvest, one camper who had pretended to be a squirrel all morning brought up a different perspective – do squirrels actually *need* all those acorns that they hide, or do they just *want* them, just in case? This led to more discussion about how their food supply diminishes in the winter and they have to think ahead, and that maybe they are also helping to plant oak trees. We tried to use the analogy of how buying groceries that can last a long time in the cupboard is a little like the buried acorns. The kids reminded me that fresh food is more nutritious and helps us to be stronger and faster. (They had been listening to their parents and teachers!) This point led us to a conversation about unhealthy meals that they had eaten, and that they had seen other people eat which in turn made us realize that some people do not have a choice. We all agreed that every one should at least have a choice to eat nutritious food so they could be stronger and faster. We talked about where our food comes from and how a lot of it – especially that sitting in the cupboard - starts off on an enormous farm far away before going by truck or train to a factory or two, and then eventually ending up in the grocery store. One camper with a

bewildered look asked how he was supposed to choose nutritious food if he did not even know where it came from? Good question! Some of the campers answered by expressing that they were glad they knew where to go to get nutritious food and asked if we could come back to get more vegetables the next day. Others wondered if perhaps they might be able to take some of the seeds we collected home with them so that they could plant their own vegetables. We all thought that was an excellent idea and added a packet of seeds to the daily collection of treasures.

In addition to the treasures of vegetables and seeds we found in the garden that day, we also found new understandings that we learned through seeing Nature as Teacher. We learned that it was important to have a voice in deciding what we put in our bodies. We learned that knowing where your food comes from helps with this. We learned about the value of having equitable access to nutritious food and equal rights to eating it. We realized that knowledge about our rights and our food gives a sense of security about having enough and a feeling of freedom from wanting more. We engaged in radical democracy through participation and deliberation. The lessons we learned from the garden led to understandings about social justice. As social issues such as food justice are often associated with ecosystems, it follows that the natural environment is the next topic to examine more closely. To further develop a theory of action gardening, let us next take a look at how radical democracy is associated with environmental justice.

Radical Democracy as Environmental Justice

Environmental justice is an underemphasized subject in science education. Yet, it can have an impact on understandings of environmental science. Making connections between ecological issues, human health, and human choices allows the development of

understandings of environmental justice. Establishing a sense of place in the community and an awareness of issues can lead to the cultivation of radical democracy as environmental justice, in turn providing support for action gardening as a theory.

Democracy in America includes equal rights for citizens. American citizenship is granted by birthright or through the naturalization process (Smith, 1985). To be a citizen entails the right to have rights. However, "citizen" can be considered a limitation in affording rights to those deemed as deserving. This is particularly apparent when we acknowledge that one's sense of self, or personal voice, is comprised of relational others, including other species.

Mueller and Zeidler (2010) argue that one's sense of citizenship can be broadened to extend ideas of justice beyond the realm of humanity with developed values for ecological issues, and that science education in particular could do more to promote this. Thomashow (1995) terms the "sense of belonging to a larger community of species" that can be developed through learning experiences as "ecological citizenship" (p. 105). This sense of citizenship is in line with Leopold's (1949) ideas of ecological community of which humans are dependent members.

These extensions of ideas of citizenship assist humans in understanding our place in the ecological community, but where do the other species stand? There is a history of considering the possession of rights by other species, and even entire ecosystems (Mueller, Patillo, Mitchell & Luther, 2011; Singer, 2001; Stone, 1972/1988; Taylor, 1986). However, the application of rights that are perceived as fair from a human standpoint, are just that – anthropocentric. The concept of rights is a human construct,

even as we consider the realization of a commonality among all living beings of the right to continue life uninterrupted (Sterba, 1995; Taylor, 1986).

Laws for enforcing the protection of rare and endangered species can be considered in a similar fashion – meaning their justification is often most easily conducted from the standpoint of viewing the species in question as being needed by humans. Take for example, *Panax quinquefolius*, American ginseng. It has a long history of medicinal use and folklore, plus it brings a high price on the market – a scenario that has resulted in overcollection of the plant, putting it in danger of extinction (Cruse-Sanders, Hamrick, & Ahumada, 2005). Because of awareness of the severity of the situation, strict federal and state laws have been put into place (http://www.wildgrown.com/laws.htm). However, laws protecting plants only apply to those on public lands, which, although it is good to have the plants protected somewhere, further emphasizes an issue of great importance to human rights – the right to do as one pleases with one's own property (http://www.fs.fed.us/wildflowers/rareplants/conservation/lawsandregulations.shtml). Laws regarding endangered animals apply regardless of their location because of their potential to relocate.

The laws of ownership in place today stem from thoughts put forth by John Locke in 1689. Plumwood (2003) suggests a change in perspective from the Lockean sense of ownership to a view even beyond that of reciprocity (seeing oneself as belonging to the land and the land belonging to oneself). Instead Plumwood (2003) recommends that we begin a relationship that is "communicative, making ownership out in the essentially narrative terms of naming and interpreting the land, of telling its story in ways

that show a deep and loving acquaintance with it and a history of dialogical interaction" (p. 230).

Plumwood's ideas are reminiscent of Sergiovanni's (2012) who writes of our roles as definers of contracts and of covenants within collaborative cultures. Sergiovanni defines covenants as the most sacred obligations and commitments we have toward each other. Roles of definers of covenants obligate us to meet and exceed our responsibilities to each other. Roles of definers of contracts work to ensure that contracted parties get what they want. Covenants are thus based on moral obligation and virtue while contracts are based on legality, deals, and division by winning and losing. Sergiovanni (1994) suggests that schools be run as social organizations based on mutual bonds and shared values of community, rather than as formal institutions. Mutual community bonds are founded in covenants, rather than contracts, highlighting reciprocity, interactive relationship, communication, and commitment rather than compliance.

Abram (1996; 2010) recognizes that a profound and meaningful relationship with the Earth, such as that suggested by Plumwood and by Sergiovanni's idea of covenants is one that humans have known before and can return to again. However, "it is not by being abstract intellects that we are going to fall in love again with the rest of nature. It's by beginning to honor and value our direct sensory experience." Abram adds, "and how much easier it is to feel that ground if you allow yourself to sense that the ground itself is feeling your steps as you walk upon it" (http://www.scottlondon.com/interviews/abram.html). Through awareness enabled by our senses we can realize the commonality of life that we share with other living creatures and the elements that we share with the Earth.

<u>There Is No Place Like Home</u>

Awareness of one's surroundings is integral in the concept of a "sense of place." *Place* refers to a geographic location but also to the opportunities to create meaning there through the establishment of relationships with environment, community members, and their knowledges (Wilson, 1997). *Place-based education (PBE)* is adaptable to the "unique characteristics of particular place, and in this way it can help overcome the disjuncture between school and children's live that is found in too many classrooms" (Smith, 2002, p. 584). PBE has important implications in science education specifically as a contributor to ecologically ethical critical pedagogies that support meaningful change in scientific understandings (Chinn, 2007; Glasson et al. 2006; Gruenewald, 2008) and promote strong relationships that can protect and preserve the ecological and cultural commons (Roth, 2010; Tippins & Mueller, 2009).

Place-based education is considered to be an approach that supports the whole child (Blank & Berg, 2006). Physically, students benefit from working outdoors. Mentally, they benefit from the level of student participation that is supported by processes of project development and implementation. Spiritually, students are given the opportunity to connect with the land, resulting in the heightened vitality of Deweyan experience and connecting with the inherent love for other beings that is foundational for West's love ethic. Even former Center for Disease Control director Frumkin (2003) reports research supporting the overall health benefits that establishing a sense of place has. Sobel (2004) emphasizes the need for children to be allowed to love their environment before being asked to save it, and place-based education does just that.

Through an establishment of a sense of place, we can begin to extend ideas of justice beyond humanity to the environment. Plumwood (2003) makes a connection between place and environmental justice by linking "geographical remoteness," or the lack of a 'sense of place,' with ecological irrationality, or acting in a manner that seems without reason for it denies ecological understandings. Plumwood (2003) theorizes that inequality… a major sponsor of ecological irrationality…combines with geographical remoteness… creating barriers to knowledge and offering massive opportunities for redistributing ecoharms" (p. 81). In other words, inequality and remoteness are responsible for ecoharms, or actions that harm ecological systems. Plumwood (2003) directly links ecological harms to "social ills" of inequality and overemphasis on market values when she writes, "the logic of global markets treats the least privileged as the most expendable," devaluing their health, land, assets, and their lives (p. 81). "This logic helps to ensure that the least privileged are likely to feel the first and worst impacts of environmental degradation as in… the case of waste dumping in poor and coloured communities (such as Warren County)" (Plumwood, 2003, pp. 81-82).

To reestablish balance among the factors of geographic remoteness, equality, and ecological rationality, Plumwood suggests deep democracy. Deep democracy is radical in that it reduces remoteness to promote justice and equality through plurality to "encourage speech and action from below" (Plumwood, 2003, p. 87). Plumwood (2003) continues by making a comparison that "shallow forms of democratic politics provide only weak forms of ecological rationality, not well correlated with correctiveness on ecological and social matters." Instead, shallow democracy allows more inequality and remoteness. In other words, deep democracy encourages pluralistic communication that reduces remoteness –

or enables a sense of place - which in turn supports ecological rationality. Meaningful connections made between human reasoning and ecological understandings promote equality. Thus, *deep democracy reduces ecoharms*. Deep democracy works for environmental justice.

West (2004) writes of deep democracy as a profound and meaningful enactment of democratic process, as "a tradition of Socratic examination, prophetic practice, and dark hope" (p. 61-62). "It only requires that we be true to ourselves by choosing to be certain kinds of human beings and democratic citizens indebted to a deep democratic tradition and committed to keeping it vital and vibrant" (West, 2004, p. 218). One way to engage in radical democratic practices through deep democracy is to illuminate the connections between ecoharms and societal ills, in reference to overemphasis on market values and subsequent ecological irrationality (Plumwood, 2003).

Luther and Mueller (2011) make a more literal connection between potential ills of society that can follow ecological harms when they link the effects that ocean health has on human wellness. The authors write, "synthetic organic chemicals (SOCs), found in herbicides, pesticides and industrial solvents, seep into the ocean directly and through atmospheric and freshwater sources. SOCs, linked to endocrine disruption in humans, bioaccumulate in marine organisms" (p. 13). In addition, "aromatic hydrocarbons (PAHs), a known carcinogen, are created through burning fuel and enter the ocean through municipal and industrial emissions. Ingesting seafood exposes humans to SOCs, PAHs and mercury, a cause of brain and kidney damage" (Luther & Mueller, 2011, p. 13). Illuminating distinct connections between the ocean and the human body allows us to see the impact of our actions, how a failure to see these connections is an example of

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ecological irrationality, and how the ecoharms that we knowingly or unknowingly take part in are essentially hurting ourselves.

Similar connections can be made between ecoharms of terrestrial environments and human health. Plumwood (2003) makes direct reference to the toxic waste dumping in Warren County, North Carolina, an example that depicts large-scale societal ills of inequality. In 1982, land in Warren County, a poor, rural, predominately African American area, was designated as the site for a landfill to hold contaminated soil from an illegal polychlorinated biphenyl (PCB) dumping incident. The decision to dump the toxic waste at this site was documented as being based upon the suitability of soil type and distance from groundwater, both of which proved to be untrue. Rather, the decision was based on the powerlessness of residents' voices (Bullard, 1994). Four years of deliberation in the legal system followed the decision to build the landfill as residents resisted. When their voices were still unheard and the movement of the waste to the landfill site began, 550 residents lay in front of 10,000 truckloads of contaminated soil. They were arrested, the soil was dumped, and within a few months carcinogenic PCBs showed up in water sources. The term "environmental racism" was coined at this event, but the injustice that exists between environment and race has existed for much longer (Chavis, 1993). This is also considered one of the first legal cases of seeking environmental justice. Toxic dumping and other locally unwanted land uses (LULUs) have historically been located more often than not in places putting forth little resistance (Bullard, 1990), often in "poor, powerless, black communities rather than affluent suburbs" (Bullard, 1994, p.139) illuminating an obvious link between societal injustice and the environment.

Similar examples of deep or radical democratic responses to marginalization occur in many parts of the world and among many ethnic groups. For example, in Australia, the Aboriginal Tent Embassy, now 40 years old, was erected as a statement of the desire to reoccupy sacred land (Schaap, 2009). The aboriginal people have an ancient culture centered on a close relationship with the land, with a method of ecological teaching and learning embedded in their walkabouts. Public lands have been destroyed in the open pit mining of bauxite, the foundational element of aluminum, destroying the culture of the aboriginal people along with their homeland (Smith, 2010), which brings us to the concept of "home."

"Home" situations of students are typically not considered in school due to the potential sensitivity of the subject. However, many students live in areas considered environmentally unhealthy, and even dangerous, due to market-based land use decisions made by distant politicians. There are many students, for example, who call Warren County home. The concept of home should be connected to a feeling of security, yet feelings of trust in the environment as being a healthy place, and in the government as being trustworthy have been undermined there.

West (2004) asks the question: "Is death the only black space (home), place (roots), and face (name) safe from white supremacy?" (p. 106). Orr (2006a) answers by connecting home with place in education. Place-based education cultivates students who can potentially be rooted in a particular place with knowledge, care and love – in contrast to the modern day "cult of homelessness" due to the "unraveling of community structure and ecological integrity" (Orr, 1992, p. 131). West (1993a; 1993b; 1993c; 2004) agrees as he urges us to connect with others and to (re)establish bonds of community, for he sees

the dissolution of these relationships as being directly linked to a sense of nihilism in American democracy. The garden can be a safe place in which to explore social and environmental justice while establishing a sense of community – among neighbors and within the ecosystem - through a concept of home that extends beyond the walls of a house.

Granted, the garden is at times romanticized. Not every student will feel safe and at home in the garden, but that is part of radical democracy and action gardening as well. I have worked with students and campers who feel afraid outside. To them, work in the garden may be difficult at first, but working through the difficulty - the struggle - is part of the process. West would say that we must be willing to face uncertainty and face our fears with love. One example of a garden project has done just that. In Portland, Oregon, the Emerson Street Community Garden began when members of a neighborhood realized a common interest of creating a garden in a vacant lot (http://www.epa.gov/brownfields/success/BF-SS-Emerson-Street-032911.pdf). After testing the soil, they realized that it had extremely high levels of lead. The community members did not give up though. They worked together to move the top six inches of soil to one area of the lot where it is fenced and planted with phytoremediating species. These plants take up lead and other toxins and bind them so as to lessen their toxicity and keep them from leaching into water supplies or running off site. The remaining soil has tested free of lead and has been planted with a garden that the entire neighborhood enjoys. It also serves as an educational opportunity for toxins and for strategies for dealing with them. The community's vision for a garden prevailed although it briefly changed paths. When they started the process, they did not know what they would find. Had the Emerson

Street community members been unwilling to deal with their findings or to look in the first place, they would not have the understandings that they do now, and their environment would not be as healthy as it is today. They were able to work together to make decisions about a shared environment to transform it into a healthy space.

The Emerson Street garden reminds me of a story that represents an approach to environmental justice that led to a very different outcome. I once marched in a Green Peace rally in protest of the construction of an incinerator for the disposal of societal waste. The governor of the state met the protestors to hear our stance on the issue. However, we, the protestors, had no planned reasoning to offer the governor. We had been marching merely to march without enough intellectual understanding to make our voices worthy of being heard. In the Warren County event, 550 protesters were arrested. I was not willing to be arrested and do not remember the march as having the kind of fervor that would warrant arrest. The march I participated in was lacking in propheticism, and thus is not an example of environmental radical democracy. Like casting a vote without understanding the amendment for which one is voting, the consequences can work against one's intentions. However, we learn through process and experience.

Issues of environmental justice such as the construction of the incinerator are common, and finding resolutions to these issues is not an easy task. Often the issues are complex, involving societal issues in addition to ecological ones. Decision-making regarding issues requires the development of intellect through what West (1993a) considers elements of prophetic thought: discernment, human connection, tracking hypocrisy, and hope. To act without discernment can result in superficial change or none

at all. The garden can provide us the opportunity for practice with these understandings for decision-making.

Nature in the garden can be our teacher for justice, for in the garden there are both joy and sorrow, life and death. Becoming more familiar with the processes of nature, allows us to embrace the uncertainty of the future with love rather than fear. We are able to make connections between the health of ecosystems and our bodies. In the garden we can begin to view Nature as a home that affords us a sense of both security and freedom from the unknown and fear. The garden provides opportunities for engaging in radical democracy as environmental justice, furthering the development of action gardening as a theory. Now let us turn our attention to seeing how these understandings also support a vision for science education.

