INNER-CITY MINORITY YOUTH AND A COMMUNITY GARDEN AS AN APPROACH TO ENVIRONMENTAL EDUCATION

by

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(Under the Direction of Ron Carroll)

ABSTRACT

In this thesis a community garden combined with an environmental education curriculum was designed and implemented to address the impact on inner-city minority youth’s perception of the environment. Hand-drawn mental maps were used as a pre-test post test qualitative measure. The results from the study did not adequately answer the research question. Rather, the results illustrate the barriers and limitations that exist when implementing a community gardening environmental education endeavor.

INDEX WORDS: Community gardening, Environmental education, Inner-city minority youth, Environmental Justice
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For the Goolsby boys – Te’Autay, Glenn-O and De’Rontay and their very caring mother, Ronnett.
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CHAPTER 1
INTRODUCTION

As humans, we are utterly dependent on the Earth to sustain us. Nature supplies us with the basic requirements of life: food to eat, water to drink, energy for heat and mobility, green plants which provide plentiful oxygen to breathe and raw materials to create shelter. The Earth acts as a climate stabilizer, waste absorber and for some, a source of spiritual cleansing and renewal. Not only are we dependent on nature, but as humans we are also part of nature. In fact, the daily lives of all humans are affected by the management, use and conservation of the Earth. Despite these interconnections and interdependencies we have with nature, this necessary relationship is sometimes overlooked, forgotten or ignored completely.

Mismanagement of the Earth’s natural resources is something that is of growing concern to many. For some, the mismanagement of the Earth’s natural resources hits closer to home and results in greater environmental threats than for others. Namely, people of color (African Americans, Latinos, Asians and Native Americans) as well as the urban poor and elderly populations shoulder a disproportionate burden of environmental threats which result in environmental health hazards. These environmental inequities have been defined as environmental racism. (Bullard, 2001; Bowman & Shephard, 1985, United Church of Christ Commission on Racial Justice,
One group that is particularly affected by environmental racism is inner-city minority youth. Environmental education is a tool that can be used to educate all people about how to better manage and care for the Earth’s natural resources. Environmental education establishes general principles about ecology and then uses these principles as a framework from which to effect positive environmental change. Environmental education is offered in many ways: classroom instruction, nature centers, zoos and botanical gardens. Approached in the correct manner, environmental education has the potential to address the inequalities faced by inner-city minority youth.

One approach that could begin to address the environmental disparities this population bears could be community gardening combined with environmental education. Community gardens offer inner-city minority youth with unique opportunities that more traditional approaches to environmental education do not afford. Namely, community gardens are located within the community of the learner. To some, this may seem of little importance. However to a youth residing in the inner-city whose neighborhood is surrounded by very busy streets and an inaccessible golf course, a community garden provides a welcome and unimpeded source for contact with nature. Also, a community garden does not normally require an admission fee, which may often limit the participation of inner-city youth in environmental education activities.

In this study a community garden combined with an environmental education curriculum is offered as an approach to educating inner-city minority youth about the environment. Inner-city minority youth are often left out of mainstream environmental education endeavors and they are one of the populations which continue to be impacted
the most by negative environmental health hazards. This approach was conceived as a means to educate inner-city minority youth about the environment in a manner that was readily accessible to them. By providing the youth with an environmental education opportunity in their backyard, barriers that exist with other environmental education endeavors were lessened.

Furthermore, this approach was also conceived as an attempt to address the lack of diversity in the environmental workforce. Despite the fact that inner-city minority residents have higher rates and risks of exposures to negative environmental health hazards, these populations, young and old, are largely underrepresented within the environmental workforce – the arena where a majority of the environmental management decisions are made. Because this study’s focus was on educating youth, the long-term impacts to the environmental workforce were not addressed. Nevertheless, it is mentioned here to allow the reader to further understand the rationale for the study and will be further explored in the literature review in chapter 2.

This study sought to address the question of how a community garden combined with an environmental education curriculum impacts inner-city youths’ perception of the environment. Because of limiting factors that will be addressed in later chapters, the data gathered do not present a clear indication of how a community garden and environmental education curriculum impacts inner-city minority youths’ perception of the environment. Therefore, the data will be presented in chapter 4 as a platform to illustrate the limitations and findings of the study that will be further discussed in the concluding chapter, 5.

