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COMMUNITY GARDENS AND ECOLOGICAL CITIZENSHIP: THEIR POTENTIAL AND LIMITATIONS IN FOSTERING ENVIRONMENTALISM

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by

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Submitted in Partial Fulfillment of the Requirements for the
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RESEARCH PAPER APPROVAL

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TITLE: COMMUNITY GARDENS AND ECOLOGICAL CITIZENSHIP: THEIR POTENTIAL AND LIMITATIONS IN FOSTERING ENVIRONMENTALISM

MAJOR PROFESSOR: Dr. Leslie Duram

Mainstream agricultural and food production methods are a major source of environmental degradation, and have not been addressed by large-scale global initiatives. Alternatively, grassroots and local initiatives may be more effective at alleviating the causes of environmental degradation associated with food and agriculture. Specifically, community gardens are vital greenspaces that can be used to address and educate individuals about the importance of food and the environment. However, certain barriers need to be overcome and addressed before community gardens are successfully implemented. The participation and interaction at community gardens may provide a pathway to a long-term commitment to sustainability, pushing individuals to adopt more environmentally supportive behaviors and a deeper commitment to environmentalism. Furthermore, community gardens can be used to improve current mainstream environmental educational practices that are often counterproductive. This paper also discusses potential future directions for research on community gardens.

DEDICATION

First and foremost, I would like to dedicate this paper to all of those who selflessly invest their time and energy to create a better food system. Without your dedication and perseverance, all of our dreams and aspirations would surely wither and die. I would also like to dedicate this paper to all of those who volunteer at the Washington Street and LOGIC gardens; it is the collective effort of those individuals who are reshaping the way we consume and think about food in Carbondale. Lastly, I would like to dedicate this paper to my undergraduate advisor, Dr. Richard Russo. I will never forget how much you opened my eyes to the world, inspired me to attend graduate school and to become an agent of change.

"The work ahead of us is not easy. It requires us to move from a sense of individual resignation to a spirit of collective resolve. In the end, resilient local food systems is a remapping of our expectations. It is a cartography of hope". – Phillip Ackerman-Liest

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CHAPTER 1

Introduction

1.1 Introduction

During the mid-20th century, food systems and agriculture within the United States (U.S.) became globalized and industrialized, shifting away from the local and regional food systems which once dominated the agricultural landscape. This time period would be known as the Green Revolution. It was seen by many as a way to achieve long-lasting food security for the world, saving people from starvation and malnutrition once and for all. Technological innovations dramatically changed the way food was produced and consumed; food miles increased exponentially, organic inputs were replaced by artificially derived chemical inputs, food miles increased exponentially and farm labor became mechanized. The small and medium sized family farms that dotted the landscape, once common place, were be replaced by large corporate controlled farms. This transformed the U.S. into the sole agricultural superpower and would be known as the breadbasket of the world – feeding people across the globe. While the technological innovations in U.S. agriculture and food systems have been some of the most significant achievements of the 20th century, they have caused a significant degree of environmental degradation and have failed at creating a sustainable food system.

Modern agricultural practices have already had a profound impact on the environment, making its long-term sustainability a major concern for the future. In the last 60 years alone, one-third of the world's topsoil has been eroded, resulting from artificial fertilizers (Arsenault 2017). Methane and nitrous oxide, two greenhouse gases which are 23 and 296 more potent than carbon dioxide respectively, are released mostly from agricultural activities in the United States. Seventy-three percent of all nitrous oxide and 41% of all methane emissions release is attributed

to agricultural activity in the U.S. (Conti et al. 2011). Moreover, Green Revolution technologies are responsible for significant global environmental and social problems such as deforestation, habitat destruction, poverty and oceanic pollution; failing to achieve global food security as it was originally intended to (Pretty et al. 2010, de Mutsert el al. 2016, Morten et al. 2006, Laurance et al. 2014, Godgray 2010).

While there have been a number of policies and initiatives to address environmental degradation associated with modern agriculture, some of the most prominent examples have failed to meet their objectives and have largely been ineffective. The Zero-Deforestation Agreement in Brazil, an agreement among major meat packing companies and the federal government, is an initiative designed to prevent deforestation due to cattle ranching in the Amazon Rainforest. However well intentioned it was, it was still largely ineffective in reducing unsustainable cattle ranching practices and did not generate sustainable forestry activity (Gibbs et al. 2016). REDD+, an initiative designed to by the UNFCCC to mitigate climate change and reduce greenhouse gas emissions through innovative forest management techniques, has come under scrutiny and is considered ineffective due to disinterest among target agricultural communities and poor policy design (Resosudarmo et al. 2014).

Taking direct action against environmental degradation due to agriculture and the global food system may be more effective and have more lasting impacts than large-scale initiatives and agreements. Local food systems are seen as a solution to these overwhelming global issues surrounding modern agriculture. They are seen as a tool to reduce the overwhelming corporate control over food production, creating a more malleable and transparent food system in the U.S through its relocalization. Community gardens are one of the tools seen as a way to relocalize the U.S. food system and transform food production. Furthermore, they are important places to

educate individuals to reconnect people with food and the land to promote greater environmental awareness. In turn, new found awareness can promote meaningful engagement with global environmental degradation, instilling a sense of empowerment and agency leading individuals to adopt environmentally supportive behaviors.

Community gardens are collective spaces that are cultivated by a group of individuals for any purpose, taking on various shapes and forms and are located in both urban and rural settings (Draper et al. 2010). The two most common and ubiquitous types of community gardens are either allotment community gardens or collective community gardens. In allotment community gardens, spaces are demarcated for individual use, typically cultivated by one person alone for personal benefit. Allotment gardens are typically used for entrepreneurialism, recreation, or leisure for personal gain. In collective community gardens, the entire space is cultivated by everyone and no spaces are demarcated or individualized for a single persons. Typically, collective community gardens take on the role of beautifying communities, crime deterrence, community building, economic development, environmental improvement, therapy and healing, and education for the benefit of all those involved or the greater community in which they are located (Firth et al. 2011, Guitart 2012, Draper et al. 2010).