Radical Democracy in Science Education

Preparing students to participate more fully in radically democratic life is not frequently the goal of science education. Yet, radical democracy has to do in large part with affording students opportunities to express their unique and shared voices. Science education through various approaches can promote the development of such opportunities through practice, as well as scientific understandings that enable engaging in them more fully. The garden is a context for engaging in radically democratic practices within science education as yet another component contributing to the development of a theory of action gardening.

There are varying views regarding the incorporation of democratic principles in science education. From one perspective, not a great deal of literature regarding science education and democracy can be found, perhaps evidence that the subject is

deemphasized or even ignored (Mueller, Tippins, & Bryan, 2012). Similarly, although introductions to and practice of decision-making procedures are integrated through activities, projects, and science education curricula, for the most part they do not foster choices in a manner that gives a sense of the embeddedness that democracy should convey in our society (Westheimer & Kahne, 1998). After all, the process of making decisions can be messy, disruptive, and difficult to recover from in terms of regaining the rhythm of the class. Yet, youth need to know when to speak up, for they will inherit today's societal problems, so to speak.

An alternate view, mentioned in a previous section, sees scientific literacy as being integrally associated with democracy (Tippins et al, 2010). This perspective is based on an understanding that scientific literacy promotes a way of being in the world that requires democratic practices, such as participation and deliberation, as various positions of an issue are reviewed and informed decisions are made following thorough consideration. In other words, scientific process entails an informed way of thinking that is a characteristic of both science education and democracy.

Within scientific literacy, there is a history of different perspectives as well, described by Roberts (2007) as two visions. The science standards available at that time - the *National Science Education Standards* (NSES) (National Research Council [NRC], 1996) and the *Benchmarks for Science Literacy* (American Association for the Advancement of Science [AAAS], 1993) - were considered to be in line with the first view, otherwise known as "Vision I" (Roberts, 2007). For example, the NSES outline the steps to follow to "learn" science. Likewise, the *Benchmarks* are referred to as "looking inward at the canon of orthodox natural science" (Roberts, 2007, p. 2). In contrast,

"Vision II" looks outward to see science in surrounding situations, in context as it takes place in everyday life (Roberts, 2007). In other words, Vision I refers to what we typically think of as traditional science while Vision II is a more progressive view.

A second draft of the *New Generation Science Standards* (NGSS) (http://www.nextgenscience.org/next-generation-science-standards) based on the *Framework for K-12 Science Education* (NRC, 2011) was released in January 2013. As the drafting of the document has included the input of more than half of the states of the country and has been open for comments and recommendations from science education organizations, it will be interesting to see if two separate visions of science education remain in the future. The *Framework* (NRC, 2011) depicts a single vision with three dimensions: practices, including processes incorporated by scientists and engineers; content, composed of four domains of physical, life, earth, and engineering sciences; and crosscutting concepts, such as patterns, cycles, and fluctuations of stability through change that are identifiable as common to all domains. Inquiry is explained as incorporating cognitive, social, and physical practices; and criteria are presented for determining core ideas: broad importance across sciences or central to one science, teachable/learnable at multiple grades, a key tool for problem solving, and relating to life experiences and concerns of students and society (http://www.nextgenscience.org/three-dimensions). Thus, a structure seems to be in place for a merging of Roberts' (2007) two Visions, one in which common features, such as the recognition of societal influences, are intertwined throughout rather than an image of distinct perspectives separated by unfathomable space. However, according to comments posted on the National Science Teachers Association (NSTA)

(http://www.nsta.org/about/standardsupdate/recommendations2.aspx?print), an early draft of the new standards were noted as overlooking fifty years of empirical research regarding the influence that inquiry instruction has had on developing views of the nature of science. Whether this new structure is able to merge the split vision or it promotes a further separation, the divide will most likely remain, at least residually, while the NGSS become established. Regardless, establishing standards that are agreed upon by vast numbers of diverse individuals is a tall order. As citizens of a bipartisan country, it seems we are comfortable with two perspectives from which to choose.

In addition to promoting bipartisanism, engaging in democratic practice has been recognized as having two ways in which it is carried out in a manner that is similar to Roberts' (2007) two visions of science education. One way is termed "procedural democracy," or going through the procedures of democracy without actually participating in it (Westheimer & Kahne, 1998). The other way refers to the democratic way of living that is conducted through good citizenship. Westheimer and Kahne (2004) suggest that one possible reason for this divide and subsequently a potential explanation for why "teaching" democracy is not emphasized in schooling is because the goal of "citizenship" lacks definition. Beyond referring to the geographic location of one's birth, what does citizenship entail? Is citizenship merely a legality, and if so, how can one possibly "learn" to be a good citizen? While citizenship is not a subject taught in school per se, learning to 'be a good citizen' is assumed to be included in the socialization of schooling. Citizenship in this sense has more to do with morality, or basic ideas of right and wrong, than it does legality. Morality as an aspect of citizenship plays a role in scientific literacy through the incorporation of democratic practice.

Mueller and Zeidler (2010) recognize differing visions of scientific literacy and their potential association with different perspectives of democracy when they acknowledge a possible disconnection between the scientific literacy outlined by science education standards in America, and the "functional scientific literacy" that could actually emerge in the classroom as teachers more fully embrace the opportunities for learning the science of society (p. 125). These scholars bring considerations of morality into the promotion of scientific literacy with opportunities for the practice of citizenship through collective class work on socioscientific (SSI) issues. One example of an opportunity such as this is provided by the example of the Glofish, a species of fish genetically modified for educational purposes and for human enjoyment. Through investigation into the scientific and economic background of the GloFish, Mueller and Zeidler (2010) illuminate issues surrounding the modification of another species for human purposes while establishing an SSI framework. This framework is recommended for cultivating connections to moral reasoning and values that are not typically included in science education due to their sensitivity or their connection with areas outside the domain of science. However, these connections shape science and lead to the development of a more "functional scientific literacy" that includes making choices for others and other practices of democratic citizenship (Mueller & Zeidler, 2010, p. 125).

West adds to the connections that can be realized between science education and democratic citizenship by acknowledging the importance of community. West (1993a) sees the state of deterioration in American public life as stemming from a lack of community "at the level of lived experience, the cultural decay, the erosion of civil society…[t]he shattering of families, neighborhoods, churches, mosques, synagogues,

civic associations, leading toward the breakdown of the nurturing systems for children"
(p. 195). Beginning with families and neighborhoods, he suggests that we promote
"democratic experiences of weaving a web of interconnections between the academy,
mass media, prisons, churches, and the street" (West, 2004, p. 189), such that "everyone
should master a core set of generic conceptual and practical skills, getting ready for a life
of instability, learning and innovation" (Unger & West, 1998, p. 69). West suggests that
in this manner, we can educate a critical citizenry who will promote democratic values
and who will draw upon a heritage of what he (2004) terms a "'deep democratic
tradition' to fashion humane responses to unwarranted social misery" (p. 13).

By recognizing the opportunities that science education holds for the development
of radical democracy through action gardening, the teaching and learning of science in
the garden can also lead to practices of citizenship among youth. Like science education,
radical democracy as a form of action can be seen within two perspectives or visions –
one as consisting of steps and processes, the other as embedded in context. Just as
scientific processes can be engaged in and the understanding of scientific content can be
developed through science education in the garden, the steps of democratically making
choices for self and others can take place there as well. The context of community,
including environment, actors, and associated issues can lead to the radical, or deep,
democratic urge to work together to promote change for the better as engaged citizens.

There are progressive approaches to teaching and learning within science
education that have gained in prevalence in recent years. In addition to having various
merits in science education they can be seen for their potential in making connections to
radical democracy. On such approach is place-based education (PBE), described earlier

in this paper for its importance in cultural historical activity theory and in promoting

social and environmental justice through radical democracy. As a progressive approach to

science education, PBE promotes the broadening of perspectives to include community

members, both human and nonhuman.

Mentioned earlier in this section for its connections to citizenship development is

socioscientific issues (SSI). As with Mueller and Zeidler's (2010) consideration of the

Glofish, SSI considers morals and values in science education. SSI stems from the

society, technology, and society movement (STS) of the 1960s-1980s. STS recognizes

that science and technology are embedded in society, and as such, society should be used

a context for learning science and technology. SSI builds on STS by emphasizing the

development of decision-making skills that are needed by scientifically literate citizens.

SSI is constructed around issues, enabling students to make connections between 'doing

science' and real life situations. Zeidler, Sadler, Simmons, & Howe (2005) embed SSI in

a sociological framework that encourages the consideration of moral principles and

elements of virtue, as well as a "fostering a sense of ethical caring and character about the

social and natural world (Zeidler, Berkowitz & Bennett, 2011). Sadler (2004) focuses on

informal reasoning processes that take place during the incorporation of SSI in science

class. Gerri Cole (http://dbs.galib.uga.edu/cgi-

bin/ultimate.cgi?dbs=getd&userid=galileo&serverno=8&instcode=publ&_cc=1), in her

dissertation, adds a moral component to Sadler's SSI reasoning instrument.

According to Zeidler, Berkowitz & Bennett (2011), SSI enables a "deep

restructuring of pedagogy," including transformative shifting of dynamics within the

classroom from teacher-centered to student-centered. Additional shifts from dependence

to autonomy, accountability to responsibility, and faith to actions are included in the SSI pedagogical restructuring. "Humans are bent toward inquiry, exploration, understanding and acting on personal and social knowledge" (Zeidler, Berkowitz & Bennett, 2011, p. 1). Approaching science education by incorporating "the construct of agency to foster responsible scientific thinking, and ultimately the development of character" is "transformative in that it allows freedom of thought and liberating power to engage in and be part of a wider network of niches in the social and natural environment" (Zeidler, 2011, p. 7). Supporting agency through the incorporation of sociocultural perspectives in science education allows the development of scientific literacy merged with the development of personal voice.

The student-centered implementation of SSI in the science classroom increases public understanding of science by allowing students to guide themselves through scientific processes to understandings that are more meaningful. In addition, awareness of scientific issues is raised both on a local scale and global level, depending on the issue, and this awareness sets the stage for further understanding of science in the everyday world of science-based issues. There is potential for reaching out to the community in gathering information to inform opinions regarding issues and for establishing an understanding of our natural surroundings, in the case of environmental issues. The ways in which SSI can be incorporated are diverse: issues can be local or global; they can be environmental or social, such as in the consideration of scarce medical resources in developing countries (Zeidler, Ruzek, & Herman, 2012); they can be conducted indoors and outdoors. Because of this variation, along with the infinite number of issues to choose from, opportunities for incorporation of technological innovations as they arise,

and the potential of it being a transformative practice, SSI as a pedagogy has what it takes to be sustained in use into the future. The issues-driven aspect of SSI pedagogy is mentally empowering for students and teachers. Further, the consideration of moral principles and virtues contribute to emotional/spiritual aspects of child development.

In another progressive example, ecojustice education analyzes the connections between social justice and ecological wellbeing. This is approached through examining methods of resistance to destructive forces of consumerism while exploring efforts for revitalization of environmental and cultural commons – meaning all resources shared in common along with traditions and relationships with the land (Bowers, 2001). Thus, ecojustice education can cover a broad array of topics. For example, in ecojustice education, the work of Martusewicz (2006) in Detroit community gardens can be used as a focal point for how community-based projects, such as school and community gardens can counteract industrialized impacts on cultures. Living in extreme poverty, the people of Detroit with whom Martusewicz (2006) works begin to foster a different set of values when they start gardening, expressing cooperation and self-efficacy instead of antagonism and despair. To the gardeners, gardens represent "expressions of resistance" against conditions over which they previously felt powerless (Martusewicz, 2006, p. 48).

Extending Mueller's (2009) consideration of the commons with Leopold's (1949) land ethic, we see other species as fellow community members. Within ecojustice epistemologies, Bentley (2010) recognizes an embeddedness of humans in ecosystems, a form of knowing that is in balance with uncertainty - or the "sacred unknowable" - an aspect of the nature of science and a driving force of science as process. As a method for

promoting conservation of the commons through embracing uncertainty, Bentley (2010) calls ecojustice education "teaching-action" (p. 31).

Engaging in teaching-action for the preservation of the commons through ecojustice education takes into account the dilemma addressed in Hardin's (1968) "Tragedy of the Commons." In the article, Hardin recognizes the lack of a technical solution to diminishing resources for a growing population. Instead, he illuminates the need for us to look to aspects of humanity, such as values, to further explore solutions to the issue of diminishing commons, particularly the value of responsibility. To enforce the notion of responsibility for the preservation of the commons in a manner that is understandable to all involved parties, Hardin (1968) reiterates a concept first introduced by Rousseau, "mutual coercion mutually agreed upon" (p. 1246).

Addressing the role of human values, such as responsibility in the resolution of societal dilemmas is embodied by ecojustice education, along with other perspectives and possibilities that give equitable consideration to involved parties. Ecojustice varies greatly, however, in its inclusiveness of *all* parties, meaning flora, fauna, ecosystems, etc. While Martusewicz, Edmundson, and Lupinacci (2011) restate Hardin's title to be "tragedy of enclosure," thus making the intent of his article in line with ecojustice and other philosophies that denounce ideological or dogmatic "-ism" foundations (and therefore in agreement with notions of action gardening), there are aspects of Hardin's tragedy that do not necessary coincide with West's ideas (p. 216). In particular, West (2004) considers any form of coercion, mutual or not, to work from an origin of fear and in opposition of love. Centered on love, action gardening as a theory disagrees with

mutual coercion but encompasses the inclusiveness of ecojustice education as an approach to realized injustices.

Ecojustice education promotes public understanding of science through a sociocultural perspective. The strong bond between culture and the environment that is foundational to ecojustice epistemologies is a reflection of how culture and environment are linked in human heritage. Because of this linkage, ecojustice education provides support for other education reform initiatives, such as ecological literacy and the other examples of progressive education approaches analyzed in this section. In terms of sustainability, sustaining ecojustice education as science education pedagogy in turn sustains the environmental and cultural commons. With greater emphasis on the connection of human culture to the environment, ecojustice is about recognizing connections, not about defining boundaries and about (re)establishing community connections in the potential promotion of radical democracy.

In yet another example of progressive education, citizen science is the public participation in scientific research during which citizens collect scientific data for research scientists. Citizen science has become a popular method of participating in science in past decade, particularly as technological innovations have improved methods of sending collected data from the perspective of the data collector end and methods of storing and analyzing data from the perspective of the researcher. Research scientists cannot be everywhere at once, and citizen science allows the general public and students in the science classroom to be scientists' eyes and ears, observing conditions and species, such as what occurs with the data collection of bird counts and stream monitoring. Citizen science is particularly useful in long-term research or broad scale projects, such

as the National Audubon Society's nationwide Christmas Bird Count (CBC, n.d.). Citizen science as a recent trend has led to the development of projects regarding subjects as diverse as arthropods, stars, phenology, and biodiversity. For example, long-term data collected regarding phenology, or observed changes in plant life at particular times of year, can contribute to understanding of global climate change - theoretically, at least.

I say theoretically because the concept of citizen science - of citizens gathering data for scientific progress - is actually scrutinized by scientists as not being acceptable. Mueller, Tippins, and Bryan (2011) argue that the discrepancy between the educator view of citizen science and that of scientists reinforces the "'teaching about' rather than 'engaging in'" paradigm for which educators are already criticized, precisely the problem which participating in citizen science projects is intended to address (p. 7). They call this a "top-down" approach that bypasses collaboration and overlooks relationality while setting up a hierarchy among participants with scientists presiding over data collectors (p. 9). Although citizen science has the potential of being viewed as an enactment of democracy in science education, perhaps even radical, it also could very well be seen as an example of exactly what it is *not*. With collaboration, the data collected by citizens could potentially provide relational, contextual, and situational information that enhances scientific understandings. Instead the messaged sent to citizens from scientists is that their data may not actually ever be used and thus may not carry any meaning, which in turn could discredit the process and even the idea. The longevity of the CBC stands as evidence that the project does hold meaning to someone. Still, Mueller, Tippins, and Bryan (2011) rightfully make the point that hybridized connections, such as to the humanities, cannot be ignored in science education – after all, education is a human

construct. In other words, the subject of citizen science as a potential example of radical democracy is situational and controversial.