Chapter 2 explores environmental education, environmental justice and community gardening. This chapter also provides examples of traditional approaches to
environmental education as well as community garden examples. Chapter 3 presents the methodology used in this study. It begins by outlining the study implemented to address the research question as well as methods used to analyze the data. Included also in this chapter are sample garden lesson plans and activities to illustrate the structure of the project. Chapter 4 presents and discusses the results of the study. Chapter 5 concludes the study with a discussion of the limitations of the study as well as the findings and recommendations for further studies.
CHAPTER 2
LITERATURE REVIEW

Chapter two begins by defining environmental education. The current challenges environmental education faces are outlined in detail and current approaches to environmental education are illustrated. Next, environmental justice is defined. This includes an exploration of the environmental inequities people of color experience in the US and a discussion about the environmental justice movement and how youth are included. After that, community gardening is discussed – its history in the US, the various ways it has been used as a tool for addressing social issues of its time and finally examples of community gardening projects that combine environmental education into their mission. The chapter concludes by suggesting that community gardening coupled with environmental education could be the appropriate tool to educate inner-city minority youth about the environment.

_Environmental Education_

Environmental education works to establish general principles about ecology and then uses these principles as a framework from which to effect positive environmental change. Environmental issues in particular are very complex. To address them, the public must comprehend the underlying scientific facts. In order to understand the many causes and repercussions of environmental issues, environmental scientists rely on
ecology, the study of the interrelationships between organisms and their environment.

One could also define ecology as the study of the Earth as a system in its totality.

Ecology uncovers the root causes and interdependencies of environmental problems. Equipped with ecological knowledge, environmentalists can then begin to understand the origin and implications of environmental issues. Environmental education goes one step beyond because it tries to implement workable solutions for these problems. (Raven & Berg, 2001)

Many attempts have been made to define the basic goals and aims of environmental education. In general, environmental education includes three main themes:

1. Education about the environment: this involves the discovery and investigation of nature with the goal of amassing a body of knowledge about the environment.

2. Education from the environment: this involves using the environment as a resource and as a medium of inquiry and enhancement to the learning process.

3. Education for the environment: this has the aim of developing values that affect behavior and result in the creation of an environmental ethic (Palmer & Neal, 1994).

Environmental education is increasingly playing an important role in increasing public awareness of environmental issues. As more of our Earth’s water, air and soils become polluted, affecting more and more people, the attention given to the natural environment increases. One way to slow the misuse of the Earth and its natural resources
is through education. By raising the public’s awareness and understanding of environmental issues, environmental education has the potential to facilitate smart decision making in respect to the health of our planet.

**Challenges faced by Environmental Education**

Despite the growing need for environmental education and its increasing popularity among educators, environmental education continues to face difficult challenges. Recently, Hudson (2001) proposed the following imperatives for environmental education. It needs to: (i) make learning experiential, (ii) be fully integrated into public school curricula, (iii) stay relevant to the needs and interests of the community and (iv) account for significant demographic changes in the US.

Hudson’s first imperative, to infuse environmental institutions with experiential learning will be a considerable but worthwhile challenge. His imperative is not without precedent, however. A learning-by-doing philosophy has steered US education for almost a century (Hudson, 2001). Early philosophers such as John Dewey, Jean Piaget and Alexis de Tocqueville believed that “learning occurs best when students are actively involved in their own learning and when the learning has a distinct purpose” (Billig, 2000). William Hammond (1997), an environmental education expert, summarizes well the benefits of experiential learning: “When students are invited to move their education beyond the walls of the classroom and engage in genuine action, they are given the opportunity to synthesize knowledge, skill, and character; to test their preconceptions and misconceptions against real experience; and to learn both to follow and to lead as members of a learning organization.”
Another challenge in environmental education is its complete integration into the
curriculum of public schools. The study of environmental science is most successful
when approached from an interdisciplinary perspective, but public schools have
traditionally confined environmental education to science classrooms, and primarily in
biology courses (from Hammond, 2001, Dsinger, 1981; Ham & Sewing, 1988; Simmons,
1989). Yet if environmental education is to be truly integrated into public school
curricula, as Hudson suggests, it must be addressed from multiple scholastic perspectives.