1.2 Background

Creating and implementing a sustainable food system is paramount to addressing the environmental degradation caused by the global food system and industrial agriculture. Local food systems are key in addressing environmental degradation because they have the ability to reduce food related environmental impacts through reconfiguring food distribution, preservation of agrobiodiversity and connecting people with food and farming (Duram and Oberholtzer 2010). Educating individuals about the environmental impacts of food is absolutely essential to

promoting sustainable agriculture, foods systems and environmentally supportive behavior that will lead to long-lasting sustainability (Duram 2005). Taking direct action through community gardening and other grassroots initiatives is more important than ever when considering the federal spending and policies related to U.S. agriculture and food systems.

Subsidizing a select few cash crops used mainly for animal feed and highly processed food encourage poor farming practices in the U.S, greatly contributing to obesity and water pollution (Reganold et al. 2012). In the past, the U.S. has been supportive of sustainable agricultural practices through federal spending and policies – most notably under the New Deal policies of President Roosevelt. Many of these new Deal Policies were designed to simultaneously prevent environmental disasters, such as the dust bowl, and improve the lives of rural people and often emphasized sustainable agricultural and land-use practices (Phillips 2007). However, in the 1970s under the Nixon administration, industrial agricultural practices were intensified and many of the New Deal policies created under Roosevelt were abolished. This dramatically increased the number of acres of environmentally detrimental commodity crops and diminishing the role that the federal government had in promoting sustainable agriculture (Beus and Dunlap 1990, Wallinga 2010).

The heavy subsidization of unsustainable agricultural practices and the lack of investment into sustainable agricultural policies and practices is currently the status quo in the U.S. From 1995 – 2012 an astounding $84.7 billion was spent on corn subsidies. Conversely only a mere $100 million was spent on the Organic Agricultural Research Initiative program from 2014 – 2019 (Pianin 2012, Etka 2014). The impacts of these subsidies and policies can already be seen; 69% of the Ogallala Aquifer which supports one-fifth of the wheat, corn, cotton and cattle produced in the United States, will be depleted in 50 years due to overuse (Sophocleous 2012).

Moreover, agricultural activities account for 38% of the pollution in the Chesapeake Bay, causing severe damage to fisheries and ecosystems (Chesapeake Bay Foundation, 2017).

Shortly after the agricultural policies of the Nixon administration were implemented, criticism of the current food system and agricultural practices began to fully manifest itself and emerged in the form of popular and academic literature. Lappe published *Diet for a Small Planet* in 1975 arguing that a greater degree of food security could be achieved by eating lower on the food chain, as well as critiquing the environmental impact of overconsumption of meat. Hightower (1972) discussed and outlined how corporations control much of American agriculture, and the impacts this has on farmers, farm workers, consumers and the declining quality of food in the U.S. Lastly, Wendell Berry's 1977 *The Unsettling of America* discussed and described the impact that industrial agricultural and the global food system has on the rural communities, culture and the environment.

While critiques of the global food system and industrial agriculture were prevalent for much of the 1970s, emphasizing how much the U.S. food production had changed during the 20th century, it was not until the 1990s that academics and others would begin to propose alternatives and solutions. During the late 1980s and the early 1990s, the local food movement began to emerge in full force and become a popular alternative to the current food production methods, through the relocalization of the food system and production (Feenstra 1997, Feagan 2007). Getz (1991), Hendrickson (1993), and Kloppenburg et al. (1996) proposed that food production should be re-localized and regionalized to create "food sheds" as an alternative system of food production and consumption. A food shed is the geographic region that produces the food for a particular population. It is the chain in which food flows from the area that is produced to where it is consumed (Ackerman-Liest 2013, 5). A food shed is an appropriate tool and concept to

achieve the goals of sustainable development and address the issues and concerns associated with the global food system and industrial agriculture.

1.3 Focus

Community gardens in the U.S. already have a strong history of addressing various economic, social and environmental issues. While the vast majority of community gardening literature explores the ways they generate social equality, this paper examines how community gardens are utilized to address environmental degradation while simultaneously promoting environmentalism. Community gardens address environmental degradation by providing ecosystem services in areas where they are otherwise severely damaged. Community gardens are also an effective tool that can achieve the goals of Local Agenda 21, by being a multifunctional greenspace that can address several problems at once. However, for community gardens to be successful, they need to overcome common barriers that prevent their implementation and long-term use. Furthermore, this paper examines the ways in which community gardens can bring about meaningful environmental change through the promotion of ecological citizenship and environmentally supportive behavior. Community organizations, especially community gardens, have the ability to influence individual's attitudes and behavior as they pertain to the environment. Finally, lasting change will occur through effective environmental education that leads to long term environmentalism and positive change. Community gardens may be a superior venue for environmental education, overcoming many of the challenges that traditional environmental education faces.

The research questions for this paper are as follows:

1. What are the ways in which community gardens help address environmental concerns?
2. How can community gardens help foster environmentalism and environmentally

supportive behavior?

3. How can community gardens be used to improve environmental education?

CHAPTER 2

Community Gardens

2.1 A Brief History of Community Gardening

The community gardening movements in the U.S. have typically arose during times of crisis, being utilized as tools to solve challenges faced throughout the nation. During the 1890s, Detroit was the first city to sponsor an urban gardening program using the city's vacant lots as a response to the economic recession of 1893. The program's objective was to provide food, skills and employment to the out-of-work and hungry, especially for recent European immigrants. Other cities facing similar problems, such as Philadelphia and New York City, followed Detroit's example and adopted similar programs to deal with the recent economic recession. All of this was done before the development of the welfare state, illustrating the importance and necessity of community gardens before social programs like food stamps existed (Birky 2009).