Regardless of differences among approaches, methods, and perspectives, one underlying aim of science education is to assist in the public understanding of science. In addition to assisting scientists in their collection of data, citizen science projects are intended to promote the public understanding of science. The work of Trumbull, Bonney, Bascom, & Cabral (2000) shows through analysis of letters written by participants in citizen science projects as part of the programs at Cornell Laboratory of Ornithology, that participants engaged in thinking processes similar to those used in scientific investigations. Brossard, Lewinstein, & Bonney (2005) show an increase in student and teacher knowledge of bird biology through participation in an ornithological citizen science project as well as attitudinal change toward research as a result of participation. Aikenhead (2006) presents research-based evidence of a humanistic approach to science in support of a science-as-culture perspective and identifies citizen science as a method that enables the crossing of borders between Western science and citizen knowledge. However, this is another area of possible scrutiny as Aikenhead's work could at times be viewed as suggesting that indigenous knowledge crossover into Western ideas of science and not vice versa or a meeting in a hybridized form. While it is agreed upon that citizen science often revolves around an issue and therefore draws on critical thinking and decision-making included in scientific epistemologies (Roth & Lee, 2004), it could be interpreted by some that the public understanding that is attained is solely or primarily of Western science – another potential example of an authoritarian top-down approach that establishes and supports hierarchies of knowers.

As a participant in science, being recognized as offering acceptable information is difficult. The process is rigorous and not something that could be potentially happened-upon by accident. I am reminded of science fair projects of my past, namely one, because my project was chosen from my school to go the district competition. My family had recently attached solar panels to the roof that operated the water heater. My project involved modeling the solar panels and trying to document the amount of energy in form of heat that the panels were providing. Looking back, I think my father must have helped me a great deal with this project. However, I do not remember how he helped. In my mind, I constructed the panels and collected data each day, comparing the temperatures of my model with those of the panels on the roof. I must have recorded the data in a presentable format and been able to explain what I did in a manner that impressed the judges. Yet, I do not remember that process. Regardless of what I remember, this event in my personal history definitely played a role in my interest in science because I felt accepted; I was included in the "science club". I wonder how many knowers are turned away due to a feeling of not being included in science? How many feel excluded simply because they did not have a parent or other adult to help them? Perhaps the understanding of science is relational to the mind that is perceiving it, and *participation* in citizen science projects is enough for the developing minds of school-aged children. Perhaps they do not need to know what contribution the information will make or even be concerned with it. After all, the future is uncertain. To teach students that there will be one certain outcome from the contribution of their data would be misrepresenting the nature of science. Which is the worse misrepresentation of science – to exclude participants or to present it as being less-rigorous? Is not this the paradox of uncertainty?

Weinstein (2012) reiterates the presence of a hierarchy of science knowers among researchers, or those who 'understand' science, and the citizen data collectors who do the 'grunt' work. Still, being involved in a project provides a sense of belonging and purpose to participants; citizen science *engages citizens*. Underneath the hierarchy is the reality that collection of data requires collectors. These collectors engage in activity, often outdoors, fine-tuning observation skills and learning taxonomic identification, an aspect of science education that has been pushed aside by biotechnology. To use the CBC as an example again, it was in place long before the establishment of the Internet. The longevity speaks of the engagement of the citizens, and can serve as data itself. When comparing citizen science projects, there are many aspects to consider: the subject matter, they type of data that is being collected, the intent for the use of the data, the structure of the project, and its sponsors. Perhaps the CBC has lasted for so long because of the nature of birding. Birders tend to stay with a project. After all, they are collectors of sightings, and they keep 'life lists' of the bird species they have seen and those they would like to see in the future. The data is observational – the information is the same whether it is included in the CBC long-term data set or the birder's life list (a process that is also scrutinized by some as being more about the list than the bird). One could say that birding lends itself to citizen science so much that it could seem that the idea of contributing to the 'big picture' is fashioned after this type of birding. Perhaps the issue lies in not recognizing citizen science itself as situational – projects can potentially make various contributions to different collections of knowledge, but it should be recognized that the structures for doing so need to vary as well, according to the nature of the data

being collected. From this perspective, citizen science can be accepted as potentially democratic, if it is data-centered; and depending on the data, it is possibly radical.

One particular example of doing science that supports the concept of radical democracy through engaged citizenry is found in Corburn's (2005) street science research. He considers the local residents and community members as researchers, drawing on their unique local knowledge. Citizens provide cultural and environmental data through the sharing of their experiences in a manner that shifts the research from being conducted on participating human subjects, to research that is conducted on themselves. Corburn (2005) describes this research as "a practice of knowledge production" that results in "democratically robust problem-solving" through the cooperative joining of professional and local community knowledge (p. 8). Corburn (2002; 2005) engages in radical democracy through science education as he promotes locally relevant action for social change by educating citizens based on citizen knowledge. A specific example is found in the graffiti artists he organized to inform citizens of the links between air pollution and asthma (Corburn, 2005). Another example is found in how he was able to engage citizens in informing each other about the public health dangers associated with eating fish caught from a local urban river (Corburn, 2002). In these examples, citizens are both scientists and radically democratic agents of change.

Consider another example found in Weinstein's (2012) "Street-Medicine-As-Education" research in science education. Using street medics who respond to emergencies for protesters during civil disobedience, Weinstein illuminates how school science and national science education standards (c.f., NRC, 1996) teach us to objectify

our bodies, contributing to the development of a consumer class that leaves behind some very important traditional knowledge of healing. Weinstein (2012) challenges the standardized consumerism approach to medical science with *ciencia popular*, meaning "science of the people," that is exemplified by street medics for whom "knowledge is not only applied to people's struggles but developed [by the people] to advance them… around the needs of the people" (p. 104). Ciencia popular is life-and-death science in action that addresses needs of people in urgent situations in ways that are unique to the individual and the moment. Because scientific knowledge is applied in a manner that is adjusted according to diverse epistemologies of the people being treated and the nature of the situation, ciencia popular exemplifies radical democracy as science education. In the situations that Weinstein describes, people's lives depend on voices being heard and acknowledged – particularly those marginalized according to language, culture, race, gender, and age.

Adults may consider adolescents to be too young to express an opinion and too irresponsible to handle the responsibility of making important choices. Kozol (2006), however, maintains that the youthfulness of adolescents is precisely why they should be included in democratic decision processes, for they are less tainted and therefore less biased than adults. In other words, youth potentially make better-informed decisions than adults. Examples of beneficial changes made within communities following the informed democratic decisions of youth can be found in the work of Earth Force.

Earth Force (http://www.earthforce.org/) is an organization established in the 1990s that serves as both teaching tool and support system that centers on the environment and communities. In the Earth Force methodology, the development of a

safe space for youth voice is the ultimate mission and unearthing of environmental issues serves as process. The methodology incorporates a six-step framework, acknowledging the importance of structure in guiding agency (Barton & Vora, 2006) but with flexibility that allows room for students to realize the importance of their opinions while participating in democratic decision-making processes. In addition, the flexibility of structure recognizes the variability of context and the relationship-dependent and situational nature of community and environmental issues.

The six steps of a typically semester-long process include the students' thorough investigation of their community, including an examination of its history, industry, geography and ecosystems and how they interact with present local society and politics. Issues become apparent, and students decide among themselves which issue to examine further by weighing importance and future consequences. The Earth Force structure guides students in choosing how to take action and follow through with it. Students reflect through journaling and complete the six-step process with a celebration at a regional Earth Force summit where different groups present the changes that they have been instrumental in putting into place.

One example of Earth Force in action is the story of a group of sixth graders in Virginia who, during a stream investigation, noticed an inundation of non-native plants. They decided their project would be to construct a native plant garden that would teach the general public about the issues surrounding planting non-natives – non-natives potentially spread to other areas and shade out native plants, reducing overall biodiversity – by showing gardeners native alternatives. Another example is the story of seventh graders who were shocked at the amount of plastic they collected at a river clean-up

activity. They created a short film starring "Eco-Dude" to inform others about the consequences of choosing plastic (http://www.earthforce.org/).

There are several aspects of Earth Force that embody the intentions of action gardening, particularly the student-driven involvement in community amidst a structure provided by adult mentors. Great importance is placed on student voice. In fact, a high school student in Georgia is presently a member of the Earth Force Board of Directors. In addition, the inclusion of reflection in Earth Force is also important in action gardening for it incorporates key components of West's prophetic pragmatism, taking pause to connect with the moment before moving forward. Earth Force is essentially about choices, choices for the environment spoken through youth voices. Earth Force Director of Community Partnerships explains that Earth Force provides the flexible structure for guiding youth voices, but the actions taken and their outcomes are not determined before hand. They instead, "like magic," or something else scientifically inexplicable like leaps of faith, are products of individuals, a place, an issue, and the moment (Vercoe, personal communication, September 26, 2012).

Engaged citizen and Earth Force participant Charles Orgbon exemplifies the young democratic actor/scientist. At the age of twelve, he was inspired by the many un-recycled recyclables during a community stream clean-up event. Soon after, he started a recycling club at his school. One club has grown into an international program called Earth-Savers. Charles works with a youth council to maintain a website, *Greening Forward* that posts upcoming community service events for the environment as well as webinars to inform others about environmental issues. He now serves on the board of Earth Force Environmental Education curriculum resources, and he is all of 17

(http://www.greeningforward.org/aboutus.htm). Charles provides support for the main message for this perspective of radical democracy - the need to embed democratic practice in science education, an incorporation that could easily be implemented through action gardening.

There are many curricula available to science teachers that serve as guides for incorporating environmental topics or issues, and any could potentially inspire a radically democratic response depending on the context in which it is implemented. One such curriculum that I have personally had the opportunity to work with is *Give Plants a Voice* (2005) (GPAV). GPAV focuses on endangered native plants and their habitats in the southeastern United States, telling stories from plants' points of view. The endangered status of specific plants is often due to human actions that - either through ignorance or insensitivity - have led to the destruction of habitat or the disruption of the species' life cycle in some way. GPAV presents scientific information in a manner that allows students to see the situation differently, to in a sense, "see through the eyes" of the plant in ways that subsequently enable a deeper understanding. With deeper, more meaningful understandings of habitats and the interdependence of ecological relationships, students begin to see themselves as part of the ecosystem and become aware of the effects of their actions.

As part of GPAV students literally and figuratively give plants a voice as they are given vocabulary and skills for action through role-play with puppets. For example, students can pretend to be Little Richard Pitcher Plant who sings the blues about the destruction of his coastal wetland habitat due to unchecked development and pesticides, or take the role of Rosita Reporter interviewing Richard for her school newspaper.

Radically democratic actions that consider the effects of human impacts on the survival of others can result when youth are enabled to take on a new perspective and sense of care as they speak for the plants. Throughout GPAV lessons, the consideration for others grows and becomes more apparent, as during walks outside youth remind their classmates, "don't step on the plants!" Some students take on "personas" from the puppet shows while we walk, relaying their ecological understandings through dialogue. Having internalized a perspective of the world from an endangered plant's point of view, youth are able to spread the word, educating others, such as their parents, about issues. This is evident to me from the many comments I receive from parents regarding the information their children have passed along to them about endangered plant species. Radical democracy can be cultivated as science education in the garden at school, and GPAV can assist in this example of action gardening.

Place-based education, socioscientific issues, ecojustice education, and citizen science have in common the potential for being radically democratic in practice. They share this potential with other curricula and pedagogies - some that are widely used, others that are found in the practice of a single dedicated teacher. Regardless of approach, the potential to be radically democratic is dependent on the sense of authenticity that is enabled for participants when engaging in science. This sense of authenticity is enhanced when projects are conducted in a manner that allows participants to actually experience with their own senses the place or subject of scientific investigation. Likewise when participants have personal ties with the issue in question, the experience has more meaning. Science is particularly meaningful if participants are given a say in deciding

what they would like to study. In this manner, participants take ownership in the scientific knowledge that they gain.

Similar to the perspective that scientific literacy *is* democracy, action gardening can be viewed as radical democracy. Through action gardening youth are able to experience nature and all of its healthful benefits, and they can do so while learning science. In the garden, nature is the teacher. The plants, like students, respond to care. In the garden, youth can establish a sense of care for others and for themselves that can grow into love. With that in mind, let us turn to examining radical democracy as a form of spirituality that has roots in love.

<u>Radical Democracy as Spirituality</u>

As an embodiment of radical democracy, the garden has been outlined in the four previous claims to foster creativity, participation, deliberation, environmental justice, and science education. The garden can also be a place where radical democracy is spirituality, for affording students opportunities to make connections with their place and relational others there can lead to a sense of spiritual empowerment. When connections with others are realized, taking action for one's self can also be an act of radical democracy for the community, including humans and nonhumans.

West (1993c; 2004) sees us so deeply spiritually impoverished that radical democracy is required to bring balance to American society. Spirituality is not usually addressed, or even mentioned in public schools; it is one of those subjects that educators have learned to steer clear of. Yet, there are benefits to spiritual empowerment, and this can occur without crossing controversial boundaries of religions.

Spirituality can have different meanings, for people can gain a sense of spiritual empowerment in various ways. For example, some people may gain a sense of spiritual empowerment during a weekly church service and others may experience similar feelings in a forest. Merriam-Webster Dictionary provides the definition of "spirituality" as "something that in ecclesiastical law belongs to the church or to a cleric as such; sensitivity or attachment to religious values; the quality or state of being concerned with religion or religious matters" (http://www.merriam-webster.com/dictionary/spirituality). Elsewhere, words related to "spirituality" are given, including "incorporeal" and "unearthly" (http://dictionary.reference.com/browse/spiritual). Perhaps it is because of the attachment to organized religion, such as in these definitions, that the concept of spirituality is rarely considered in American public education.

Another definition within the context of Native American religions refers to being "spiritual" as being "significant, inviting reflection, possessing power" (Carmody & Carmody, 1993, p. 232). According to Jacobs (2002), an advocate for indigenizing education in America, spirituality is analogous with learning for many Native Americans. To Jacobs (2002), education as a search for wisdom should incorporate inquiry into the mysteries of life, including reflection on, say, the sound of thunder. These are understandings that most of us would say are important in the process of education, yet if categorized as aspects of "spirituality," they would rarely be considered in Western views of science and science education.

Aikenhead (1996) contrasts differences between generalized ideas of Aboriginal and Western views of science when he writes of "holistic First Nations perspectives with their gentle, accommodating, intuitive, and spiritual wisdom, *versus* reductionist Western

science with its aggressive, manipulative, mechanistic, and analytical explanations" (p. 220). Aikenhead (2001) adds that "spirituality, whether pre-contact Traditional, Roman Catholic, Anglican, or Fundamentalist Christian, has epistemic force for most… students even though it is purposefully absent from science classrooms where an adherence to a Cartesian duality is the cultural convention" (p. 10). To remedy this disjuncture, Aikenhead (2001) suggests an approach to science education that allows for border-crossing between these different ways of knowing by incorporating learning that is two-ways or both-ways.

Similarly, Plumwood (2003) suggests a two-way relationship in the education process, but rather than applying it to the understanding of different cultures in the classroom she applies it to the relationship that one can develop with one's place. This sense of belonging in which a human belongs to the land as much as the land belongs to a human, leads to a "sharing of communicative space" – an understanding of the language of the land that comes with time and deep acquaintance with a place (Plumwood, 2003, p. 231). Orr (1992) refers to this, as Thoreau did before him as a "dialogue of place" (p. 126).

Likewise, in science education, Handa et al. (2008) calls the authentic conversations resulting from embeddedness in one's community and natural surroundings a "dialogue of life" (p. 15) and describes the great benefits that a community immersion model can have in training pre-service teachers in the Philippines. Nichols and Tippins et al. (2006), also working in the Philippines, describe how dialogue between educators and community members can lead to the development of curricula that integrates the

traditional knowledge of a place and Western science. Mueller and Tippins (2010) realize the importance of establishing such communicative relationships – dialogical and dialectical - between traditional ecological knowledge and Western science in order to ensure cultural diversity and establish a paradigm beyond relativistic dualism. Likewise, Tobin (2006) places great importance on communication, but through the approach of cogenerative dialogue in the classroom and the insight it provides in adjusting teaching practices to meet interests and needs of students. Similarly, Thayer-Bacon (2001), like Dewey recognizes the integral role of communication in educative experiences and promotes dialogue in the classroom as an aspect of democratic practice. These examples show the importance of communication that is recognized in science education. When extended to one's surroundings of community, beyond the people, the recognition of the importance of communication echoes Thoreau's, Orr's, and Plumwood's dialogue of place.