Since environmental issues are broad in scope, encompassing interconnected and
complex problems, environmental education must incorporate a diversity of disciplines
such as ecology, geography, sociology, urban planning, environmental design, chemistry,
geology, anthropology, law and political science. In order to understand the complexity
of an environmental problem the importance of an interdisciplinary approach must not be
underestimated.

Hudson’s third imperative is for environmental education to stay relevant to the
needs and interests of the community in which it is taught. For any educational effort to
succeed beyond the first day, the educator needs to make certain that the audience is
engaged enough to continue with the educational process. Therefore, the educator must
be aware of the sociological composition (age, race, gender, educational background,
socio-economic status, political orientation) of his or her audience. With the
demographic shifts occurring in the United States notably, the growth of non-white
populations, it is imperative to understand exactly what environments student populations
live in (Hudson, 2001). Beverly Tatum, a developmental psychologist who has written
about race and education uses the analogy of a snapshot to explain this concept. When a
snapshot is taken of a large group of people, individuals tend to look for themselves in the developed picture. If they do not see themselves represented, they are less likely to be interested and to invest themselves. Additionally, by “knowing the audience,” the educator is presented with further opportunities to enrich his or her own approach to environmental education by teaching to a diversity of cultures. (Tatum, 1997).

As well as combining multiple disciplines, environmental education needs to combine many voices. In order to effect positive environmental change for the entire community, environmental education must include opinions and viewpoints from all people at the environmental decision-making table. As pointed out before, audiences tend to participate in educational endeavors only, if the issues and problems raised by the educator are relevant to their lives and experiences. In the case of environmental education, one could call this the goal of “environmental efficacy”.

**Current Approaches to Environmental Education**

Currently, environmental education is being offered to the public in many different ways. One of the most common ways environmental education is being offered is through classroom instruction in the public school curriculum as well as at the college level. In 1997, environmental education was a required part of the primary and secondary curriculum in more than 30 states in the US. In 1990, a declaration of commitment to environmental research was signed by 22 university presidents representing 13 nations. (Raven & Berg, 2001).

Zoos, botanical gardens and nature centers also work to educate the public about conservation issues. Educational opportunities at these institutions include live exhibits
with interpretive signs, classroom resources available for teachers as well as summer
camp programs especially for youth. While these institutions offer the public a place to
learn about plants and animals, barriers exist that can limit who can take advantage of
these resources. Among these barriers are the price of admission and the geographic
location of these environmental learning centers.

Another common source of environmental education is through local
environmental and conservation organizations as well as federal and state governmental
agencies. In Georgia, the Georgia Conservancy, the Nature Conservancy, the National
Wildlife Federation and various other non-governmental agencies are sources of
information about protecting and preserving the environment.

The Georgia Conservancy, a statewide grassroots environmental organization,
uses multiple methods to educate the public about local environmental issues. One way
is through their young profession program, Generation Green. This is a group of young
professional who meet regularly to discuss current environmental issues and raise money
for the Georgia Conservancy.

One popular nationwide environmental education program is Project WILD
which is offered by state wildlife management agencies. Project WILD is an
interdisciplinary conservation and environmental education program emphasizing
wildlife conservation. The program is designed to provide classroom materials for
educators of kindergarten through twelfth grade. Project WILD capitalizes on the natural
interest that children and adults have in wildlife by providing hands-on activities that
enhance student learning in all subject and skill areas. (Project WILD, 2003)
Many states, including Georgia, have Adopt-A-Stream programs. The Department of Natural Resources Adopt-A-Stream program teaches citizens about water quality. This program increases public awareness of the state's nonpoint source pollution, provides citizens with the tools and training to evaluate and protect their local waterways, encourages partnerships between citizens and their local government, and collects baseline water quality data. The Adopt-A-Stream program is an interdisciplinary program where teachers and students adopt a waterway and do chemical, physical, biological and microbiological testing to determine water quality. Teachers can select any projects and activities from the Teacher's Guide that best meet their students' capabilities. (Adopt-A-Stream, 2003).