By 1898, many of the early community garden programs in major U.S. cities all but have disappeared. However, during the First World War, community gardens became an important part of the war effort by increasing the food exports to Europe, which was experiencing food shortages. During this period of time, there were more than 3,500,000 "war gardens," which produced approximately $350 million worth of crops (New York City Department of Parks & Recreation, 2017). Again during the Great Depression, community gardens were used help feed the hungry and provide work for the unemployed; as they had done during the economic recession of 1893. Administered and funded through the Work Projects Administration; in New York City alone, 500 gardens on 700 acres of land were cultivated through this program. During World War II, 'Victory Gardens' were used to help boost domestic food production, while simultaneously improving the health and morale of the nation. Some reports estimate that by

1944, 18 – 20 million families had victory gardens producing an astonishing 40 percent of the vegetables consumed in the United States. While many of these gardening projects were at private homes, community gardens were still prevalent and important to the war effort (Lee 2001). During the 1950s, interest in community gardening began to decline, and were viewed as more of a hobby for the home than as a tool to promote social welfare (Lawson 2005).

Much of the modern community gardening movement can trace its roots back to the environmental and civil rights movements of the 1970s. The financial crisis of the early 1970s, urban blight caused by "white flight," higher food prices and gas shortages would shift attention back to community gardening to be used as reactionary tool to neo-liberal policies during this time. However, unlike previous eras, community gardening became a grassroots, bottom-up approach to improve urban conditions and lacked much of the government assistance of previous gardening movements during the early 20th and late 18th centuries. During this time period many important organizations, which still exist today, such as the American Community Gardening Association, Philadelphia Green, and the Green Guerillas formed in order to support the creation and maintenance of community gardens (Lawson 2005).

During the mid-1970s and early 1980s, federal financial support would continue for various garden projects and would again re-emerge. Many vacant lots were acquired by the federal government to serve as community gardens in blighted urban areas to improve living conditions for impoverished communities. The Comprehensive Education and Training Act of 1975 was a block grant that provided money for communities to form community gardens, continuing until 1983 when the program was not renewed. This was the last time any substantial financial support from the federal government for community gardens would be available. Currently, community garden support comes from community organizations, educational

institutions and environmental nongovernment organizations (Lawson 2005, New York City Department of Parks & Recreation 2017).

2.2 Overview of Community Gardening Literature

While addressing environmental degradation and promoting environmental awareness were the reasons many community gardens were started, much of the research on community gardening explores the impact and role that they have in promoting social justice and inequalities (McCullum et al. 2005). Even more specifically, researchers have tended to focus on their impact on impoverished, blighted urban neighborhoods – especially those dominated by racial and ethnic minorities. The most prevailing social justice theme in research is how community gardens alleviate food insecurity for those living in food deserts, improve their diets and provide an alternative outlet to acquire healthy food (Twiss 2011, Baker 2004)

Urban racial and ethnic minorities are of special interest to researchers because they are often more susceptible to chronic diseases related to their diets, unable to afford fresh and healthy foods or lack the transportation to seek them out (McCullum et al. 2005). Community gardens are seen as an effective way to solve these issues associated with food deserts by simultaneously increasing the availability of healthy foods and educating people about their importance. Alaimo et al. (2008) effectively demonstrated that fruit and vegetable intake is statistically significantly higher among urban adults who participate in community gardens than those who do not in Flint, Michigan – suggesting that community gardens do improve diets. Corrigan (2011) explored how community gardens started through a local and grassroots initiative improved the food security of a community in a food desert. This provided residents of the community with fresh foods actively engaging them, thereby increasing their knowledge of local food systems in Baltimore, Maryland. Wang et al (2014) found that food deserts could be

potentially eliminated or alleviated through the implementation of community gardens using spatial analysis in Edmonton, Canada.

Literature that focuses on social justice and inequality also explores community garden's ability to generate social capital and create a sense of community in impoverished neighborhoods (Glover et al. 2005, Ghose and Petty Grove 2014, Kearney 2014). Furthermore, some academics have explored how community gardens can become a place where cultural identity for recent immigration to the North America is preserved and practiced (Baker 2004, Wakefield et al. 2007). Others have examined how community gardening improves the psychological and physical well being of those who participate regularly at community gardens (Kingsley et al. 2009, Armstrong 2000, Maller 2005, Kaplan 1973). Lastly, the other major focus of the community gardening literature is how they improve blighted neighborhoods by creating green spaces (Poulsen et al. 2014, Flachs 2010), in the most successful cases raising property values of those neighborhoods (Voicu and Been 2008). Clearly community gardens are important tool for promoting food security, social justice and improving blighted urban neighborhoods – which have been the strongest and most prevalent themes within the literature. However, what has been given considerably less attention and thought is how community gardening can directly support and contribute to environmental sustainability.

2.3 Environmental Benefits of Community Gardening

Recent studies suggest that the ability for the environment to provide ecosystem services globally are in decline, making the goal of achieving environmental sustainability even more difficult (Mellennium Ecosystem Assesessment 2005). Thus, community gardens are important tools in helping create and replace ecosystem services that have either been extremely degraded or destroyed by human action. This is especially pertinent for urban environments "because

urban ecosystems are becoming increasingly important to both the problems and potential solutions to the environmental issues that we face [today]" (Lovell and Taylor 2013, 1448). Furthermore, the loss of agricultural and naturally occurring landscapes that provide the majority of ecosystem services will make the importance of urban greenspaces and their corresponding ecosystem services more important than ever.