The connection between dialogue and experience, thus, can extend outside of the classroom, as an aspect of consideration of one's place. Further still, through communication or dialogue with one's place, spirituality can develop. Plumwood (2003) assists in making this clear, for she sees spirituality as corporeal, rather than "unearthly". She attaches this difference in understanding spirituality to a misunderstanding we have regarding consumerism and materialism. Consumerism is often recognized for its overemphasis on market values and promotion of ecosystem degradation due to a history of unsustainable manufacturing processes. Consumerism, however, is not the same as materialism, or the understanding that all existence is composed of matter and energy. As Plumwood (2003) points out, the problem with consumerism lies in the immaterial

attitudes and practices of consumers, not in the material items themselves, a misunderstanding that supports the spirit/matter dualism. On the contrary, Plumwood proposes that an increased materiality is needed. The lack of acknowledgement for the material aspects of the world is responsible for geographic and spiritual remoteness and subsequent ecological issues (Plumwood, 2003). Plumwood (2003), in calling for us to recognize the body of the Earth, grounds spirituality in materiality. She writes, "no myth is free-floating;" in other words, spirituality, like religions and cultural belief systems, needs a place (Plumwood, 2003, p. 232).

Place is something that West overlooks. Although West (1993a; 2004) recognizes the potential to love as a possible commonality among humans and simultaneously acknowledges that the lack of spirituality is related to the deterioration of community and rootlessness, he makes no suggestion of how and where to go about setting roots so that love as a form of spirituality may grow. Plumwood (2003) fills this void when she recognizes the issue of spiritual degradation as being due to a lack of recognition of place. Action gardening suggests the garden as a place for sowing the seeds of communicative relationship and for love by locating one's personal voice geographically and spiritually.

Plumwood (2003) points out that the idea of place-based spirituality is an oppositional practice, for it is at odds with Western dualisms. The spirit/matter dualism that Plumwood writes about is closely related to dualistic mind/body Cartesian epistemologies that underlie Western science. Both similarly contribute to hierarchical structures that give lesser importance to the material realities of everyday life, while ironically favoring abstract or "unearthly" understandings. In addition, in Pierce's (2013)

description of actor network theory, he makes clear how the nature/culture dualism is perpetuated in science education by pointing out how relationships between social and asocial components of networks are often overlooked, meaning cultural aspects of science have typically in the past been kept separate from the laws of the natural sciences. The purpose of radical democracy is to illuminate that which has been overlooked, and West's philosophy is no exception.

West's philosophy lacks grounding through connection to the land, yet he recognizes a connection between the human body and the body of Earth that is the land. He writes, "since the beginning, Americans have been uneasy about their bodies… to feel with the body is alien" (1999, p. 413). European settlers could not have had the sense of bodily identity associated with the land of America upon their arrival in the New World that the Native Americans had after dwelling here for millennia. Instead the Europeans must have felt a sense of loss for their own homelands, for after all, they left with the realization that they would most likely never return. Africans brought against their will to a different land definitely felt a sense of loss for their homeland of Africa – of solastalgia - as is apparent in their soulful spirituals. The Europeans then spread the sense of loss of place to the Native American culture by forcing the indigenous people to leave their homelands. The resulting wounds are still evident among the human bodies, generations later now.

Following the mass displacement of people from their homelands, the development of a consumerism-based American culture and a general lack of attachment to land and place have continued to worsen the wounds of the body of Earth. Those well enough off can afford to own land, but ownership does not necessarily mean one has a

dialogical or communicative relationship with place; instead privatization often means reduced attachment and increased insensitivity as mobilization and urbanization intensifies (Plumwood, 2003). "Those who are most vulnerable and powerless are most at risk for losing control over their ability to remain in a home place or place of attachment" (Plumwood, 2003, p. 234). As the potential space shrinks with a growing human population, we are less able to ignore the impacts of our actions on the land. Although at least in the short-term, it may seem less painful to numbly continue along a path of destruction than to acknowledge one's faults, as if we were the living dead, perhaps recognizing a commonality of loss of place can serve as an empathetic hand extended toward the beginnings of change. West identifies love as the remedy for filling the common void of loss and subsequent spiritual impoverishment. Thus, to West, spirituality is manifested in love. It follows then that radical democracy, as a prophetically pragmatic action taken for the betterment of self and relational others, is an expression of spirituality and an act of love.

Where Mind, Body, and Spirit Meet

To West, spirituality is love. To Beverley Jane, Australian minister and science educator, spirituality is imagination. Jane (2001) incorporates 'deep ecology' in a holistic approach to connecting spirituality with science education. Deep ecology is an ecological perspective put forth by Arne Naess (1973) that sees all living beings for their intrinsic value and worthy of rights that enable their survival. Deep ecology not only addresses environmental issues, but also engages in profound questioning of social and cultural structures underlying human impacts on the environment. By incorporating a holistic approach, Jane (2001) takes into account the affective aspects of scientific work. She

recognizes that science is a way of being and involves 'participatory knowing' for the scientist, meaning a state of complete attention involving feeling or kinship for one's subjects of research. This more holistic approach is seen by Jane to more realistically represent the manner in which scientific research is done. From Jane's perspective, the acknowledging of spiritual aspects of doing science can lead to more thorough understandings within science education.

Jane (2007) draws from the teachings of Hildegard of Bingen in tenth century Germany, who is considered the patron saint of the natural environment and creator of the idea of "greening power," or *viriditas*, a sense of rejuvenation similar to what one experiences when surrounded by the fresh new growth of plant life. The idea of greening power connects spirituality and ecological understandings in a manner that is outside of typical religious settings, situated instead within the senses of the individual's own physical body. Hildegard's worldview is based on three main tenets: the world is comprised of relationships that are harmonious and sufficient; trust the Earth; spirit and matter are one; ecological degradation is the ultimate sin; sins against the Earth are cleansed through the sufferings of humankind.

Incorporating the basis of these understandings in the classroom allows a unique ontology to emerge that is devoid of influences - cultural or otherwise. Rather than being a border-crossing area in which students are amidst understandings of either home or school, a new space for science 'as a way of being' is established that is open to the intersection of new perspectives. In order to establish this space, Jane (2007) focuses on the following points: the present moment, critical reflection, dialogue, the story, and the vision. Of particular interest is critical reflection in doing science that can be divided into:

the obvious of the present, recognition of underlying assumptions, and imagination. By allowing students to realize these aspects of critical and creative thinking, Jane emphasizes apparent aspects of doing science that are often overlooked.

In addition to emphasizing the present moment, critical reflection, and dialogue as Jane (2007) does, Tobin (2012) is developing radical listening and mindful action as promising approaches in the future of teaching and learning science. Implementation of these approaches makes connections among emotions, physiological responses, and teaching practices to better inform teachers of their effectiveness in enabling learning (Tobin, 2012). Mindfulness, as an aspect of contemplative pedagogy draws from meditation practices to acknowledge the importance of silence in the development of consciousness, such as that which is established by techniques similar to "wait time" (Simmer-Brown & Grace, 2011). Mindfulness in the classroom assists in the transformation of the abstract into the concrete, allowing for thoughts to be imprinted on the mind through the development of an "inner technology of knowing" (Hart, 2004, p. 29) that is "akin to contemplation" (p. 31). The garden offers opportunities for mindfulness and contemplation while simultaneously engaging the physical senses in a manner that allows the experiencing of spirituality. In other words, the garden enables the holistic union of mind, body, and spirit in science education.

While Jane (2007) focuses on the connectedness of perspectives that come together to comprise the uniqueness of each moment, she does not overlook how science as a human endeavor is laden with values. To present science education in a manner that illuminates the unique connections of the moment, including aspects of spirituality present in the values of scientists, requires students to be attentive to their experiences,

such as that which is promoted with through mindfulness. The intent is that allowing such a personal human perspective of science can lead to a deep ecology worldview that treats all living things as subjects, rather than objects. Jane (2007) sees objectivity as obstructing imagination and as falsely presenting science. Orr (1994) would agree that meaningful research is driven by passion and even love. Emotion, values, and spirituality are not left at the door of the lab or the classroom, or at the garden gate, but instead are embodied in the doing of science. Jane (2007) thus constructs an environment of science education that is centered on ethics much like the pragmatism of West. It is not difficult to envision that environment in the garden.

As an aspiration of prophetic pragmatism, radical democracy represents the intersection of ethical consideration of others and propheticism as an inescapable urge to take action for change – both in striving for the betterment of society. As outlined in the four previous claims, radical democracy can be described in various ways: as creativity, as social and environmental justice, and as scientific literacy. Radical democracy can also be described as spirituality. As an aspect of radical democracy, spirituality represents multiple layers. In one layer, making connections between spirituality and science education, as one example, is radical democracy because it is outside of what is typically included in the teaching and learning of science. In another layer, to be a spiritual member of society can be considered an example of being radically democratic if the situation is one in which most individuals are not spiritual, or not spiritually similar. For example, Hildegard of Bingen was considered radical for her time - and even now - because her ideas are different. In a third layer, "spiritual" itself connotes transcendence from one's usual self; it is a realization of otherness. In this sense, "spiritual" can feel

"unearthly," but this does not have to mean that the reason for such an experience is not of this earth. In keeping with Plumwood's call for an expanded realization of materiality and diminished geographic remoteness, spirituality can and should be grounded in experiences with one's place. When considered in conjunction with Orr's (1992) recognition that all education should be founded in ecological literacy, Plumwood's perspective provides firm reasoning for Jane's inclusion of spirituality in science education. Considering the connections made by Jane between spirituality and the potential of each moment to inspire a sense of rejuvenation, science education is a likely place for engaging in such awareness, for scientific research is comprised of exploration, inquiry, and openness to uncertainty. It is through moment-to-moment experiences that transcendence can be realized in everyday life on Earth. As educators and parents, it is our job to empower youth with such experiences and to enable students to find/create them for themselves.

"Spirituality" has many applications, a characteristic that ironically makes it difficult to define and at times associated with uncertainty. "We in the dominant culture condemn [uncertainty] and confine those who work with contingency to the margins of the disempowered realm of art, where it helps to define those disruptive of tradition, those who would break the seal around the music-hall and present noise as music, paint spattering as art" (Plumwood, 2003, p. 228). Within education, spirituality is often put in the 'other' category with items that do not necessarily fit in the standardized or typically acceptable slots, such as pieces of less-than-'fine' art. West (1990) sees a more prominent inclusion of the 'otherness' of art as needed to help fill the spiritual void in America as part of his ideas for a new cultural politics of difference. Likewise, Plumwood (2006)

illuminates the 'otherness' of spirituality as what is missing in our perspective of the natural environment. These are lessons that can be included in science education through action gardening.

<u>Teacher as Prophetic Trickster</u>

Science education and spirituality have both been shown to provide examples of radical democracy. Because radical democracy is an aspect of West's prophetic pragmatism, it follows that by relationship, spirituality is also an aspect of action gardening. By engaging in science in the garden, spirituality, like action for others, can inadvertently be cultivated along with scientific understandings. The garden can thus bridge the chasm that is perceived as separating dualistic worlds – the worlds of matter and spirit; of nature and culture; of the known and unknown; of self and other. In the garden we can realize that separate worlds are one and the same.

Plumwood (2003) calls the movement between worlds "journeying". Historically, in cultural mythologies around the world, there have been archetypal and metaphorical characters designated as having the ability to negotiate dualism by journeying between worlds. Regardless of culture, the role of this character is that of the trickster, capable of representing multiple identities while poking holes in normalized reality to allow those who have been ostracized to challenge existing structures of social order (Garrison, 2009). In Greek mythology, Hermes is the trickster, while in Roman myths it is Mercury (Hamilton, 1969). In Native American mythologies of the Southwestern US, it is the coyote that walks the edge between worlds (Young, Haas, & McGown, 2008). In African folktales, it is the rabbit (Mitchell, 1999). In many indigenous cultures, African, American, Asian, Australian, and European, the shaman or medicine person is the one

who journeys, living on the edge of the village and at the boundary of reality (Abram, 1996). This boundary in Celtic tradition is considered a "thin place," where the measured world meets the infinite (Gomes, 1996). To the list of beings who can navigate the boundary, Garrison (2009) adds the teacher.

Recognizing that the trickster is able to break rules while avoiding capture, Garrison (2009) separates the teacher from other examples with the delineation of "the prophetic trickster" (p. 71). Teacher as Prophetic Trickster thus operates on the side of care and justice, rather than participating in acts that are morally questionable. However, Teacher as Prophetic Trickster 'walks the boundary' as other tricksters do, presses the envelope of what is acceptable, and creates portals to allow possibilities for imagination and creativity to enter from other worlds. The work of Teacher as Prophetic Trickster is intent on providing chances for students who are often overlooked, particularly those considered to be marginal to the standardized norm. This work does not go without reprimand and is at times dangerous; like many actors of civil disobedience, the teacher as prophetic trickster is radically democratic. However, insight is gained from trickster work, regardless of outcome or consequence, for the teacher as well as for the other parties involved.

In many cultures, the trickster is associated with the creation of language (Garrison, 2009). The development of written language, like the work of a trickster, has created a portal to another world in which records allow the extension of reality beyond the present moment, promoting disengagement from the natural environment and abstraction from actual existence (Abram, 1996). Rather than being the work of one trickster, the written alphabet is thought to have originated with interactions between the

Earth and nonhuman creatures. For example, the three-toed footprint of a water bird in wet sand came to signify the phonetic sound for the first letter of "water" (Abram, 1996). Written language has allowed us to experience other worlds that we would not have been able to otherwise. It also continues to have a propensity to draw our awareness away from the natural world, causing us to miss the potential for spirituality that each moment presents. Opportunities created by the trickster are not value-free, and chances for personal gain are usually accompanied by difficult decision-making and consequences. Our duty as teachers is not only to show youth possibilities of other worlds, but also to guide them in the process of making decisions.

Bullough, Patterson, & Mayes (2002) echo Garrison's vision of teacher as prophet. They outline the teacher prophet as having a dual role of being both criticizer and energizer of a community. By fulfilling the role, the teacher prophet enables greater connectedness, leading to freedom from selfishness and humility, as well as increased authenticity (Bullough, Patterson, & Mayes, 2002). In other words, the teacher prophet enables the student to better know one's self through critique and by connecting with the otherworldliness of community. Prophets energize imagination with artistic content and presentation that induces reflection; they also inspire action, for "recognizing the good but not doing it leads to despair, the enemy of all prophets" (Bullough, Patterson, & Mayes, 2002, p. 321). Instead, the prophet urges us to "feel deeply and act, take charge of your life, be courageous and be responsible" (Bullough, Patterson, & Mayes, 2002, p. 321). Realizing the great difference of this perspective when compared to technical views of teaching, the authors add that to the prophet, civility is not only citizenship but family,

acting for one's self is acting for the entire group, thus promoting democracy and honor (Bullough, Patterson, & Mayes, 2002).

West exemplifies Teacher as Prophetic Trickster. Although he has been called a prophet, he would say that it is a status to which he will continue to aspire (Sharlet, 2009). Regardless, his tireless work for social justice as a pragmatist philosopher affords him prophetic status. As Trickster, he journeys between worlds - including academia, the entertainment industry, and poverty-stricken America - creating portals of hope that allow us to see beyond everyday struggles, such as with social media posts like this one "to love and serve is to persevere and endure"

(https://twitter.com/CornelWest/statuses/274571053437693952) and this one "The reason for this season is love -- spread love"

(http://www.facebook.com/drcornelwest/posts/10152369665320111). As Teacher, West teaches us that love, as a commonality among humans, knows no bounds. As Teacher, he makes it his duty to spread love.

As we are teachers ourselves, as educators and parents, we make it our duty to provide youth with insight and guidance in navigating the many decisions included in everyday life. We do this out of duty, but we also do this out of love. Love is, of course, an emotion or feeling, but it is also an action word. To love is to experience a heightened sense of vitality and to be willing to change one's actions for the sake of another being so that this feeling can be shared. Thayer-Bacon (2001) writes that love is a willingness to enlarge one's own thinking so as to reason from another's point of view; it is a willingness to travel to the other's world. In other words, love, when put into action for others, can be radical democracy.