The Sierra Club is an example of a non-governmental grassroots environmental organization that incorporates a goal of educating inner-city youth about the environment through their Inner City Outings Program. Inner City Outings is a community outreach program of the Sierra Club that provides low-income, inner city youth with trips to wilderness areas. The mission of the Inner City Outings Program is to promote and develop greater understanding of other cultures, foster respect of self and others, provide leadership skills, and to protect and appreciate all wilderness through outdoor exploration, education, sharing and spiritual growth. (Sierra Club, 2003)

These programs are successful at reaching a lot of people. Despite their success, however, some people have been left out. For instance, not everyone can afford a visit to an environmental learning institution such as a nature center. This group includes poor minority youth. With the exception of the Sierra Club’s Inner City Outings program, the majority of these programs don’t target poor minority youth. The environmental
education resources created for teachers to adopt into their lesson plans, such as Project WILD and Adopt-A-Stream, have the potential to reach poor minority youth, but this is dependent upon the educator’s desire to educate students about the environment. By unintentionally excluding certain populations, current approaches to environmental education are not achieving environmental efficacy, that is to say, there is not a fair representation of viewpoints and opinions at the environmental decision making table. This issue of environmental efficacy has its roots in a larger social phenomenon, environmental justice.

**Environmental Justice**

Environmental justice has been defined as the “fair treatment for people of all races, cultures, and incomes, regarding the development of environmental laws, regulations, and policies” (Environmental Protection Agency, 2003). Over the last decade, attention to the effects of environmental pollution on particular segments of our society has been steadily growing. Concern that minority populations and/or low-income populations bear a disproportionate amount of adverse health and environmental effects have led to the creation of the environmental justice movement.

While people of color have a special investment in environmental issues, the conservation movement in America has not always included them. “Although concern about the environment cuts across racial and class lines, environmental activism has had a largely white middle-class profile” (Bullard, 2000, p. 2). Mainstream environmental organizations have not included the working poor and minorities in their “snapshots”. “Classic” environmental groups have worked to protect land for preserves and
recreational purposes. “Mature” environmental groups have worked to “tighten regulations, seek adequate funding for agencies, ensure compliance for existing statutes through court actions and oppose corporate efforts to repeal environmental legislation or weaken standards” (Bullard, 2000, p. 12).

The president of the National Audubon Society, Peter Berle, stated the following in its national publication, Audubon Magazine: “Not one major environmental or conservation organization can boast of significant Black, Hispanic, or Native American membership” (1987). Private conservation organizations are not the only ones lacking a diverse staff. State and federal government entities also lack diversity. A study in 1984 found that Blacks, Hispanics and Asian Americans constitute only 2.8% of the workforce within the six professional areas of the United States Department of the Interior, where many national policies regarding natural resources are formulated (Bowman & Shephard, 1984 p.29).

Of the more than 3,000 environmental organizations in the United States, 250 organizations operate at a multi-state or national level. The combined membership of the nine largest environmental organizations is more than four million people. Yet people of color only comprise a small percentage of the membership, professional staff and boards of mainstream environmental organizations (Bullard, 1994). In 1989, the Environmental Careers Organization (ECO) conducted a study entitled the “Minority Opportunities Study”. Of the 63 environmental reformist organizations or “mainstream” environmental organizations surveyed, 33% had no people of color. People of color comprised less than 10% of the staff of 21% of mainstream environmental groups (ECO, 1992).
The possible reasons for this phenomenon range from the lack of qualified minority applicants to the traditionally overwhelming importance of social justice movements for minorities. “The myth still remains that [for people of color and the poor] the environment is a luxury issue compared to more immediate issues of food, shelter and jobs, etc.”(The Environmental Careers Organization 1992). This myth is dangerous because a disproportionate number of polluting industries and hazardous waste sites are located near minority communities (Bullard, 1990). Therefore positive environmental change can empower these communities and environmental education could provide the tool for reaching this goal. Moreover, “the environmental ‘time bombs’ that are ticking away in minority communities are not high on the agendas of mainstream environmentalists nor have they received much attention from mainstream civil rights advocates” (Bullard, 2000, pg. 16). Furthermore, urban poor and minorities have little access and benefit very little from the large land holdings of the West, national parks, national forests and fish and wildlife refuges (Durning, 1981) since they have not had the affluence to enjoy such amenities.