Research has explored and demonstrated the important role that community gardens fill in providing ecosystem services, mitigating environmental degradation and promoting environmental sustainability. Gardens have been shown to help promote biodiversity in urban environments, creating habitats for organisms where they are otherwise scarce (Clarke and Jenerette 2015). Excess stormwater, which is a concern and challenge for urban planners, can also be detained to infiltrate back into the earth at community gardens – improving stormwater management (Levy 2008, Hager 2003). Additionally, they play a vital role in recycling organic material, while simultaneously forming new soils and promoting soil fertility (Gardiner et al. 2014). Moreover, community gardens provide habitat to pollinators, increasing the ability their ability to perform ecosystem services, which is extremely important with the recent endangerment of many pollinators (Matterson and Langellotto 2009, Potts et al. 2016). Community gardens with trees have the ability to reduce air pollution by absorbing specific pollutants from the atmosphere, improving air quality in urban areas (Nowark et al. 2006). Community gardens have also been cited as a way to help reduce the urban heat island effect, reducing heat absorption by creating greenspaces that reflect sunlight and absorb less sunlight (Oliveira et al. 2011).

2.4 Agenda 21 and Community Gardening

Local Agenda 21, famous for its mantra "think global act local," is a comprehensive strategy for local leaders around the world to implement sustainable policies and initiatives. Focusing on economic, environmental and social problems, this document was developed at the 1992 Rio Earth summit. Policy creation and implementation under Local Agenda 21 emphasizes the input of all sections of society including community groups, businesses and ethnic minorities in order to create unique plans for local communities that are inclusive (Voisey et al. 1996). Thus, community gardens were largely favored as a way to help carry out Local Agenda 21, due to their flexible and multi-purposed use as green spaces. Community gardens provide what Lovell and Taylor (2013) describe as "multifunctional green infrastructure" in urban environments, where they address environmental issues while simultaneously providing the cultural and recreational needs for community members (p. 1447). Thus, community gardens have become a popular strategy to achieve the goals of Local Agenda 21.

Some of the literature on Local Agenda 21 discusses the contextual importance of community gardens and their ability to achieve the goals of local policy and decision makers through linking community gardens and the unique issues which persist in localities. Some have provided evidence that community gardens can help achieve the three pillars of sustainability and advocate for their use in Agenda 21 planning, taking on a diversity of roles in addressing sustainability (Stocker and Barnett 1998, Holland 2004). Ferris et al. (2001), explored the effectiveness of community gardens in Local Agenda 21 in the context of the social dimension of sustainable development. Ferris et al. (2001) found that community gardens utilized to address local issues of concern such as health, education, community development, and food security were effective as multi-functional green spaces. Environmental justice and equity are promoted

when community gardens are utilized as green spaces open to the public. Moreover, Irvine et al. (1999) discusses how a community garden in Toronto was designed, named after a local botanist, and used for ecological restoration by planting native species and reconnecting people.

Achieving the goals of Local Agenda 21 will be a challenge for policy makers, communities and individuals, and certainly community gardens will be able to help foster a culture of sustainability in local communities. However, much of the community gardening and Agenda 21 literature seemingly exaggerates the potential benefits of community gardens and their ability to implement sustainability. Most of this literature, especially Irvine et al. (1999), Ferris et al. (2001), and Holland (1999), are guilty of making inflated claims about their potential benefits. Most of their arguments and stances are often only substantiated by anecdotal evidence, and are not backed up by adequate evidence that community gardens are indeed the multi-functional green spaces that will be able to solve real problems. While linking community gardens with Local Agenda 21 seems obvious, doing so in a meaningful way will require more comprehensive and meaningful research.

2.5 Barriers to Community Gardening

In order for community gardens to be meaningful places of engagement where ecological citizenship and social learning are to occur, they need to be implemented as permanent fixtures of the landscape. Securing permanent land tenure for community gardens in urban areas within the U.S. has long been a problem, unlike in the U.K. and other countries where community gardens have historically been seen as long-term solutions (Lawson 2005). As already noted, federal support for community gardens came and went during the late and early 20th century, reappearing briefly during World War II and for the last time in the 1980s. Even with in

institutions of higher education and other community initiatives, securing long-term monetary support and land tenure is difficult.

At institutions of higher education where community campus gardens are a part of the comprehensive plans to promote sustainability and integrate experiential learning into the curriculum, campus gardens often face institutional barriers and lack consistent and permanent support. Despite the obvious benefits they bring to universities, they often face institutional and bureaucratic barriers that prevent them from being fully implemented. Campus community gardens often lack permanent land tenure, leadership, paid workers and consistent funding making developing curriculum, programs and long-term missions and goals difficult (Duram and Williams 2015). Duram and Klein (2016) found that out of 52 organic campus community gardens surveyed, 31% described themselves in need for institutional support, 25% lacked land tenure and 19% did not have consistently available funding.

Community gardens that are non-academic also face many of the same problems, especially when it comes to securing permanent land tenure. Community gardens in the U.S. have trouble attaining permanent land tenure because grassroots organizations often take advantage of vacant lots without first securing usufruct rights or any other legal status (Masson-Minock & Stockmann 2010, Schmelzkopf 1995, Lawson 2007). Additionally, community gardens are seen as a temporary solution to the vacant lot problem common in cities, therefore, are often not included in long-term policy or planning (Drake and Lawson 2014). Struggle over control of these public spaces has been documented thoroughly, especially during the 1990s in New York City under the administration of Mayor Giuliani when community gardens were demolished to make way for commercial development (Schmelzkopf 2002). Furthermore, prioritizing commercial real estate development over the needs of those who use community

gardens to access healthy foods has been documented in Los Angeles (Irazabal and Punja 2009, Mares and Pena 2010).

Making community gardens inclusive, accessible and culturally appropriate is also essential to their successful in providing environmental education and awareness. Ensuring the inclusiveness of ethnic and racial minorities in community gardening and environmental education is especially important because, burdened with environmental pollution and suffer more from environmental racism (LaVeist 1993, Mays et al. 2007, Maisonet et al. 2001, Taylor 2014). Additionally, there is a great deal of literature which suggests that access to green spaces by racial/ethnic minorities and low-income people is less than that of their white or affluent counterparts (Byrne 2012, Boone et al. 2009, Weber and Sultana 2013, Wen et al. 2013, Leslie et al. 2010, Sister et al. 2010, Wolch and Byrne 2009). Researchers have also noted that attracting African-Americans to participate in community gardens, even when spaces are reserved for them, is difficult (Kurtz 2001).