<u>Home is Where the Heart Is</u>

Action gardening is a way of enacting radical democracy and putting West's teachings into action by spreading love. By connecting to Plumwood's (2003) idea of place-based spirituality, we can begin by focusing on our 'home-place' (p. 233). As youth spend one third of their weekdays and half of their waking hours at school, it is not too far-fetched to view the school as a 'home-place'. While educational curricula in science and social studies are often based on lessons in geographic habitats and environmental issues, learning to love one's place is not typically included.

In Athens, Georgia, elementary, middle, and high school students who are leaders but leaning toward gangs have joined with teachers and community members to create an outdoor campsite (http://flagpole.com/news/2012/05/02/into-the-wild). The students, many of whom are first generation Americans and immigrants from Mexico and Central America work together to clear trash and brush to create an area where they will spend time in nature, cooking tamales over a campfire. The students learn outdoor skills, including plant identification and fire making, as well as cooperation and respect for others. In addition, they are allowed time to explore, play, and experience a sense of freedom. McGown, an educator working with the group, says about working with youth outdoors, "if it's done the right way – if it's about love – it seems a really natural thing" (http://flagpole.com/news/2012/05/02/into-the-wild).

Sobel (2004) emphasizes the need for children to be allowed to love their environment before being asked to save it and acknowledges that time spent outdoors in the natural environment sets the stage for future actions of environmental stewardship. Allowing youth to love their place – and teaching them to do so - is not only about the

future, however. What I am proposing is that teaching youth to love their place contributes to their development. In other words, they *need* to love their place. We all need to love our place. Perhaps the spiritual impoverishment that West recognizes in America is really a void of love for place, or as Abram (2010) writes, "the lovelorn yearning of our body for the larger body of the Earth" (p. 27). When deliberating over what should be included in the education system of our country, Benjamin Franklin (1749) noted that schooling should support citizens' right to physical as well as intellectual fitness. It is not too late to amend our understanding of educational needs to include spiritual fitness, such as that which can be provided by learning to love our place at school. As an enactment of radical democracy that embodies creativity, social and environmental justice, scientific literacy, and spirituality as place-based love, action gardening takes a stand for the developmental needs of youth citizens. Action gardening promotes the inclusion of aspects of human development that are typically excluded, such as the love of place.

Action gardening has several interrelated layers that include gardening in science lessons, participating in community activities, and learning to love one's place. While engaging in science education in the garden, youth and community members collaborate on techniques, processes, and issues within social and environmental contexts. Action gardeners participate in observation, record keeping, inquiry, and experimentation regarding questions of plant health, topography, soil composition, photoperiod, pests, and water availability. Experiences gained while engaging in science in the garden can serve as practice for addressing community issues, such as those in areas of social and environmental justice. While doing so, strong community bonds are formed through

relationships, restoring nurture and care within communities that West sees as deteriorated. Science education in the garden thus leads to taking action for the betterment of society and promoting love for self and others, in line with West's prophetic pragmatism.

In addition, action gardening extends West's prophetic pragmatism to nonhuman species by recognizing biophilia. Time in the garden allows realization of this affinity for life and the establishment of communicative relationships with one's environment. This includes an understanding of its unique inhabitants, such as learning to recognize calls of indigenous birds, becoming familiar with animal tracks, and monitoring water sources. An important factor in this process is time. This type of deep learning through immersion requires more time than rote memorization of scientific content. Time is not only required for engaging in gardening practices and making observations of one's place, but it is also needed for reflection. Through time spent in the garden, Nature is allowed to be a Teacher while youth and community members develop a sense of place-based spirituality.

Plumwood (2003) makes the point that while one's sense of place-based spirituality may begin with a 'home-place,' this is not intended to imply that each person should only feel affinity to one geographic region. Instead, the intent of focusing on one site is to aid in developing a sense of place for those who may not have such an understanding. The hope is that the spirituality that develops in a 'home-place' will carry over to many other places. For example, I feel love for the home where I grew up in North Carolina. I recall many details of the adventures and lessons in nature that the backyard held for me. However, I also feel love for the tropical rainforest in Costa Rica

where I established a relationship with howler monkeys. There are many other places that hold places in my heart, but when I consider Plumwood's place-based spirituality, one particular place comes to mind first along with the following story.

After graduating from college I accepted an internship with an environmentally focused organization in California. The position entailed assisting with a research project involving municipal water purification. As I was a long way from "home," knew only a few people, and had little time off of work for the holidays, I decided to spend my vacation time sightseeing locally rather than paying expensive airfare to travel across the country. I rented a car, and early Christmas morning I headed to Muir Woods National Monument. Even now, as I think back, I can still smell the redwoods. A cool mist met me as I got out of the car and approached the trailhead. As I entered the forest, the musty evergreen incense of ancient trees enveloped me. Centuries of fallen needles carpeted the pathway before me, padding my footsteps. I was immersed in silence and surrounded by sleeping giants. As I followed the trail with no real destination, I allowed my mind to wander through thoughts of my family back home and memories of other Christmases with traditions of gifts and church services. I kept a steady pace, walking and breathing the fresh air. I was unaware of the passing time as my mind became a blank canvas. Then suddenly, I stepped through an angled shaft of light - and then another. The sun had finally risen high enough to send rays through the dense foliage hundreds of feet above me. My attention returned to the forest, and I looked around me. Angles of sunlight as far as I could see illuminated the outlines of the enormous waking trees, stretching around them to the forest floor. With the increasing light, the mist dissipated, the scent of forest faded, and slowly a chorus of song began. As if orchestrated by a choir director, creatures

rhythmically called and answered on cue, and I was just another animal in the forest, a member of the congregation. Time and space were arbitrary, attached to nothing beyond the forest edge. I could have existed in a different era and my experience would have been the same.

As I left the forest to return to "civilization" and another reality, I thought about a short story I once read by Raymond Carver (1983). In the story, a man and his wife are visited by an old friend. The friend is blind. After a long evening of conversation the woman goes to bed, leaving the two men. As the television station prepares to go off the air for the night, pictures of cathedrals are shown on the screen. The blind friend asks the man to describe what a cathedral looks like, and as the man is unable to think of appropriate words, the friend asks him to draw a picture. The man draws with the friend holding onto the pencil, so as to "see" through his hands. The story ends with the man realizing that he also has not "seen" a cathedral before that night, at least not in the same way. The blind friend has enabled a new perspective. My experience in the forest was not that different from the man drawing the picture of the cathedral. I had been shown a new perspective, and my notions of what a Christmas morning should be like were challenged. If I had been asked to draw a cathedral that morning, I would have drawn a forest.

<u>Nature as Teacher</u>

I love Muir Woods. What I experienced there is place-based spirituality that has given me deeper reverence for all forests. Experiences such as this have made my interests in and understandings of the natural environment richer. This is radical democracy because I now want to build on my experience to speak for others who are

alienated from having similar experiences, for reasons such as geographical location, financial deficits, physical abilities, or school policies. The time to provide such experiences is during childhood, for the understandings gained can make a difference in choices made for the future. The place in which to reach a large number of children who may be missing these opportunities is public school. Our nation's *youth need* these experiences; our *nation needs* our youth to have these experiences.

I am not proposing that schools arrange field trips to Muir Woods. Instead, my intent is to enable such experiences of place-based spirituality to occur at school. In addition to science education and community building, the garden is a place for learning to love one's place. It is a place to learn to 'bloom where

Mitchell, D. (2012). Clarke Middle School Garden. Athens, GA.

we are planted'. Thayer-Bacon (2001) explains that love is a willingness to travel to the other's world. As prophetic tricksters, we teachers who love our students are willing to travel to their worlds and enable them to travel to those of others' if it means making a positive change in their lives. Exploring the world of nature in the garden right outside of our doors is common ground and open for traveling. From West as Teacher we receive seeds of love, and from Nature as Teacher we gain understandings of how and where to sow them. Nature is a prophet, an integral aspect of diverse worlds that we share in common. "Come forth into the light of things; let Nature be your teacher" (Wordsworth, 1798, p. 186).

Summary

In chapter four, a theory for action gardening was developed with the main purpose of showing that time in the garden leads to action for others and influences future decision-making. First a history of school gardens was outlined, specifically highlighting the garden at Dewey's Laboratory School. This was followed by a closer look at the metaphor of growth as a way in which to describe the desired positive educative outcomes of action gardening. Next, the garden, including aspects of nature and cultivation, was explored as a metaphor for locating educative growth. An in depth analysis of action was undertaken by describing and defending five claims made regarding its inclusion in science education: social and environmental action, cultural history activity, actor network theory, and civic action. Lastly, radical democracy was examined by describing and defending five ways in which it is an enactment of prophetic pragmatism: as creativity, social and environmental justice, scientific literacy, and spirituality. As a form of "continuous communicative renewal" (McGowan, 2009, p. 72), democracy is an ongoing process. To be radically democratic is be committed to continuously strive for ideas of freedom on which American democracy is founded (Polletta, 2004). These ideas can be realized in the garden as a place that recognizes voices of humans and nonhumans alike. Chapter five will examine areas of possible scrutiny regarding the garden as a place of democracy as well as present recommendations for implementation of the theory of action gardening in science education.

CHAPTER 5

ACTION GARDENING: VISIONS OF A THEORY IN PRACTICE

<u>Introduction</u>

The purpose of this dissertation has been to outline a different approach to learning science called *action gardening*, a union of theory and practice grounded in an understanding that growth in the garden cultivates action for others. In this era of science education, the implementation of progressive methods for science instruction is not unusual in spite of the need for curricula to yield results within the national boundaries of assessing educational success through standardized testing. A few of these progressive approaches, such as place-based education, socioscientific issues, ecojustice education, and citizen science, are recognized as being beneficial both in promoting scientific understandings and incorporating sociological aspects of everyday life, such as moral reasoning. School gardening is included in this list, for there are many benefits to gardening at school, including academic achievement. Gardening itself is not new to schooling, however. Instead, it has a repeating history of being incorporated for the teaching and learning of science, as well as being associated with easing concerns of food security in times of perceived crisis, such as economic and political unrest. This is one of those times in America, and school gardening has once again become widespread. In addition to having a history of being incorporated at school, gardening is firmly rooted in aspects of human nature that have helped to shaped history and culture through the establishment of relationships within the natural environment. Action gardening takes the

school garden to a more sustainable level, beyond that of a passing trend by connecting it to human genetics and subsequently to profound societal change.

Action gardening as a theory incorporates age-old practices of cultivating the earth and learning-while-doing science in a manner that stems from sociocultural understandings of 'everyday' science. Action gardening recognizes that the benefits of engaging in science in this manner does not stop at the borders of the garden, however. Instead, gardening is paired with forward-reaching elements of activist action to promote changes for the betterment of society. In other words, the gardening of plants is recognized as leading to the cultivation of action and social change. The resulting theory of action gardening is founded in essential understandings of American pragmatism philosophy, reflecting the progression of life as a form of experimentation, and the implementation of science as an inquiry-driven endeavor. In addition, while engaging in gardening and community action, bonds of relationship are formed and strengthened throughout communities, both societal and ecological. These foundational understandings support the major claim of this dissertation that *growth in the garden leads to action for others that guides decision-making* in support of a continuing goal of amelioration for American society.

The following paragraphs give a summary of the previous four chapters, presenting foundational tenets of action gardening as a theory that connects seeing school gardens from a historical perspective to understanding them as a catalyst for social change. The intention of the summary is to show that the many examples of gardening, action, and decision-making among youth that are provided meet the intentions of this dissertation and provide adequate support for action gardening as a theory. This chapter

will also examine areas of potential scrutiny of action gardening as an applicable and sustainable theory for practice in science education. In addition, fruitful recommendations will be provided for implementing action gardening in science education along with visions of how it could grow in the future.

<u>Summary of the First Four Chapters</u>

Chapter one unearths discrepancies regarding the theoretical intent of science education and the actual practice of theory in schooling. On the one hand, there is a commonly agreed upon purpose of science education (among other purposes) that it should promote a general public understanding of science. On the other hand, the structures of traditional classroom-based science education do not necessarily bridge scientific understandings to the real world. Without concrete connections between school science and everyday life, it is difficult to establish scientific meanings that fit into greater epistemological paradigms. This discrepancy is a reason for the development of action gardening through philosophical methodology.

Chapter two outlines American pragmatism as the philosophy used for this analysis, with the classical work of founders Peirce, James, and Dewey presented along with that of contemporary philosophers Rorty and Thayer-Bacon, leading to a description of West's philosophy of prophetic pragmatism. West is a quilter of sorts. He incorporates pieces of philosophy from philosophers, social theorists, and literary artists into a composition that is greater than the sum of its parts. He thus builds on history to construct a philosophy that can better address issues of the present and the future. From Emerson and James, West looks to ordinary folk for philosophy; like Peirce he examines love as providing the impetus to move forward; from Martin Luther King, Jr., West borrows the

idea of the love ethic as a yet-to-be-realized commonality of humanity; like Freire, West recognizes the positive effects of hope; from Dewey, West realizes the importance of experience; from Rorty the essentiality of critique; and from Royce, West adopts pessimism. The philosophy of John Dewey plays a large role in West's philosophy, but rather than being utopian (as Noddings (2011) views Dewey's theories), West realizes the struggle, or in his words, the "stench" or the "funk" of life (Imperial & Martin, 2008). In West's perspective, life is an ongoing struggle; it is where we all begin and where we all repeatedly return.

American pragmatism is distinctive to the environment, the collective culture, and the context of the looming industrial revolution that characterized early America, as it is considered to have developed from the response of European thought to the "wilderness" of the New World (Pratt, 2007). American pragmatism is a "bottom up" logic meaning it approaches understandings through the provision of examples, rather than vice versa, and thus recognizes multiple possibilities of truths based in individual experiences. Because pragmatism is based in the experience of the individual, specific definitions vary. Definitions are similarly based, however, in their connection of theory and practice, their openness to individual experience as a theoretical informant of the future, and their denouncement of unchallenged dogma.

West's particular philosophy is prophetic pragmatism. The term *prophetic* is introduced in chapter two as varying in meaning. To West (1999b), prophecy is not so much about foretelling the future as it is about *embracing* it with an urge for engagement, building on history and questioning the present in a manner that leads to change for the future. West (1989; 2004) uses "prophetic" to describe a profound urge to act that is so

deep that the effect is visceral, commanding action against injustice for the sake of the common good, rather than mere thought. History and hybridity play important roles in the development of West's prophetic pragmatism. Propheticism promotes hybridization of perspectives and understandings by building on the past in a manner that merges with the present and future in a form of hybridization that promotes unity without overshadowing the uniqueness of the original actors.

Foundational to propheticism and to West's prophetic pragmatism is the love ethic, based in the common ability to love that he sees all humans as possessing. To West, humans are unified through their capacity to learn to choose love over fear and hate. Perceiving America to be in a state of crisis stemming from societal inequities, such as those based in racial issues and poverty, and exacerbated by current political conditions at home and abroad, West sees the love ethic as a remedy for widespread spiritual impoverishment. West's approach is strictly humanistic, however, and he himself recognizes that his theories have oversights when it comes to the natural environment (West, 1999).

The third chapter addresses and amends three areas of oversight in West's philosophy of prophetic pragmatism: the love ethic, crisis, and the ecological foundations of humanity. The first area examined, the love ethic, is more specifically about the void in definition that West leaves in describing how to move from a state of lovelessness (in which he perceives many Americans to a state of love, that he sees as being a potential foundational commonality among humans. This oversight is amended with Wilson's (1984) biophilia hypothesis, an innate love for other living beings that supports the argument that love is not only a commonality among humans but also a genetically linked

characteristic of humanity that has enabled evolutionary success. The oversight associated with crisis is due to the recognition that it promotes fear, understood by West to be the opposite of love. Choosing love over fear or crisis is the recommendation for filling this area of oversight. This is supported by Mueller's (2009) and Sobel's (2004) arguments of crisis as a positive motivational factor among children. The third area examined is West's oversight of addressing ecological issues. West's philosophy is of a humanistic perspective, meaning that the goals of his philosophy are limited to the consideration of humans and society. However, the gap left by overlooking the ecological foundations of society is leaving out the basis of what it is to be human. As acknowledged in biophilia, it is undeniable that as humans we have come to be because of our relationships with the earth; agriculture is one obvious example. Because biophilia connects humans to all living things, it also applies to bridging West's oversight of ecological connections, for to be connected with living things is to connect with life itself. It is through biophilia that we are able to rise from struggle – at times from hate – to realize our shared commonality of love.