People of color do have a vested interest in environmental issues. African Americans, Latinos, Asians, and Native Americans, together with urban minorities (poor, elderly and minorities living within the inner-city) shoulder a disproportionate burden of the earth’s pollution (Bullard, 1992). Greater percentages of African-American, Hispanic, Native American, working-class poor and other minorities in America are subjected daily to an unequal amount of pollution and environmental stressors in their neighborhoods and workplaces (Bullard, 2000; Durning, 1981; Kruvant, 1975). Those people residing in the inner-city face a higher risk of exposure to poor air quality, higher
levels of toxic pollution, less clean drinking water, more wastewater and solid-waste problems as well as greater exposure to heavy metals such as lead (Bullard, 2000).

Environmental hazards such as toxic waste dumps, municipal landfills, garbage incinerators and other noxious waste facilities are more likely to be found in communities comprised of African-Americans, Hispanics, Native Americans, poor and elderly people. For example, in metropolitan Atlanta, Georgia, 82.8 percent of African-Americans compared to 60.2 percent of whites reside in zip codes associated with uncontrolled toxic-waste sites. (Bullard, 2000).

Recently though, the modern conservation movement and social justice groups have begun to converge. The Environmental Justice Movement is a movement comprised of Civil Rights activists and environmentalists working together to ensure the rights of low-income and communities of color to clean and healthy environments. Like the civil rights movement of the 1950s and 1960s, the new environmental equity movement that started in the 1980s is also rooted in the South. Environmental discrimination is increasingly being seen as a civil rights issue and it has been acknowledged that social justice and environmental protection have compatible goals (Bullard, 2000). “Blacks did not launch a frontal assault on environmental problems affecting their communities until these issues were couched in a civil rights context beginning in the early 1980s. They began to treat their struggle for environmental equity as a struggle against institutionalized discrimination and an extension of the quest for social justice” (Bullard, 1990, p. 101). Despite this recent convergence, there still exists a “paucity of minorities in natural resource-related professions [and] minorities are not
effectively sharing in decisions about natural resource management (Bowman & Shephard, 1985 p.29).

The environmental justice movement is a movement whose focus is on justice, fairness and equity. Community plays a large role in the environmental justice movement as well. At the heart of the movement are grassroots efforts made up of individuals who plan, lead and organize their communities around an issue that is threatening their families, homes and communities. The leaders, many whom are women, employ tactics such as public protests, lobbying, demonstrations, fact-finding and reporting, community workshops, petitions and public hearings – all which work to further their goals and keep their communities educated and informed on the latest developments. (Bullard, 1993) The role of community is essential to the movement because it is where the leadership and support comes from.

**Environmental Justice Education**

Environmental justice education comes in many forms. Churches, various nonprofit organizations, institutions of higher learning and governmental agencies all play a role in educating and empowering people of color about the principles of environmental justice and how they can play a role in ensuring that their communities are environmentally healthy.

Literacy for Environmental Justice (LEJ) is an example of an urban environmental education and youth empowerment organization specifically created to educate urban youth about environmental justice issues in their neighborhoods. LEJ is located in Bayview Hunters Point, a neighborhood in San Francisco. Working in
collaboration with the public schools and other community-based organizations, LEJ achieves their mission in multiple ways. Namely, staff members teach and employ young people to research, design and organize educational neighborhood improvement projects. LEJ works on the premise that through education and experiences that define the linkages between human health, the environment and urban quality, their students will feel compelled and empowered to become positive and contributing members of their communities. (Literacy for Environmental Justice, 22 April 2003).

Historically, Black churches have played a significant role in educating minorities about environmental threats. In fact, the Rev. Dr. Benjamin F. Chavis, Jr., Executive Director of the United Church of Christ Commission for Racial Justice, coined the phrase ‘environmental racism.’ He has described it as:

"racial discrimination in environmental policy-making, enforcement of regulations and laws, the deliberate targeting of communities of color for toxic waste disposal and the siting of polluting industries. It is racial discrimination in the official sanctioning of the life-threatening presence of poisons and pollutants in communities of color. And, it is racial discrimination in the history of excluding people of color from the mainstream environmental groups, decision-making boards, commission, and regulatory bodies." (United Church of Christ Commission on Racial Justice, 1987).