Julie Guthman (2008a, 2008b) has been the most vocal critic of the inclusiveness of community gardens, highlighting the ways which they exclude ethnic and racial minorities. Guthman argues that community gardens and other spaces in local food systems exclude minorities through the creation of "white spaces." In these white spaces, the cultural values of whites attached to "getting your hands dirty" and "growing you own food," is culturally incompatible with African-Americans' view of agriculture due to the legacy of slavery in the U.S. Evidence suggests that African-Americans equate local food systems more with environmental justice and whites equate it more with environmentalism, depicting two different cultural interpretations (Alkon 2008). However, stating that all African-Americans do not care

for, or are not interested in community gardening or practices of local food production is likely inaccurate and stereotyping.

What is most likely the case is that community gardens designed to benefit specific communities, are more likely to succeed when led by members from within the community. White (2011) investigated the role and effectiveness of an alternative food system organization in predominantly African-American communities in Detroit, Michigan. White found that members of the community organization were resistant to having outside residents come to take a leadership role in the organization because members believed that "successful community change is only achieved when it is led by leaders from within its own community" (White 2011, 15) Furthermore, one of the community gardens operated by this particular community organization became the first certified organic community garden in Detroit, clearly illustrating an interest and knowledge in quality food production. This all would suggest that perhaps community gardens could eliminate cultural barriers and become successful when drawing upon the leadership skills and social capital of the targeted communities. Additionally, to say that African Americans' do not have any positive history with agriculture or community gardening is inaccurate. George Washington Carver, the renowed botanist and inventor from the 19th century who was born into slavery, made several important contributions to peanut and sweet potato cultivation, as well as being a leader in promoting environmentalism (Hersey 2011). Lastly, African-American organizations, such as the Nation of Islam and the Pan African Orthodox Christian Church have invested greatly into agricultural development to promote food equity and justice (Alkon and Agyeman 2011).

Cultural exclusion of ethnic and racial minorities from green spaces is more likely to take a different form, especially in urban planning. The creation of green spaces, such as community

gardens, was been shown to raise property values in urban areas – increasing the possibility of gentrification. This type of gentrification, is referred to as "ecogentrification" (Dooling 2009). Ecogentrification is the implementation of an environmental planning agenda related to public green spaces that leads to the displacement of, or exclusion, of the most economically vulnerable human population while espousing an environmental ethic (Dooling 2009, Wolch et al. 2014). In New York City in particular, areas which were predominantly black and saw an influx of whites have noted the privatization of public green spaces for the benefit of privileged (Wells 2014). Additionally, the increasing presence of white residents have made black residents feel uncomfortable accessing and using green spaces. In more extreme cases, neighborhood associations in New York City contacted police out of concern of the heavy presence of young African-American males at parks and other green spaces (Hafner 2015).

For many places, community gardens are valuable assets that help alleviate many of the problems that those residents face. While they have been used throughout the history of the U.S. by grassroots organizations and even the Federal government to address both local and national problems, they often face barriers which prevent their use and implementation. Even when their implementation and existence are ensured, they are not necessarily always accessible by all community members. While certainly their social and economic benefits are clear, how they can be used to help foster environmental sustainability or achieve the goals of Agenda 21 is still not understood well. More importantly, if sustainability is to be achieved, it will require a culture of sustainability and environmentalism. Community gardens may become a place where environmentalism and environmentally supportive behavior is learned, providing the pathway to long-term commitment to sustainability.

CHAPTER 3

Environmentalism and Community Organizations

3.1 Introduction to Ecological Citizenship and Civic Agriculture

To bring about long-lasting and meaningful environmental changes to the food system, direct action and an active citizen participation is required. Participation at community gardens potentially creates pathways to long-term commitment to environmental sustainability through exposing participants to environmentalism and environmentally supportive behavior. Adopting environmental attitudes and values, as well as environmentally supportive behavior to address global environmental concerns is known as ecological citizenship. Under ecological citizenship, individuals are imbued with rights and responsibilities in the context of the environment, and are required to make lifestyle changes and become active in their community to reduce their ecological footprint (Dobson 2006, Hayward 2012). Specifically for food production, ecological citizenship is understood as civic agriculture, sharing many of the same principles, but places greater emphasis on rebuilding local economies, environments and communities through the re-localization of food production (Lyson 2000).

Adopting ecological citizenship/civic agriculture provides the pathway to creating real change by "grounding people in common purpose for nurturing a sense of belonging to a place and an 'organic sense' of citizenship" (DeLind 2002). Taking direct action and becoming involved is important because citizenship "can only be reclaimed by understanding and then practicing, its connection to real, identifiable places" such as community gardens (Kemmis 1992, 6). Additionally, ecological citizenship/civic agriculture "provides the venue and space within which public education and political practice can take place" (DeLind 2002, 220). Community

gardens being one of the venues within which the individuals can be educated people about the importance and environmental impact of food, enabling participants to reshape the food system.