Chapter four grounds West's philosophy of prophetic pragmatism by extending it with theories of other pragmatists and philosophers in the development of a theory of action gardening. Action gardening as a theory is similar to West's philosophy in its composition – it is quiltlike in that it pieces together philosophies and theories to create an innovative approach to the promotion of a better society. In the development of a theory of action gardening, I extend West's amended prophetic pragmatism to the natural environment with: Dewey's (1916) concept of growth; Nel Noddings (1984) sense of care through reciprocal relationships; Barbara Thayer-Bacon's (2003) concept of

relationality; and Val Plumwood's (2003) place-based spirituality. There are other ideas included as well. For example, essential to action gardening is a broadened perspective of the individual as inseparable from community, an idea that extends from Leopold's understanding of humans as members of ecological community, as well as from views of pragmatists West, James, Peirce, Dewey, and Thayer-Bacon who see self as inseparably connected with others through experiences. Underlying the action gardening theory is the understanding that human and ecological communities are one community. In addition, throughout the development of action gardening as a theory there is a goal of promoting educative growth based on Dewey's (1902) theory/practice continuum. All of the above is undertaken with an understanding that, although growth and action can potentially be cultivated anywhere, for the purpose of this dissertation, the notions of gardening and cultivating action are placed in the context of the outdoors and involve students, teachers, human community mentors, and the many nonhuman species that live in the school garden. Once extended to include nonhuman species and the natural environment as a whole, the theory is analyzed for its applicability for empowering youth to action through gardening in a manner that leads to their participation in democratic practice.

There are three dimensions to action gardening that are presented in chapter four: *gardening*, *action*, and *radical democracy*. In addition to an in depth history of school gardening in America, examples of benefits to youth in the areas of health, academic achievement, emotion/behavior/attitude, and community-building are provided. Gardening is presented as a way to learn science outdoors and to experience literal and figurative growth while establishing reciprocal relationships of care. Care can develop into action-for-others as one begins to see oneself in-relation-to-others. Rather than being

perceived as a *short-lived reaction* to political and economic fears, school gardening can be recognized for potentially promoting *long-term action* for others by building on the inherent connection that humans have with the cultivation of life. Action can thus be cultivated in the garden as well as plant growth and scientific understandings. A detailed analysis of action is undertaken by describing and defending five claims made regarding its inclusion in science education: social and environmental action, cultural history activity, actor network theory, and civic action. Additionally, radical democracy is examined by describing and defending five ways in which it is an enactment of prophetic pragmatism: as creativity, social and environmental justice, scientific literacy, and spirituality. In sum, through action gardening, youth in schools are engaged as citizens, profoundly participating in society to promote radically democratic change that sustains experiential growth into the future, and this can take place in the school garden as an aspect of science education.

At the outset of this dissertation I had underlying questions that drove my inquiry into the topic of school gardening. These questions were concerned with where and when an interest in the natural environment begins, and how this is related to decision-making (recognizing that as educators and parents we have a responsibility to guide youth as they learn to make choices). In an uncertain world, the futures of youth are increasingly variable. Not every child has continued opportunities to be mentored in college after grade school; and as West (1993a) points out, mentoring of youth within communities and families has greatly diminished in recent decades. Action gardening as a theory provides us the reasoning and context to envision answers to these questions. Through action gardening, care is sown among youth and community mentors in the school

garden. This care can potentially grow into action for others, cultivating greater awareness of societal and environmental issues and building a foundation for engaged citizenship. Although a theory, it is not difficult to envision action gardening in practice, revitalizing communities and nurturing environmental stewardship through school science. The remainder of this chapter will further develop a vision of action gardening theory in practice by first, identifying areas of possible scrutiny.

Points of Potential Scrutiny

"Theory" in general is uncertain, for although theories are supported with actual experiences and justifications, they visualize what could be, but not-yet. Theories are accompanied by scrutiny, for until realized in practice, a theory is difficult to visualize by those other than the theorizer. Scrutiny serves to make theory stronger. Three major points of potential scrutiny of action gardening as a theory are identified and discussed in the following sections. Questions of scrutiny regarding action gardening are concerned with: characteristics of American pragmatism; romanticization; and its applicability to all people for all time. Let's first examine the characteristics of American pragmatism in the theory and practice of action gardening.

Keeping it Pragmatic

The first point of potential scrutiny examined is centered on the principles of American pragmatism. Action gardening as a theory is based on American pragmatism. As the theory plays out in practice, is it possible for action gardening to remain pragmatic in the sense that it continues to be a way in which to "unlearn" in a manner that is open to learning that is "outside of the norm"? Among the principle understandings of American pragmatism that are highlighted in this section are the goal of dissolving societal

dualisms; the recognition of personal experience in the present as an informant of future theory that builds on the past; and the denouncement of dogma.

Thayer-Bacon and Moyer (2006) write, "Pragmatists seek to heal the dualisms we have created over time…comparing the development of ideas…as a way of exposing the splits that have developed, between theory and practice or the mind and the body, for example" (p. 10). American pragmatism understands theory and practice to be integrated aspects of a continuum. For instance, theories that are realized in practice can result in practical experiences that can then be used to inform future theory, or to re-theorize the original theory. Based in West's prophetic pragmatism, action gardening is in line with pragmatists' work to heal dualisms of theory and practice, and to do so through experience. Likewise, dualisms of mind and body merge in the work experiences of action gardening.

Like American pragmatism in general, action gardening theory is based on experiences that build on history. The challenge lies in allowing action gardening to remain open to experience in practice. With such a strong history of school gardening in America, it would be easy to assume that the old ways of incorporating the garden are the only manners in which to do so. Yet, gardening is unique to the experiences of the season, the day, the moment, and the actors involved - including but not limited to, the plants, the soil, and the gardeners. In addition, the action that may emerge through gardening is unique to the issues of the place and the community. One community may have issues of food justice that lead gardeners to share their harvest with homeless shelters. Another community may have a large number of vacant lots that inspire a guerilla gardening neighborhood beautification movement. Regardless of the action that

gardening leads to, the experiences that are gained through participation also serve to further define theory. For instance, connections and relationships that are formed within the community may provide cultural or environmental information that is specific to that place – say, surrounding traditional culinary dish preparations - making the case for adjusting the underlying understandings to the theoretical approach for engaging in practice. Thus, theory and practice are inseparable in action gardening. Realization of this aspect of pragmatism hinges on another aspect of being open to the uniqueness of experience while building on history, for the principle understandings of American pragmatism are also not separate but integrated.

In theorizing, it can be difficult to leave the envisioned practice open-ended and uncertain, for descriptions are needed to aid in the development of a vision. Examples of what action gardening may look like are provided in the previous four chapters of this dissertation to enable an envisioning of theory in practice. However, examples can inadvertently skew practice, as if to provide *a priori* justification or to categorize it into the boundaries of dogma (examples of what pragmatism is not). For instance, the examples of Victory Gardens during World War II and present day community gardens that grow fresh produce for those in need may give the impression that these are the only ways to garden or the only reasons to do so. Likewise, school gardens may be misconceived to solely be projects of nationalism, environmentalism, or charity (considered by Dewey and Holt (1908) to reinforce societal boundaries of class). Instead, the concept of gardening is recognized as variable, diverse, and continuous; promoting community; and unique to the place, community, and issues. Although an envisioned goal is important, gardening, like American pragmatism, is about the process and

experience rather than an end result, for there should be no end. The school garden should be allowed to change to meet the needs of communities as they change over time; the intent and purpose of the garden should be allowed to grow. Doing so allows action that is cultivated in the garden to extend beyond the boundaries of school grounds and will also sustain the continuation of gardening at school over time. Moving beyond boundaries of space and time is an example of keeping action gardening pragmatic, for it is in line with American pragmatism's foundations in continuity, relationship, process, and experience.

Recognizing the capacity of action gardening to extend beyond boundaries brings us to another main aspect of American pragmatism – the denouncement of dogma. The action that is cultivated while gardening may address similar issues to projects of environmentalism, or nationalism, as with the formation of the United States School Garden Army in 1918 (Hayden-Smith, 2007). However, action gardening is not naturalism, supernaturalism, spiritualism or even Buddhism - although this religion is considered to be a form of pragmatism (Abelsen, 1993). Action gardening may include aspects of all of these, but it is not solely confined to or defined by any of them for to be governed by one collection of rules would be dogmatic. Likewise, American pragmatism does not belong to any one of these groups either. Rather, pragmatism is its own "–ism," that is actually better described as an "un-ism". Pragmatism is most accepting of that which is not accepted by others – that which is marginalized and considered to be outside of the norm, similar to what would be considered the "negative space" in a contour drawing, or the area beyond the line defining the object.

To embrace the future with a willingness to face uncertainty is a characteristic of American pragmatism and prophetic pragmatism alike. As we engage in activities that strive toward a better future, it is important to be open to new and different visions of the garden and gardening. One way in which we can keep the concept of gardening new is to stay in tune with how it is being used in other places. One example can be found in the work of Mariona Espinet, a professor of science education at the Universitat Autònoma de Barcelona in Catalonia, Spain. Espinet presents research and guides workshops that support the development of schools and their gardens as community centers in an approach to sustainable development (http://www.ensi.org/media-global/downloads/Updates/179/CODES%20mailing%205.pdf). The CoDeS project (Collaboration of Schools and Communities for Sustainable Development) is a timely response, as Spain is a member of the European Union that has been hardest hit by the financial crisis (http://www.ipsnews.net/2012/06/crisis-sows-community-gardens-in-spain/). The unemployment rate there is 24% with 26% of all children living below the poverty level in 2012. Communities throughout Spain have banded together by occupying vacant lots with community gardens in order to provide enough food for their families. The result has been a move from more individualistic ways of life to the formation of strong communities. Thus, this example shows elements of rebirth emerging from crisis within communities that if continued could be a betterment of society.

The present gardening movement in America is not too dissimilar from that in Spain, for the implementation of gardens at schools and their use are widespread. Although our economic conditions are not quite as poor as that in Spain at this time, the future is uncertain. The lessons that can be learned from examples such as that in Spain

include the establishment of school gardens as community centers before a level of dire need is reached. Perhaps strengthened relationships within communities can ward off impending crisis, or at least the perception of it in light of continued economic downturn. Moving to a less individualistic society through community-school gardens could most likely improve the outlook of perceived child health crises. The community gardens in Spain are an example of hope. It is through discerning hope such as this that propheticism is realized as an aspect of prophetic pragmatism.

Action gardening will remain pragmatic through its application in new directions, addressing different issues while building on what has already been done. Gardening at school has a strong history; it is not new. However, action gardening transcends the notion of gardening in general because it promotes actions for others. In other words, gardening is an action, in and of itself. Action gardening, however, extends the relationships of care that are formed while working in the garden beyond its boundaries. Action gardening is as much about garden work as it is about what is done with what was learned while working. Like prophetic pragmatism, the theory of action gardening looks to the future with hope of amelioration while acknowledging the struggles of the past. It is the willingness of the gardeners to engage in relationships and action that make the difference in keeping the practice of action gardening pragmatic.

Action Gardening as a Romanticization

Action gardening as a theory has been developed from the perspective of a gardener and lover of Nature who also happens to be a student and teacher of science education. Because I realize that not every one shares my point of view regarding the natural environment, it is in order that action gardening is examined as a possible

example of romanticization of the garden and the work done there. This is an area of potential scrutiny on two points. One point is in regard to personal preferences of individuals and how this comes into play in the development of reciprocal relationships of care. The second point of potential scrutiny is that action gardening may have been romanticized as a means for teaching and learning science. In other words, my personal perspective may have skewed my view of the garden such that I can see it as nothing less than a panacea to all ailments within the education system, communities, and American society at large. Let us first examine the point of potential scrutiny that more fully considers other perspectives of the garden.

As an environmental educator, I have led field trips into the forest during which youth have begun to cry. This has happened on few occasions but enough to make me realize that for some children, the forest is a scary. Likewise, there have been teachers who doing professional development programs in the forest have had similar reactions. They fear the possibility of encountering snakes or other animals that they think may harm them, and some are afraid of the unknown in general. Seeing the forest or nature as a dark, dangerous unknown that is out of the control of humans and therefore worthy of fear has an in depth history that has been supported by children's literature for centuries, such as Grimm's Fairy Tales to name one popular example in which the forest is a dangerous place.

In other programs that I have led there have been children and adults who deeply dislike getting their hands dirty. Perhaps this stems from being told since infancy to not get dirty by caregivers or from a misconception that soil is actually "dirty" in a manner that is unhealthy. There are also people who do not like the sensation of feeling soil on

their hands, the breeze on their face, or the general uncertainty of the outdoors that is associated with out-of-human control of unexpected sounds of birds calling or sights of squirrels darting across the path. They feel safer and more comfortable in an indoor, human-controlled environment.

To me, these examples provide even more support for the necessity of action gardening. Orr (1992; 1994) would say that these experiences are imperative for ecological literacy, and that knowing the Earth is necessary for human survival into the future. Based on Wilson's (1984) biophilia hypothesis, the affinity of humans to promote life is genetically based. Therefore even if we do not realize it, deep in our genetic makeup, we are predisposed to interact with other living beings and the ecological elements that support their and our lives. We are genetically drawn to interacting with the elemental materials that comprise the soil, and water that makes Earth the only planet of our solar system that presently supports life as we know it.

Action gardening provides a means and a place for engaging youth and adult mentors in interacting with the elements, easing fears and developing an understanding of our support system of life. The theoretical basis of love as a human commonality ensures that action gardening is inclusive of every one, regardless of ability, belief, or predisposition. Some gardeners may simply require more time than others in finding a level of comfort outdoors connecting with living beings and elements. Referring to the connections that I have made in this dissertation with biophilia, as human animals, we are all included in nature.

In defending the inclusive nature of action gardening, it is important that I make apparent that the foundation of biophilia is also not a romanticization. Thus far, I have

not mentioned thanatos (also called necrophilia, or the love of death), considered by ecopsychologists and others to be an opposing force of biophilia (Fromm, 1994). Although thanatos is different from Sobel's (1996) ecophobia, or the fear of nature, it has similarities in that it appears to oppose biophilia. However, Sobel acknowledges that ecophobia is actually an aspect of biophilia. This is because the same genetic basis that underlies our affinity for life (for it supports our own lives) includes an inherent fear of aspects of nature (for this also provides support for human survival). If we extend the connection made by Sobel to thanatos, then we can better see its relationship to biophilia as a necessary one in providing a realistic view of humanity in relation to the rest of nature. In other words, thanatos is a necessary aspect of biophilia, an understanding that can also be found in West's writings through different words. Although West concentrates on human relationships to other humans - a point amended in chapter three with biophilia – he acknowledges that death is as much a part of life as what we typically think of as life-itself. This is recognized as what sets his philosophy apart from other American pragmatists, his acknowledgement of the paradox of life itself. Just as we find hope for the future in laughter at the sorrow of the past (referred to West (2004) as the "tragicomic"), we find hope for life in death. The "stench" of which West speaks in Imperial and Martin (2008), in reference to our beginnings, literally refers to the smell of decaying matter, of decomposition, recognizing that death of our physical beings is an important aspect of life for it feeds the recycling of material elements. These lessons of life and death in the physical sense can be experienced daily in the garden whether on the scale of an earthworm or a tree, and the understandings gained can potentially be

transferred to other aspects of life. The garden and action gardening thus provides a realistic view of life, rather than a romanticized one.

The second point of possible romanticization that I would like to scrutinize is the assumption that the theory of action gardening has a place in present day science education. My basis for the theory begins with my personal understanding that I have gained scientific knowledge while engaging in gardening activities. I have also observed similar scientific epiphanies of understanding occur among others in the garden. The strong history of school gardening in America and its implementation for the learning of science serves as support for my observations (Marye, 1933). However, history also shows that in the American education system and particularly in science, the focus has shifted from a traditional concentration to a progressive one and back again several times (Bracey, 2007; Labaree, 2005), hence, the waxing and waning of school gardens over the years. When the pendulum is swinging towards progressivism, gardening and other sociocultural ways of knowing science are seen as highly appropriate and useful; and when the swing is toward traditionalism, technological advances that can establish America in a higher globally competitive position come to be viewed as the goal for conveying scientific understandings.