Today, the Church continues to play a role in educating society about environmental justice. In 1983 the National Council of Churches, an organization representing thirty-six various denominations of faith, created the Eco-Justice Working Group to provide an
opportunity for national bodies of members of Protestant and Orthodox denominations to work together to protect and restore the environment.

These ecumenical organizations provide resources such as curricula for bible school and Sunday school that work to educate youth about the environment through nature and classroom activities, stories and prayers. Additionally, some churches also work locally to solve environmental justice issues in their neighborhoods. For example, St. Ambrose Episcopal Church and Trinity Episcopal Church in Raleigh, North Carolina have formed a “Partnership for Environmental Justice” with North Carolina State University’s Department of Landscape Architecture to protect a local wetland. The project began after members of St. Ambrose Episcopal Church became concerned that trash and flooding were hindering turtles from nesting in the local wetland (Centennial Campus Middle School, 24 April 2003).

Clark Atlanta University, a historically Black college, is an example of a higher educational institution that is home to the Environmental Justice Resource Center. Their mission is to serve as a research, policy, and information clearinghouse on issues related to environmental justice, race and the environment, civil rights, facility siting, land use planning, brownfields, transportation equity, suburban sprawl, and smart growth. The overall goal of the center is to assist, support, train, and educate people of color, students, professionals, and grassroots community leaders with the goal of facilitating their inclusion into the mainstream of environmental decision-making. The center is multidisciplinary in its focus and approach. It serves as a bridge among the social and behavioral sciences, natural and physical sciences, engineering, management, and legal disciplines to solve environmental problems. The center's programs build on the work
that its staff has been engaged in for over two decades. The Environmental Resource Justice Center achieves its mission through community outreach, community-driven policy research, an annual lecture series and a training institute. (Clark Atlanta University, 23 April 2003).

The Environmental Protection Agency (EPA) is the environmental regulatory arm of the federal government. One of its responsibilities is to educate the public about environmental justice issues. One way they do this is through their community intern program with the Environmental Careers Organization, Inc. (ECO). The purpose of the program is to expose undergraduate and graduate students to different kinds of EPA programs, hoping to attract them to environmental careers and increasing the diversity of the workforce of the EPA. (Environmental Protection Agency, 23 April, 2003).

Through community organizing, local churches, institutions of higher learning and nonprofit organizations the environmental justice movement is successful at educating many people and especially communities of color about environment issues. Unlike traditional environmental education, the environmental justice movement does provide learning opportunities for inner-city minority youth. What the environmental justice movement has not done is to use a community garden to educate inner-city youth about the environment. Community gardens can serve as a tool to educate inner-city youth about the environment.

**Community Gardens**

The term “community garden” can include many different types of cooperative projects in which land is used by urban residents to grow plants for a variety of purposes.
An “urban garden” is any garden project located in a city (Lawson, 2000). Thomas Bassett divides America’s community garden movement into seven distinct but overlapping periods (1981). This section offers a historical perspective of community gardening in America. It is offered to illustrate how community gardens served as a vehicle to address larger social issues of their particular time.

The first period in America’s Community Garden Movement began in Detroit in 1895. Bassett refers to this as the Potato Patch Movement, which lasted until 1917. The mayor of Detroit at the time, Hazen Pingree, provided gardens for the poor with the purposes of nurturing self-respect and independence among its urban participants. Providing garden space was also a way to give work to the jobless and help assimilate immigrants into American life. In 1895, the city recorded that 455 acres were in cultivation and that an early welfare fund known as the Poor Commission Fund netted $28,000 worth of produce (Bassett, 1981).

The School Garden Movement represents the second period of the Garden Movement, and it lasted from 1900-1920. The Massachusetts Horticultural Society started America’s first urban school garden in Roxbury, Massachusetts in 1891. The school garden movement held such vitality at the turn of the century that the United States Bureau of Education created a Division of Home and School Gardening. In fact, the United States Department of Agriculture reported an estimate of 75,000 school gardens in 1906 (Trelstad, 1997).