It is important to understand how ecological citizenship/civic agriculture are different from 'consuming ethically,' and the shortcomings of ethical consumption. While ethical consumption does take place in local food systems through community supported agriculture and farmer's markets, it is problematic and is not effective at reducing environmental degradation for several reasons. First, markets externalize the social and environmental costs of production. Secondly, sustainable development should not be linked to economic growth as measured by GDP, because it does not make a distinction between those activities that enhance environmental sustainability and those that do not. Thirdly, purchasers and consumers have the only vote that counts. Moreover, even in the most efficient of markets, there is a poor response from corporations to making meaningful changes in production (Seyfang 2005). Lastly, thinking of citizenship as an individual choice erases "social solidarity, civic debate coordinated action or sacrifice.... Citizenship becomes a lifestyle, and anything less, however praiseworthy, can easily degrade into tokenism and is hardly likely to alter politics of consumption" (Gabriel and Lang, 1995, 182)

3.2 Growing Good Citizens

Community gardens and community organizations that address environmental issues are important because, they "provide facilities which enable change, and stimulate a culture in which sustainable [culture] is acceptable" (Middlemiss 2008, 79). They become "communities of practice" where "mutual engagement binds members together through shared tools, language and stories (Wenger 2000, 225). They are vital to reconnecting people with the environment and producing environmentalists, overcoming what is referred to as "environmental generational

amnesia": phenomena where people fail to develop any value for the environment, because they have not experienced environmental interaction frequently or for long periods of time (Miller 2005, Rosenweig 2003). Community organizations are also important in promoting ecological citizenship/civic agriculture because environmental knowledge and behavior is shared and acquired through what is referred to as social learning.

Literature already suggests that community organizations have the ability to overcome any indifference towards the environment, instilling the values and beliefs of ecological citizenship/civic agriculture into people (Middlemiss 2008, 2010). Literature also suggests that regularly participation at community gardens lead to a stronger conservation ethic and desire to volunteer (Ohmer et al. 2009). Furthermore, Turner (2011) noted that after individuals participated at community gardens, they began to think more critically about where their food came from and became more aware of the harmful effects of artificial herbicides and pesticides.

New environmental paradigms, value, and behaviors are acquired and taught through what is referred to as social learning at community organizations. Social learning is the process in which knowledge and skills are acquired through the interaction, imitation and observation of others in a social setting (Bandura 1977, Wenger et al. 2002). Furthermore, social-cultural theories suggest that learning about bio-physical processes occurs through the participants' interaction within particular environments through social learning (Wenger 2000 Crumley 2002). Moreover, social learning is invaluable to creating environmental and social change because, ".... it is the process in which people learn from each other in ways that could benefit wider social-ecological systems", creating real tangible change while addressing environmental degradation (Reed et al. 2010, 2, Kransy and Tidball 2009). Community gardens are important for facilitating social learning, providing a more appropriate setting for acquiring important environmental

knowledge because, knowledge required for everyday life and solving problems is not learned in abstract ways, but through practice and participation and are an invaluable part of environmental learning and education (Saxe 1991, Rojas et al. 2007)

Many have explored the impact that social learning has had on students and their environmental education. Hamilton (1999) found that campus community gardens at the University of Tennessee were invaluable to experiential learning and skill development through both curriculum and internships. Similarly, Struwe et al. (2014) found that the presence of a community garden on campus "strongly increased student's knowledge of local plants, [opening] their eyes to 'see' plants everywhere, and encouraged students to work cooperatively" (p. 164). Furthermore, community gardens are also important because, gaining and building environmental knowledge through social learning occurs when less and more experienced participants interact and share concerns with one another (Boyer and Roth 2006). Community gardens, as social spaces, encourages the collaboration between a diversity of individuals, facilitating social learning in environmental and science education.

Campus community gardens, which are formally used for places for learning and facilitating environmental and science education, are not the only community gardens where creating environmentalists occurs. Barthal et al. (2010) examined how local ecological knowledge, skills and management practices, which are essential to sustaining ecosystem services, are shared at community gardens among individuals. Barthal et al. found that individuals who are part of community gardens form "collective memories", a process in which history and experiences are stored above the individual level, and influences societies and groups of people" (p. 263). Community gardens are pockets of social-ecological memories where environmental literacy is acquired through more experienced gardeners who share their

knowledge with less experienced individuals – preventing the loss of important local environmental knowledge and skills. Bendt et al. (2013), also indicated that community gardens stimulated environmental awareness and deep ecological knowledge in individuals through social learning between more and less experienced gardeners. Again, illustrating the importance and value of community gardens as community organizations to environmentalism.

3.3 Improving Environmental Education with Community Gardens

The world's first intergovernmental conference environmental education was organized by the United Nations Education, Scientific and Cultural Organization (UNESCO) and the United Nations Environmental Program (UNEP) in 1977. UNESCO and UNEP created the Tbilisi Declaration on environmental education. According to the Tbilisi Declaration, environmental education's role is to create new patterns of behavior for society as a whole towards the environment to reach sustainability (Hungerford et al. 1983). Currently, environmental education curriculum is ill equipped at creating agents of change and still reinforces the status quo. Additionally, environmentalism of the 21st century and environmental education have come under criticism for instilling feelings of despair and hopelessness in learners undermining the ability to environmental education to empower people to become agents of change. Community gardens have the ability to overcome some of the criticisms and contradictions within modern environmental education.

Currently, much of the mainstream environmental education curriculum is aimed at instilling pro-environment attitudes in students from a young age, emphasizing responsible lifestyle chioces responsible lifestyles, their connectedness to the environment and placing a strong emphasis on individual action (Farmer et al. 2007) Additionally, many (Suave 2005, Kagawa 2007, Hesselink et al. 2000) articulate that environmental education should shift to

become education for sustainable development, which may be a more effective form of environmental education. An increasing trend that is problematic because environmental education for sustainable development reduces the "conceptual space for self-determination, autonomy, and alternative ways of thinking" (Jickiling and Wals 2008, 4,). Moreover, much of the environmental education for sustainable development does not question or critique neo-liberal policies and thinking, which is a major concern for environmentalists. However, it has been noted that the purpose of environmental education and curriculum should be to prepare individuals with skills and knowledge needed to identify and shape the quality of the world that we live in through political participation, not simply to understand the environments value, which has yet to become the norm in environmental education (Gruenewald 2004, 76).