The trends of present times show that we are at a point at which science education in America could potentially go either way. I have outlined several recently introduced progressive methods to teaching and learning science in this dissertation, such as socioscientific issues and cultural historical activity theory. In addition to these approaches, however, is the recent initiative of STEM education (Science Technology, Engineering, and Mathematics), a focus of national science standards and of the National

Science Foundation for federal funding than definitely leans more toward traditional empiricism than toward progressivism. While STEM education does not necessarily exclude the natural environment, it does not include it either. Ideas for integrating the arts into STEM education have recently surfaced complete with the suggestion of a new acronym of STEAM (http://www.stemschool.com/articles/what-about-steam-education/). The reasoning for including the arts is based in the recognition of art as promoting imagination and critical thinking in manners in which they are not typically incorporated in the disciplines of science, technology, engineering, and mathematics. To this I respond, where is the environment in STEM? Should it not be STEEM, or STEME, or even STEAME if we also include the arts? After all, the natural environment is the basis for all of these disciplines. Furthermore, by assuming disciplines to function independently, so much so that we call them by individual names in a federally promoted focus on how to go about teaching and learning science, we are promoting the public understanding that those four disciplines are the only important ones. As Orr (1994) would put it, we teach as much by what we leave out as that which we include. Overlooking the foundational role of ecological systems of any human enterprise is shortsighted, for it works against sustainability of any type, including of humanity, and would be considered by Orr (1992) to be an example of miseducation.

Repeating the old ways will not move us toward a paradigm shift in education to increase the public understanding of science; actual change is required for substantial progress beyond a repetitive pendulum swing. Action gardening promotes more than a mere repeat of school gardening of the past. Through engaging in action, it promotes a deeper, more profound understanding of science and humanity. It grows from a

foundation in prophetic pragmatism so that while building on the past, it can integrate present day knowledge and technological abilities to address current issues. Based in West's philosophy, action gardening encourages hybridization of concepts in ways that are deeper and more profound than merely combining a little of each or the 'middle of the road' approach. Action gardening encompasses possibilities of an approach that is different from choosing between either traditionalism or progressivism. Instead, action gardening potentially can choose both, in an approach that considers "both/and" rather than the typical "either/or" (Thayer-Bacon, 2002). Along the same lines as my earlier complaint that not including the environment in STEM promotes a notion of exclusion, I do recognize that to not include STEM in action gardening supports the traditionalism/ progressivism dualism. Incorporating the tenets of STEM education into action gardening would assist in lessening the effects of this dualism; however, it is imperative that this is done in a manner that clarifies the commonalities of the two approaches, rather than exhibiting a superficial application of imaginary boundaries between disciplines. Along the same lines, as the rules of design are founded in the natural environment, aligning STEM education with the design of nature is an avenue that has not yet made it into the science education research literature. This integration, however, would serve to enable STEM education to grow to be more appropriate for public understanding of science and for sustainability.

Beyond including STEM in action gardening by making it apparent that the scientific foundations of all disciplines stem from the natural environment, there are scrutinizers of gardening at school that have already made their opinions known. For example, author and former educator Caitlin Flanagan (2010) expresses her concern that

the school gardening initiative throughout California is actually exacerbating the issues of academic achievement that the state is experiencing. Flanagan specifically points to Latino children, whose immigrant parents came to America as farm laborers. These children are American citizens with dreams of achieving prosperity through education. Yet, the education that they are receiving could have been learned while working alongside their parents in the fields. Although Flanagan is not incorrect in acknowledging that gardening knowledge can certainly be acquired while working in fields alongside parents, she overlooks many important points underlying the present movement of school gardening, namely crisis which was also behind movements of the past.

We are living in times of perceived health crises among children that are linked to poor nutrition, lack of exercise, and diminished time in the natural environment (Louv, 2005). Louv (2005) warns that our generation may be the first to outlive our children. Reaching the limit of Earth's natural resources seems imminent, particularly petroleum and phosphorus. Then, there is the perceived impending doom of global warming, melting icecaps, rising sea levels, increased instances of disease, and changes in our abilities to procure food and clean water for a large population on a shrinking land mass. These are changing times, and I have a feeling based on my experiences that the rate of change will be faster in the future. If our issues lie in the natural environment, should that not be where we concentrate our lessons? Furthermore, if the structures that we have come to assume to be given standards of living in America such as a predictable climate, food, and clean water were to dissolve, who will be assessing the scientific knowledge of youth in the real world other than life itself? Are we teaching them not to need us? Or are we merely promoting continued dependency?

Rahm (1999) reports that school gardening among urban youth exhibits understanding of scientific process only when the activities are designed as experiments. Yet, gardeners gain understandings of science in a meaningful and practical way. Fusco (2001) considers this connection that students make with science in the garden to be 'relevant to their lives,' also considered to be an aspect of scientific literacy (NRC, 1996; 2012). Although gardening itself is a process of experimentation, it takes time to recognize the experiments that are embedded in actual situations of life when one is used to thinking of science as only existing in classroom labs. Acceptance of school gardening as a way of teaching and learning science in a useful and meaningful manner requires a perspective that is willing to adapt to the changes of present times (Rahm, 2010). When comparing the traditional methods of learning science with school gardening in light of the fast-paced changes in human and environmental wellbeing of today, a question arises regarding which view of science education is romanticized – that which is solely concerned with test scores, or that which is relevant and applicable? Action gardening allows for a new perspective of science that is relevant, not romanticized. Relevancy is variable, of course, which brings us to the next area of potential scrutiny: does the theory of action gardening apply to all people, for all time?

<u>For All People, For All Time</u>

As a philosophical theory, action gardening should hold true for all people, for all time. As a theory, it should be equitable across time and space regardless of culture, gender, belief, or any other delineation that can separate people – particularly because action gardening is based in prophetic pragmatism, Cornel West's response to injustice among the marginalized in society due to reasons such as race and poverty. In other

words, the theory should serve to bridge rifts between people by enabling us to realize commonalities. Action gardening does this by promoting the commonality of humanity on which West bases prophetic pragmatism, the common ability for all humans to love.

'For all people, for all time' is a tall order however, especially in today's global society. The theory of action gardening incorporates a goal of radical democracy, as an enactment of action for the betterment of society. Democracy as an integral aspect of action gardening raises a question. Is action gardening applicable to people in countries with non-democratic governments? For example, does the theory of action gardening apply to citizens of China?

China is one of the earliest civilizations. We know this because of the many contributions that the Chinese have made to human culture over time, including written language, paper, and the printing press. Along with these innovations, Traditional Chinese Medicine embodies ancient botanical knowledge that continues to be imperative in the search for remedies to modern diseases (Chevallier, 1996). China, like America, has a strong history of gardening. Community gardens can be found in both rural and urban areas throughout China (http://thegoodvillager.com/2010/12/04/community-gardens-in-china-part-i/). However, in comparison to community gardens in America and Canada, gardeners in China are comprised of older citizens whose children are grown or away in school. No intergenerational relationships are observed in the gardens of China as they are in other places, for (it is presumed that) so much importance is placed on education and the competitive achievement atmosphere, that all of the time of youth and young adults is allotted to preparing for school. Implementation of action gardening in China would be useful to pass along gardening knowledge to youth, as there is concern

that gardening will diminish as the numbers of elderly who practice it decrease. This will mean fewer green spaces and less fresh produce which translates into less control of personal health among individuals, particularly the poor. Thus, the theory of action gardening holds in China, for even though it is not a democratic government, to have the knowledge to garden in vacant urban and rural spaces for personal and communal benefit is an example of radical democracy.

It is essential to realize that "democracy" does not necessarily entail a democratic government. In fact, although the United States is thought by many around the world to be a model of democracy, our country is actually considered to be a republic because of the incorporation of an electoral college (Tocqueville, 1898). America is democratic in that citizens participate in elections to elect officials, but our elected representatives speak for us on governmental issues. This actually makes government a servant to the people rather than a power over the people. In a pure democracy, majority rules, leaving the minority with no say. A republic spreads power, allowing rights to each citizen, rather than to the majority only.

The subject of rights brings to mind another example to examine for the applicability of the theory of action gardening for all people, for all time – migrant workers. Large-scale agriculture in early America was dependent on slave labor, an example that epitomizes a connection between working the land and a lack-of-rights. This is actually an example of what action gardening is not, for slavery signifies a hierarchical connection with the land based on race and contractual ownership, leading to an objectification of the landscape. When slavery was abolished in America, low wage field labor took its place. Because of the need for work and lack of options among the

laborers, the work also historically entailed few rights. This situation has historically been

exacerbated because workers are often speakers of languages other than English and have

entered the country illegally from other geographic regions, leading to a gap in

understanding of rights that has been taken advantage of by landowners. Although this

continues in the present day, organizations have fought for rights for migrant workers,

based on their humanity, namely for their personal safety while working long hours in

poor conditions with dangerous chemicals (Bullard, 1990).

Because of this historical connection between the land and a lack-of-rights, the

theory of action gardening particularly pertains to this example, rather than being an

example to which the theory is not considered applicable. In the case of migrant farm

workers, the lack of options for work creates a situation in which a gardener is required to

garden, promoting a relationship with the land that is different from that presented in

examples of school gardening. The relationship between gardener and garden may still be

considered to be one of reciprocity and care, however, even if the relationship between

the landowner and worker is not. The establishment of migrant worker rights, such as that

accomplished by Cesar Chavez in the 1950s, 60s, and 70s that originated with his

founding of the National Farm Workers Association (Bullard, 1990) is a prime example

of large scale radical democracy and prophetic pragmatism. It is important to remember

that as an enactment of prophetic pragmatism, action gardening is a process and not an

end result. For this reason, the theory of action gardening holds true even for examples

that seem to entail the lack of rights – even more so, for these are examples in which the

application of action gardening is needed. Examples that need the application of action

gardening as an enactment of prophetic pragmatism may become more prevalent in the future as we build on lessons of the past of the betterment of society.

Chavez' work for farm workers' rights is a good example of enacting prophetic pragmatism on a large scale. Action gardening at school involves prophetic pragmatism on a much smaller scale. Although teachers are gardeners of the mind but not necessarily of the soil, the application of action gardening at school may require some particular preparations for its implementation. Recommendations for ways to promote the implementation of action gardening are presented in the following paragraphs.

Fruitful Recommendations for the Implementation of Action Gardening Research Methodology

The theory of action gardening was developed through the application of philosophical methodology. Noting that philosophy is recognized as necessary in the discipline of science education (Schultz, 2009), yet scarcely present within the science education literature (Abd-El-Khalick & Ackerson, 2006), the case was made for the importance of theory in the teaching and learning of science. Philosophy is important in science education, and to the topics of outdoor education and school gardening specifically, for as a discipline, science education began with philosophical questioning and explanation, such as that which occurred between Socrates and Plato in regards to observations of nature (Plato, 1966). As educators, parents, community members, citizens, and observers of the natural world, we are philosophers, although we may not yet realize it.

The theory of action gardening is but one example of illuminating philosophy as an aspect of science education. As we guide youth to address societal and environmental

issues in an increasingly uncertain future, the need for philosophy as a research methodology will become more apparent. Issues of the future will require the ability to take on new perspectives. Youth will need to have the capacity for discernment in examining the past and determining approaches to address issues. Developing these abilities will require a more prevalent application of philosophical methodology in educational research and in teacher preparation.

Pre-service Science Teacher Preparation & In-service Teacher Professional Development

Philosophical methodology can be incorporated, in general, in science teacher education and pre-service teacher preparation through theoretical analysis of various methodologies for conducting field experiences. For example, coparticipation is presented in this dissertation as an alternative to the one teacher-one student mentoring model that has come to be typical in American schools and that is at times viewed as promoting uneven power structures. Other countries, such as in the example of Japan, can also provide new perspectives in theoretical analysis of teacher preparation. Without willingness and time allotted to review and analyze the methodologies enacted, pre-service teacher preparation could actually be failing to prepare teachers to guide students in learning how to deal with societal issues – thus, actually promoting situations of stagnation and ungrowth from the top-down.

There have been suggestions made in this dissertation for 'bottom-up' approaches to teaching science that have shown to be successful, such as the issue-centered implementation of socioscientific issues or place-based education. Action gardening is similar in that it guides the development of a 'bottom-up' perspective while addressing environmental and social issues of local place. In addition, action gardening highlights

the benefits of physical and nutritional health and community building while learning science. Because it approaches science education from a different perspective by drawing from community knowledge, the integration of action gardening as a method for teaching and learning science could be viewed as potentially offering a counter-narrative to hegemonic practices of teacher preparation between one expert and one novice. Let me explain. Traditional American teacher preparation practices can inadvertently set up a unidirectional, hierarchical power structure between teacher and student. The hegemonic structure eliminates the establishment of community and subsequently blocks the input of ideas from teachers and other sources from outside of the classroom. Essentially, a message is conveyed to student teachers that there is but one way to teach science. The message is passed along, perpetuating itself as student teachers get classrooms of their own and become mentors to others. In addition, this message permeates into the classroom to youth, conveying the idea that there are limited ways in which to learn and that only particular epistemologies are accepted as "scientific". This is turn, leaves out other ways of knowing, such as traditional ecological knowledge – or culturally specific gardening practices such as those that could be shared with students by community mentors and Elders in school garden workdays.

In addition to being open to diverse perspectives of what is accepted as science through cultural gardening practices, another major way in which action gardening offers a counter-narrative to hegemonic practice is by requiring the teaching and learning of science outside, a condition that is not always readily accepted. In spite of the documented benefits to learning outside and the great strides that have been made in the past decade to enable education of the natural environment through the construction of

outdoor classrooms and gardens (Burke, 2010), venturing into nature in science education in a more-than-novel manner is rare. Science standards support authentic hands-on activities such as those incorporated in gardening (NRC, 1996; 2011), and many educators agree that ecological literacy requires outdoor education and experiences with the natural world (Orr, 1992). Yet, many science teachers report that they include the natural environment in lessons only if it is already a topic of their own personal interest (Cutter-MacKenzie & Smith 2003; Stone & Barlow, 2005). Others describe five perceived barriers to teaching outside: curriculum standards, time, supervision, hazards, and lack of knowledge (Duffey, 2011; Rickensen et al., 2004).

Because of these perceived barriers, the implementation of action gardening entails providing teachers, both pre-service and in-service, with additional assistance and support while getting started, so that they may feel more comfortable teaching in the garden. One idea to assist pre-service teachers in teaching science outside is to integrate gardens and gardening in science education methods courses. A garden is in place at the University of Garden, installed by science education students with the purpose of potentially helping to familiarize pre-service teachers with incorporating the outdoors in teaching. Similar teaching gardens can be cultivated on college campuses as aspects of science education programs that encourage pre-service teachers to look beyond the school walls to see Nature as a teacher.

A typical way in which in-service teachers begin to integrate the outdoors into their teaching practice is by trying an activity or two from an environmental education curriculum. Although this approach is a start to teaching in a manner that is "outside of the norm" (while getting kids outside!), it does not necessarily provide the opportunity to

form profound relationships in nature that action gardening does. The environmental education approach is not difficult to implement - there are many available curricula that address science standards, and this approach is likely to be approved and even suggested by school administrators, especially with the widespread national support of the No Child Left Inside Act (HR 2054/S 866). For example, the Project Learning Tree (PLT) (http://www.plt.org/) curriculum has been in use for decades. It receives national funding, is often offered through local governmental offices, and provides easy to follow guides for incorporating the natural environment into science instruction. However, PLT is at times scrutinized for taking a 'top-down' approach to learning to teach outdoors, precisely the perspective to which action gardening's 'bottom-up,' or 'ground-up,' attitude offers an alternative.

Furthermore, PLT is scrutinized for promoting a conservation ethic that is laden with a human construct of Nature that sees it as fragile and needing to be protected, completely disregarding the resiliency of ecological systems (Briggs, 2003; Holling & Meffe, 1996; Pickett & Ostfeld, 1995). For example, Muir, considered the "father of the conservation movement" is remembered by some for dislocating villages of Miwok people from Yosemite in order to promote it as a pristine area for naturalists and tourists (Fleck, 1978) – in other words, as an object to gaze at for its beauty and for inspiration but not a place with which humans can have a working reciprocal relationship, not a home. Although Muir's initial intentions were for protection, they overlooked the resiliency of ecological systems. Outcomes have included a hierarchical structure among living beings, singling out particular humans as protectors and identifying particular natural places as worthier than others of being protected (Merchant, 2003). This has led

to isolated islands of "pristineness" with little change in the human actions that continue to degrade surrounding land. (Please note that I am certainly glad that Yosemite has been protected. The point of this perspective is that perhaps it would have been protected regardless, by the long-dwelling Miwok people had they been allowed to remain in their home. Their understandings of the ecological systems in Yosemite, made apparent by their long history of integrally living in nature there were overlooked and disregarded in lieu of a top-down, approach of control by a "higher" authority.)