The grouping of school and garden was the result of a united effort between concerned urban citizens and educators. Among these concerns were worries about the “detrimental developmental impact of the urban environment on children,” (Trelstad,
1997 p.163). Some feared that urban congestion and squalor had the potential to impair the mental, physical and moral development of inner-city youth (Bassett, 1981).

Progressive educational reformers wanted a way to reconnect youth and nature, and they generally held “faith in education as a curative for contemporary problems,” (Bassett, 1981 from Bowers 1974, p. 56). Reformers sought to expand school gardens into a national program in the early 1900’s as a means to realize multiple social goals such as beautification of the city, reduction in juvenile delinquency, improvement in public health and nutrition, the creation of good citizens and workers as well as the Americanization of immigrants (Trelstad, 1997).

At the same time, educators were interested in pursuing ways of making learning more interactive through the use of nature. The initial push for school gardens came from the Nature-Study Movement, which hoped to instill in young people an environmental ethic. The Nature-Study Movement promoted the use of school gardens for two reasons: to help children develop this environmental ethic and to brighten up the bleak urban environments in which they lived. (Trelstad, 1997)

A leading figure in the Nature-Study Movement was Liberty Hyde Bailey, Dean of the College of Agriculture at Cornell University. Bailey believed that learning should come from first-hand experience. “The goal of nature study was to make science learning interactive, and to build a set of values into the examination of inter-connected facts” (Trelstad 1997, p. 163). The movement began with a group of educators concerned about the growing distance between pupils and the natural environment they were studying. Bailey emphasized the importance of first instilling a sense of sympathy
for nature starting with elementary grades and then teaching the exact details in later educational courses. (Bowers, 1974).

John Dewey, an American philosopher and progressive educational reformer, also echoed Bailey’s belief that learning should come from first-hand experience. He wrote:

The real remedy is to make nature study a study of nature, not of fragments made meaningless through complete removal from the situations in which they are produced and in which they operate. When nature is treated as a whole, like the earth in its relations, its phenomena fall into their natural relations of sympathy and association with human life (Bassett, 1981 from Dewey, 1916, p. 213).

The Garden City Plot Movement was the third period of the Garden Movement, beginning in 1905 and lasting until 1920. It was characterized by gardening projects and the beautification of city streets and vacant lots. Nature study teachers and students were responsible for a major part of the vacant lot clean up and subsequent garden plots. (Bassett, 1981).

The fourth period of the Garden Movement was the Liberty Garden period. In 1917 a National War Garden commission began to educate citizens about gardening, drying, canning and preserving produce while attempting to instill a sense of American pride. A campaign motivated Americans “to plant for freedom,” “hoe for liberty,” and to become “soldiers of the soil” (Bassett, 1981). The War Garden Commission reported a total of 3,500,000 gardens in 1917 and 5,285,000 in 1918 (Bassett, 1981).
The Relief Garden Movement emerged in 1930 and lasted until 1939. The Relief Garden Movement coincided with the Great Depression and supplied food for thousands of unemployed citizens. In a time of great need, the gardening helped to sustain mental and physical health for thousands of people by supplementing diets with fresh produce and by providing constructive work when jobs were scarce. This boosted the self-respect and independence of garden participants because it was considered “honest work” (Bassett, 1981).

Just as the Liberty Gardens were advocated during the First World War, Victory Gardens were promoted during the Second World War. Between 1941 and 1945, the War Food Administration sponsored the National Victory Garden Program with five objectives: limit the consumption of commercial fruits and vegetables in order to ensure a sufficient supply for U.S. troops abroad; reduce the use of metals used in the commercial canning process; conserve domestic freight shipments to make way for crucial war munitions; to safeguard against future shortages; and to maintain the morale of citizens by providing a way for anyone to contribute to the wartime effort (Bassett, 1981). As with the Liberty Garden Movement, a propaganda campaign encouraged Americans to join in this display of patriotism. The peak year of production for Victory Gardens was 1944: 20 million victory gardens yielded 40 percent of the fresh produce consumed by Americans (Bassett, 1981).