Environmental education curriculum has also failed to create a politically engaged citizenry. Environmental education too often does not emphasize, but rather reinforces, the norms of environmental degradation as opposed to exercising political power to address them because of increasing corporate influence in education and the institutionalization of environmental education (Gruenewald 2004, Crossley and Watson 2003, Washburn 2008). More generally, education is increasingly being viewed as simply a tool to prepare youth for the successful participation of economic life and capitalistic society, as opposed to creating critical thinkers with the ability to solve problems, which does not facilitate social transformation needed to address environmental degradation (Jickling and Wals 2008). What environmental education needs to emphasize more greatly is the role of collective grassroots political effort in changing the status quo and to teach young people how to "deal critically and creatively with reality. As wells as and how to participate in the transformation of their world"; transcending and changing social norms, behaviors and lifestyles (Jickiling and Wals 2008, 7).

Modern environmental education and the environmentalism movement has also come under criticism for creating a sense of hopelessness through its increasingly pessimistic outlook of the environment, dire predictions and shock tactics. This has also led to what critics see as a departure from the spiritual roots of environmentalism, ultimately undermining the appeal and effectiveness of the contemporary environmental movements and education. (McKinley 2008, Shellenberger and Nordhaus 2005, 29). Moreover, influential environmental writers such as Carolyn Merchant have rejected the "progress paradigm" in environmentalism, an ideal in which society will always move forward and be able to solve problems – contributing to the sense of hopelessness and doom among environmentalists (Merchant 2003, McKinley 2008). Increasingly, environmental degradation no longer described a problem which can be solved, but an inevitable 'ecological crisis' that cannot be averted and will bring about the ultimate destruction of the earth.

The phase "ecological crisis" is ubiquitous throughout most environment and ecological literature. Found in both academic and popular writings, much of the rhetoric which surrounds it is used to draw attention to environmental degradation to motivate society through "a doctrine of fear, crisis and urgency" and to create "crisis thinking" as a way to shift paradigms (Muller 2005). This type of rhetoric and strategy is counterproductive, undermining the effectiveness and the appeal of environmentalism and environmental education. In the context of early childhood education, shock tactics often used in environmental education alienates children from the environmentalism and nature. While students gain an understanding of global environmental problems, they develop a fear of the world and are prone to hopelessness and environmental pessimism (Sobel 1995, Louv 2005).

Nagel (2005) has provided evidence that modern environmental education has failed to fulfill the Tbilisi Declaration, through creating "learned helplessness" and environmental apathy. Learned hopelessness holds that what a person knows will determine their behavior, and if they learn that environmental degradation is impossible to address, the learner will become apathetic, taking little to no action when mitigating or addressing environmental degradation – essentially 'if it's too broke, why try to fix it'. Nagel found that when students were presented with environmental information and education, it created what the author describes as "environmental apathy" and learned hopelessness. Almost all students interviewed for the study stated that there was little they could do or wanted to do to address environmental problems, expressing feelings of frustration, cynicism and the inability to take actions.

Nagel's findings confirm much of the older literature on environmental education, feelings of hopelessness and pessimism. Fleer (2002) asked children in elementary and middle school to describe what their environment would look like when they were grandparents. Many of the students described an environmentally dystopian future. None of the students described a future where environmental problems had been solved, but were further exacerbated, indicating a gap in the curriculum that empowered students. Barraza (1999) had similar findings when asking students of all ages about what the environment would look like in 50 years from when interviewed, half of students stating that they felt the environment would be worse than it was currently.

Environmental education should be more than just gaining knowledge and awareness, it should make learners agents of change with a sense of empowerment and the ability to meaningfully engage in problems and teach people new ways of living. For any type of environmental education to be effective and transformative, it must "use nature to remind

[people] of their connection to the earth and to help them appreciate natural wonders through experience with it" (Clover 2002, Haugen 2010, 11). As it stands now, environmental education seems to be doing the opposite and has been ineffective in changing people's paradigms and behavior to move society as a whole towards sustainability – as per the goal of the Tbilisi declaration.

Community gardens may be able to overcome some of these feelings of pessimism and hopelessness within environmental education. As mentioned previously, research has demonstrated that community gardens have the ability to alleviate the symptoms of depression and anxiety. More specifically, many studies (Townsend 2006, O'Brien et al. 2010, Husk et al. 2013) provided strong evidence that those who participate in environmental programs that actively promote sustainability through directly interacting with the environment alleviates symptoms of depression and anxiety. Community gardens, which are designed to address specific environmental problems that are integrated into an environmental curriculum, have the potential and ability to instill feelings of hope and empowerment into participants. Thus, people can overcome some of the contradictions and problems within environmental education – potentially providing a more transformative and effective environmental education that advocates for active collective engagement.

CHAPTER 4

Discussion and Conclusion

Discussion 4.1

There is strong evidence that community gardens are effective at promoting the values of civic agriculture and ecological citizenship (Turner 2011, Ohmer et al. 2009, Barthal 2010, Bendt et al 2013). Turner (2011) especially emphasizes this, adding that community gardens will make lifestyle changes that are more environmentally supportive. However, it is not clear how community gardens as green spaces are utilized to help facilitate this and allow for environmentally supportive behavior to take place. In the literature, participants do not state whether or not being a member of a community garden has increased their ability to adapt more environmentally supportive behaviors or not. Community gardens could do this in several ways for participants, such as having a place to compost food scraps, creating green spaces or reducing one's food miles. Furthermore, it is unclear in the literature what, if participating in gardening does indeed promote environmentally supportive behavior and what this looks like outside of the community gardens. Moreover, nowhere in the literature do participants at community gardens state that they have started adopting more environmentally supportive behaviors that are not related to food.