Leopold (1933) provides a different perspective when he explains that conservation is our effort to understand and preserve the capacity of the land for self-renewal. In other words, shifting one's perspective from controlling the land to understanding the relationships of its communities presents a way of seeing conservation that is ecocentric rather than anthropocentric. The shift in perspective enables humans to see themselves as integral beings in the ecosystem whose actions make a difference – and that harm done to the ecosystem is harming our selves. The intent of action gardening is to support an integrated community-self perspective and to promote changes in actions, not merely present information about the natural environment as something to look at "out there" and separate from our selves.

An example of a curriculum that is more along the lines of action gardening's localized, ground-up, community-self approach is the Garden Earth Naturalist (GEN) (http://gen.uga.edu/) curriculum. GEN offers activities founded in ecological understandings and designed for investigating environmental issues specific to place and unique to the school site. In addition, GEN specifically guides the integration of gardens in science education, plus, it offers professional development workshops at schools,

rather than offsite, in a manner that maximizes the sense of confidence that can be gained for teaching outdoors and enacting action gardening. As of yet, GEN is "located" in the state of Georgia, but the curriculum is available by website and is adaptable to every schoolyard, for it is place-centered. The GEN framework models a counter-narrative to traditional hegemonic teaching structures by accentuating place, people, and relationships (people-people as well as people-place relationships), promoting an ecocentric perspective based in ecological understandings, and recognizing humans as part of the ecosystem and nature.

A formal curriculum such as PLT or GEN is not particularly necessary for incorporating gardening in science education though. Rather, workshops can be arranged to learn gardening techniques from community members. Arrangements for gardening workshops can be made by family engagement specialists, members of parent teacher organizations, or other parent volunteers. Of course, in this age, most every one already seems to be overworked and overbooked, but action gardening is centered on a willingness to go that extra mile. I feel fortunate to have experienced the hard work of a parent volunteer at my children's school who stepped forward to coordinate the implementation of vegetable gardens, the scheduling of summer waterers, and classroom garden mentors. Her work to coordinate parents, teachers, community members, and students has paid off, and her vision of seeing children growing and eating vegetables at school is a reality. The gardens are used for learning science, but for social studies, math, art, and literacy projects as well.

Action gardening is ripe with opportunities for innovative science and interdisciplinary activities. Brainstorming sessions among teachers and students of all

courses, clubs, and service groups can lead to an infinite number of ideas for student-developed projects. For example, science students can develop and begin a long-term citizen science project at their school. By first researching existing projects, students can determine sites for gathering data and develop a protocol for recording and analyzing it over time. For example, students may notice a large number of goldfinches or other birds that visit the school garden and grounds and decide to participate in the eBird project based in the Cornell Lab Ornithology (http://ebird.org/content/ebird/). Students in other classes and programs before and after school can also participate, allowing for a broad range of observation times and school-wide awareness of birds, in turn leading to action beyond the school grounds. For example, simply counting birds in the garden during science class can lead to a community-wide promotion of particular plants that birds need for food and shelter, or the construction of bluebird houses to compensate for loss of habitat to a nonnative invasive species, the European starling. Students could provide the community with information gathered from research about the number of migratory birds lost annually to cats, along with suggestions for keeping cats indoors or having them wear collars with bells.

Science and social studies students can work together to investigate the history of school property and land in the surrounding community through interviews with Elders and research of local collections of historical documents and artifacts. Students in literature, language, and art classes can develop scripts, costumes, and sets to present the information they unearth through historical enactments, providing a context of history and culture for scientific investigations. The event could be advertised and presented to the community at large, sparking memories and building relationships while passing

along cultural and historical information with scientific findings.

In another project, art, technology, and agriculture education students can create and edit a film to document the growth in the garden over the school year. The film can be used to gain support from local businesses for the funding of larger projects, say, for the construction of a garden-side pavilion to be used for community potlucks, or for building a stand from which to sell fresh produce at a student-run farmer's market. Integrating economics and math, students can be involved in calculating expenses and needed materials for these larger projects and in analyzing costs and benefits for the produce stand. Students in family and consumer science classes can collect recipes from students and volunteers, prepare harvested vegetables in dishes to share with the community, and manage the student-run farmer's market. Students of service clubs can be responsible for arranging community workdays - constructing the pavilion, spring planting, or fall harvest - or for gathering together for a shared meal.

Students from all disciplines and organizations can participate in a *charrette*, an intense, time-constrained activity that is used in the field of landscape architecture to brainstorm innovative ideas for design. During the charrette, ideas for designing gardens and surrounding areas are collected and shared, taking into account the needs of the entire school community, as well as considering utility and aesthetics. After gathering information, teams of students work together to put ideas on paper and present potential plans to all stakeholders at the school and in the surrounding community. All members of the school community can be given the opportunity to vote on which designs and features they consider the most appropriate for intended use. On a smaller scale, classes can design one garden bed. Regardless of the size of the project, participating in the decision

making process can lead to feelings of ownership and responsibility; and these feelings will extend beyond the school in space and time. These are but a few ideas. These projects are interdisciplinary - bringing together students from various disciplines and classrooms that are typically kept separate - with a common thread of science education woven throughout. Therefore, any and all of these ideas can apply to science classes specifically. However, as the garden is at the heart of the campus, and the school is the center of the community, it follows that more participants and perspectives are better. Action gardening provides the impetus for approaching schooling in a manner that is outside of the norm, moving beyond the divided structures of disciplines and classrooms and allowing the freedom to grow. The possibilities are boundless for learning science outdoors in a manner that promotes action while building community relationships, developing a sense of citizenship, and nurturing healthy choices for individuals and communities.

Implementing school gardening requires collaboration among all members of a school community, including, of course, the administration. As documented in the implementation of the Edible Schoolyard Project in Berkeley, California, the principal was one of the first to agree to the idea of unpaving their parking to plant a garden, recognizing the benefits of gardening for youth development (Stone & Barlow, 2005). However, just as each child is different, so is each school. In other schools, the idea may come from one teacher who then approaches the enormous task of convincing an entire school community. The principal in Berkeley realized the importance of the willingness of teachers, some whom would find incorporating gardening to be completely out of their comfort zone. With respect to their individualities, the principal involved the teachers in

the decision-making process, and then parents before the project was implemented. It required many changes, however, including the change to a "block schedule" to allow more time for gardening experiences outdoors and integrating multiple disciplines into one extended class period, such as science with social studies, or science with math. Collaboration has been essential to the success of the Edible Schoolyard Project, and action gardening extends even further into the community, beyond the schoolyard. Most important to implementation of action gardening is a foundational, shared belief among collaborators that gardening meets developmental needs of youth in ways that would not be met otherwise. In the words of a parent and promoter of school gardens for her children, the implementation process is not easy, but it is simple (http://www.lifelab.org/wp-content/uploads/2010/12/birthday_essay1.pdf). With this understanding in mind, let us now look to the future to envision how the theory of action gardening will potentially grow and what it will look like.

<u>Visions of How Action Gardening Will Grow</u>

If the theory of action gardening were implemented today, what would it look like in five years? What do I foresee my role to be in this future? The following paragraphs will describe some possibilities for growth that I envision for action gardening.

My vision for action gardening begins in the center of a community, at its heart, in the school garden. Although action gardening never completely leaves the school garden, it soon extends beyond its borders to the community at large. It grows beyond borders because action gardening, as an enactment of prophetic pragmatism, does not recognize typical boundaries associated with societal norms or ungrowth.

Through action gardening, the school garden provides a place for teaching and learning science outside of its typical boundaries, in a manner that is integrated with other educative disciplines. For example, plants in the garden provide living examples of scientific content information; they are sources of data for phenological citizen science projects; they are providers of nutrition and keepers of genetic material. The plants, however, also provide their own stories – their geographic origins, their histories of how they have moved around the globe, how they came to have the names that they do, their uses, and folklore surrounding these. The plants contribute to art lessons with beauty and materials, such as those used in textural collage. They inspire literary works as they have for ages for poets like Emily Dickinson. They are conversation pieces among community members, and they are teachers.

The school garden as the heart of the school serves as a central meeting place for youth as their various classes join to collaborate and also for friends and neighbors as they gather for community potlucks and to make plans for action. The garden design is integrated into that of the buildings, with doorways and windows opening directly to its central location for easy access and natural lighting. The materials of the garden and school building reflect each other to promote a sense of integration even subconsciously. Buildings and other human-built structures can reflect the manner in which a society or culture views its natural resources in a form of interpretation on a large scale. Depending on the building, it can either connect observers and inhabitants to the surrounding environment and a particular place, or do the opposite by working against establishing connections to environment and community. Kellert (2005) writes of how the

interconnections of humans and the rest of nature are overlooked in architecture. Orr (1994) writes of institutional architecture as "crystallized pedagogy," serving as a hidden curriculum that conveys concepts to learners just as curriculum that is explicit does, but concepts of human domination, passivity, and artificiality (p. 14). Action gardening promotes connections to environment and community, and this is reflected in physical as well as theoretical structures.

The integrated garden-building is a "living machine" that is student monitored and maintained. It runs on solar energy, incorporates materials and structure that allow for optimal passive heating and cooling, and recycles 90% of annual wastewater through natural processes, such as phytoremediative plants in a pond that doubles as an irrigation reservoir. Its water catchment system collects rain from the roof and stores it in a cistern (Orr, 2006; Petersen, 2011). The garden-building is a model for CO_2 emission reduction. It shows us how to live more lightly on the Earth. It is our teacher.

The action gardening that begins in the heart of the school campus grows with occupation of public lands in rural areas and urban vacant lots, much like what is done with guerilla gardening, bringing awareness to neglected public spaces and connecting gardeners to each other and to the land. A commonality of love is recognized among community members, and the freedom of open space, like that associated with the origins of our American democracy, is realized (Williams, 2004). For rural and urban areas, this scenario includes the public lands, in particular, on which public schools are built. School grounds are often adjacent to other public lands, such as other schools, libraries, housing projects, and parks. These are connected, unifying the tract of land, dissolving imaginary boundaries, while establishing green corridors for wildlife and nature trails – no matter

how small the tract of land (it is amazing how, for example, birds find plants for their nests amidst skyscrapers and how pollinators find flowers for nectar wherever they are planted). The access that is opened between the previously separate land tracts allows for mentoring among different age groups, to better enable youth to be each other's teachers.

Establishment and maintenance of the garden and green corridors are projects of students with community members who together work to conserve the commons through renovation of shared space – preserving the commons along the lines of ecojustice philosophy. The land between a middle school and an elementary school is recognized as a shared space, and students and adults from both schools contribute to the planning, the procurement of materials and the "construction" of the green corridor between them, dissolving the boundaries that previously separated them. As places of shared work, the gardens and green spaces will be collectively cared for by students of all courses and grades. Interdisciplinary clubs will evolve, issues will be unearthed, and modes of action will be deliberated and be carried out. For example, the produce grown in the garden at the middle school will be sold by a student-run farmer's market by science students along with Future Farmers of America and Future Business Leaders of American club members. The proceeds will go to the local homeless shelter (or other recipient chosen by students) along with any other fresh produce not sold. The project is an expression of action, student-run and based on an issue. Many lessons are learned along the way, student development is nurtured, and connections are made with community through caring and sharing beginning with a garden.

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And where do I see myself in this vision? I am the school garden education coordinator. I work to organize garden and corridor maintenance efforts and aid teachers in finding connections among their ideas to promote gardening in interdisciplinary lessons. I organize volunteers in distributing our garden harvests through the community and enjoying them together during community meals. I assist teachers and community members in engaging learners in action gardening so that they may gain a perspective of public land that recognizes our commonality in relation to it, its sharedness among people, in a manner that reflects the intentions of democracy. The physical work embodied in action gardening serves as a catalyst for reciprocal relationships, strengthened communities, and engaged citizenry. Youth gardener/activists are able to experience challenging and empowering transformations toward realizing the citizens that they are by connecting through shared public spaces. We can learn a sense of balanced security/freedom that is democracy, through our engagement with children in the commons through action gardening.

Summary

Action gardening fosters acting for others by bringing awareness to community issues, promoting interactions among youth and community members in decision-making processes, and establishing the garden as a safe space for sharing one's self with others. In addition to establishing relationships within the human community, engaging in youth action through action gardening (re)establishes relationships with species other than human, with public lands, and with nature itself. There is an aspect of action that can only be described by what West calls a "leap of faith." West, like Kierkegaard before him recognizes that taking a leap of faith, or accepting something without tangible evidence,

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is a personal act. To Kierkegaard (1844/1944), the leap promotes the prevalence of good over evil and requires an awareness of our true selves. Taking action is a leap of faith in that it is a personal choice but also because it is uncertain – it is a leap into the unknown driven by belief - or faith - in a positive outcome. Although it is not difficult to envision the theory of action gardening in practice, there are aspects of it that simply come down to a willingness to engage in a leap of faith. The words of J. Sterling Morton, founder of Arbor Day in 1885 exemplify the faith that underlies our actions daily:

> We place the roots of the infant tree in a bed of mould with serene and confident certainty that the sun and earth will nourish, warm and quicken the sapling into the forest giant … faith expressed in a deed; and it is a deed which conveys health, happiness and consolation to generations not our own.
>
> (http://www.arborday.org/arborday/morton1887.cfm)

To act for others, by planting seeds of love and caring for their growth, is to share our selves as educators and parents. We share our selves with faith that the relationships established through our actions (of passing on knowledge, love, and care) will lay foundations for new perspectives that will guide us in an uncertain future. To act for others is also to act for our selves. The growth that follows love and care requires a willingness to embrace uncertainty, or to take a leap of faith, with hope - not in the sense of hoping that things will stay the same but with hope for change. To take the leap, just as to act for self and others, is to make a choice to love.

In her autobiography *I Know Why the Caged Bird Sings*, Maya Angelou shares her personal struggles with marginalization in the forms of racism, rape, teen pregnancy, and prostitution. In doing so she shows us a firsthand perspective of oppression, but more

importantly she gives us an example of how in the face of struggle, one can still choose love. By choosing to love, over hate or fear, we choose freedom. Angelou gives us a new perspective to show us the way to freedom within our selves, like the prophets that have been discussed in this dissertation, like trickster teachers and like Nature. Although caged, the bird still sings, for each moment offers a new opportunity for freedom. In our own lives, each moment offers the opportunity to choose love. There are levels of freedom. The innermost level – freedom of self - like love, is a personal choice.

We humans look for ways to find freedom from want, worry, and fear. We look for ways to transcend the struggles of the here and now in everyday life, sometimes through enriching ourselves through books, music, or exercise, and unfortunately, sometimes through hurting ourselves with eating disorders, cutting, alcohol, drugs, and even suicide. Yet, we are genetically hardwired to love life, for physically, mentally, and spiritually we are relational beings interconnected with the rest of life – it is a paradox. Action gardening offers an alternative, a new perspective to everyday life on Earth.

The realities of everyday struggles that hold people back from freedom, such as worry about domestic issues and fear of not being accepted, are not typically brought to the forefront of the science curriculum in school. I am not proposing that they necessarily should be, for the structure of schooling itself with its differences from life outside of school may offer transcendence for some. What I am proposing is the idea of gardening at school as a bridge between worlds – that of school and that of everyday life. The integration of worlds that is enabled by the bridge allows for dealing with struggles (rather

than turning away from them), healing from injustice, and growing as participating citizens of Earth. Our youth *need* a bridge like this.

The garden allows us to realize our relationality to the rest of life by learning our strengths/abilities as humans - physical animals on this Earth; understanding our minds, including the capabilities of language that set our species apart; and knowing our selves spiritually through place and the relationships that are found there. Action gardening allows us to transcend the struggles of the here and now to find freedom in the present, in our selves, and in our local places through new perspectives that come to us by way of love. The sense of connectedness with all of life (biophilia), the feeling of belonging, having a purpose, and making a difference on this Earth that can be attained when one chooses love through acting for others – spirituality to some and also radical democracy to West – can be experienced in the garden through action gardening.

Like West's prophetic pragmatism, action gardening is centered on choosing love in order to transcend struggle and move toward freedom. Through action gardening, we can gain a new perspective of our own struggles by experiencing those of others. Action gardening learns from the past to embrace the moments of the here and now by choosing freedom through love. Through love, youth along with their teachers and community mentors establish firm roots in local place while promoting far-reaching effects of growth into the future. The school garden can be the place, and action gardening may be the mode for sowing these seeds of change.

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