As expressed by Duram and Williams (2015) and Rojas et al. (2007), campus community gardens are places where sustainability education takes physical form, providing students with hands-on learning experiences reconnecting them with food and learning about foods' environmental impact. As of now, there has been no research that explores the potential impact volunteering, or incorporating gardening into curriculum on campuses, has on the values, beliefs and decisions that students make. While Hamilton (1999) Struwe et al. (2014) demonstrate and

emphasize the importance of campus community gardens in curriculum, it is not directly related to environmentalism or decision making that is associated with food and the environment. This is important because, Schoolman et al. (2016), found that while students at major public universities were in favor of adopting environmentally supportive behaviors such as taking public transportation, they were much less interested "incorporating environmental decisions about food." Future research needs to address the impact that participation at community gardens has on the decision making and attitudes about the environment and food choice of students.

Campus community gardens are also pertinent to environmental education at universities because of learned hopelessness and feelings of pessimism that are common in environmental curriculum. Nagel (2005), Barraza (1999) and Fleer (2002) all showed that environmental education creates a sense of hopelessness and despair in students, creating environmental apathy and inaction. The apathy and inaction that is associated with environmental education may be a barrier to people becoming ecological citizens. However, Townsend (2006), O'Brien et al. (2010) and Husk et al. (2013) have all suggested that participation in community projects that directly address environmental sustainability can help alleviate the symptoms of depression and anxiety. Kingsley et al (2009), Armstrong (2000), Maller (2005), Kaplan (1973), Poulsen et al. (2014) all provided evidence that the participation in community gardening improves mental wellbeing; reducing anxiety and depression. Incorporating community gardens into the curriculum of environmental education can potentially overcome these common feelings among students.

It is entirely unclear in any of the literature if community gardens, or even environmental community projects in general, help alleviate the pessimism and helplessness associated with environmental education. It is possible that community gardens that are effectively integrated

into the curriculum can avoid environmental apathy and hopelessness in the first place. Furthermore, none of the community gardening literature explores if individuals who participate at community gardens feel empowered, or if they believe that community gardening is an effective way to address environmental degradation. Future research needs to explore the impact that community gardens have on hopelessness and environmental apathy, as well as if it creates feelings of empowerment and agency in students. Furthermore, given the drawbacks of environmental education curriculum and its inability to foster a culture of political engagement and new ways of thinking, it is unclear in what ways that community gardens might be able to address this issue – if they can at all.

Getting those who are not already environmentalists to participate and become involved at community gardens is a vital part of understanding how values and behaviors can be changed. Getting those who are already not environmentally inclined will rely on making community gardens as open and accessible as possible. There is evidence (Kransy et al. 2014, Clayton 2007) that those who participate in community gardens and organizations are environmentalists and already embody some of the values associated with ecological citizenship. Additionally, Ohmer et al. (2009) noted that those who participated the most were motivated by wanting to give back to their community. It is unclear how those who are not already environmentalists come to participate and become involved at community gardens. Even for those who are motivated by environmentalism, it is unclear if they even believe what they are doing is having any effect on the environment. Future research needs to explore the perceived degree of effectiveness that community gardeners believe they are having on the environment.

In order for community gardens to be successful, they must first be implemented and have a permanent place within the community. This is a challenge for community members,

organizations, and policy makers. Creating federal block grants, similar to those of the 1970s, can ensure that communities seeking to create gardens have the financial ability to do so in the first place, helping finance the staff and resources needed for their success. Furthermore, in the context of urban planning, ensuring community garden's continued existence in the landscape could be addressed by creating permanent public spaces for community gardening and include them as an important part of comprehensive urban planning. Using block grants and other sources of federal money, cities and other organizations can apply for capital in order to buy private spaces that are utilized as gardens by communities, and provide the legal pathway in which to transform private spaces into public spaces that are controlled and governed by citizens. This could ensure that community gardens, like those in New York and Los Angeles that were acquired by their respective governments, would remain in the landscape and not developed for private interests.

4.2 Conclusion

Throughout the history of the U.S., community gardens have been used to address an array of problems. With growing environmental degradation caused by global and industrial food production, the need for community gardens and local food systems will become increasingly important. Environmental policies and initiatives are not always effective at addressing or solving food related environmental issues. Instead, grassroots initiatives started by communities and individuals to take direct action may be more effective at making meaningful and lasting change. Community gardens have the potential to make meaningful consequential because they serve as multi-functional green spaces and can address multiple problems at once. However, for community gardens to be successful and used long-term, several common barriers need to be overcome.

Participating in community gardens has the ability to influence individual's environmental values and behaviors, actively promoting ecological citizenship and civic agriculture. Community gardens are an effective way to share environmental knowledge, skills and behaviors because they are acquired through social learning when more and less experienced gardeners interact. Community gardens, when incorporated into curriculum, can help overcome some of the criticisms and contradictions of environmental education. While modern environmental education may create feelings of hopelessness and pessimism and therefore creating environmental apathy; participation at community gardens may lead to individuals feeling more empowered alleviating feelings of pessimism and hopelessness.

Up until now, the literature on community gardening does not explore how they can be used to help improve environmental education or the impact of newly acquired environmental behaviors have outside of the community gardens. Future literature needs to explore how community gardens impact students' feelings and environmental attitudes. Additionally, it is still unknown how participation at campus community gardens might change environmental decision making, as it pertains to food, for college students. There is also a need for researchers to explore how community gardens can attract those not already interested in environmental problems or issues, as they typically attract those already interested in the environment.

Addressing global environmental degradation and transforming the food system as we know it is a monumental task that will not be easy to achieve. It is possible that community gardens will be part of the solution, providing one of many pathways that will allow society as a whole to make itself sustainable. People need to stop thinking community gardens as simple 'green spaces,' only used for defined periods of crisis. When people look at community gardens, it is a reminder of the importance of food and its impact on the environment. In order for them to

truly foster a culture of sustainability, they should be thought of as invaluable community assets that are necessary to live out a sustainable life. Communities gardens need to be truly communal, a place where friends, neighbors and strangers meet and share knowledge, skills, stories and work with one another.

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