The current period of Community Gardening is considered the seventh garden movement by Bassett (1981). Very different from the garden movements since World War I with their predominantly economic and patriotic concerns, the Community Garden Movement addresses everything from food security, civic improvement, health and
nutrition, job training and education, transitional employment, vacant lot cultivation, neighborhood stabilization and revitalization, recreation, community building, reduction in crime and therapy (Bassett, 1981; Kirshbaum, 2000; Malakoff, 1995). The current Community Garden Movement has its roots in the environmental activism of the late 1960s and the economic downturn of the 1970s (Bassett, 1981). The increase in community gardens coincides with a year of increasing food costs. “Over forty percent of existing community gardening programs began in 1975, a year of sharply rising food prices” (Bassett, 1981, p. 7). Over two million people are involved with community gardens today.

The current movement builds on the rich history of community gardening in the US. From the Potato Patch Gardens that gave relief to the poor in the late 1890s to the Liberty and Victory Gardens initiated to combat food shortages, build patriotism and maintain morale of citizens at home, community gardens have been used for multiple purposes. The commonality among all garden movements is that they served as a vehicle to address larger social issues of their particular time. Today, community gardening is a tool for community development. Steve Maurer, a staff member of Philadelphia Green – Philadelphia’s urban horticultural organization – sums up this idea nicely: “When we get involved with a neighborhood, not only do we help people green, but we become a community organizing force. Almost every time we work with a group of committed neighbors, whether it’s to plant trees or to fill pots or to turn vacant land into a garden, we serve as a catalyst for development in the community” (Kirschbaum, 1999).

Although Basset (1981) placed the school gardens in a distinct phase in the history of the community garden movement in America, school gardens continue to exist
and should not be relegated to a particular time in the history of America. Furthermore, many community garden projects encapsulate pedagogical components. To realize educational objectives, gardens do not have to be associated with a school.

**Community Gardens and Environmental Education**

Community gardens can serve as a catalyst for learning about the environment and the Earth’s natural resources. In many schools throughout the US, school gardens are sprouting. The state of California institutionalized school gardens with an initiative in 1995, and sets a goal of developing a community garden in every school by 2000. The project is administered by the nutrition education and training program within the department of education. Program leaders hope to get children to make healthier food choices, get involved in their schools and increase their appreciation of the environment. (Kirschbaum, 1999).

In 1998, the School District of Philadelphia created a new graduating requirement for high school students. As a result of this, the School District has combined environmental education and service learning through community gardening. Schools have partnered with Philadelphia Green’s Tree Tender Program to teach gardening tree labs, environmental games and hands-on techniques. To date, the program has trained 200 teachers and as a result, reached over 5,600 students. Preliminary research shows that “students learn more effectively within an environment-based context than within a traditional educational framework”. (Philadelphia Green, 2000).

Philadelphia Green has also facilitated a partnership between the School District of Philadelphia and the Schuylkill Center for Environmental Education. As a result of
this cooperation students participate in a Seeds to Trees program, learn about forest succession, sprout locally-gathered tree seeds and eventually plant trees in their communities. (Philadelphia Green, 2000).

In New York City, the Council on the Environment of New York City (CENYC) works with the City’s Green Thumb Program, the nation’s largest urban gardening program. The CENYC promotes environmental awareness and solutions to environmental problems for New York City residents. They offer several programs working on open space greening, environmental education, waste prevention and recycling and organizing and managing open air farmer’s markets. The goal of this program is to foster civic participation and encourage neighborhood revitalization while preserving open space.

In 1995, the city of Boston developed a private-public partnership called the Boston Schoolyard Initiative to address environmental and ecological literacy among Boston’s youth. The partnership includes Boston Public Schools, the Madison Park Development Corporation, the Boston Foundation. Many different educational opportunities are offered with an overall objective to encourage children’s innate sense of curiosity and to give children the tools and skills needed to become lifelong learners.

One Boston Schoolyard Initiative program on the natural environment includes the study of biodiversity in the schoolyard, flora and fauna native to Massachusetts, landforms of New England, characteristics of water, weather patterns, the growth and change of living things, the interactions between living things, ecosystems, earth’s surface, gardening and microorganisms. (Boston Schoolyard Initiative, 2003)
The San Francisco League of Urban Gardners (SLUG) is a grassroots organization located in southeast San Francisco. For the past eighteen years SLUG has worked with inner-city communities of color to implement neighborhood-generated projects that combine urban environmental beautification with sustainable, community-based economic development. (SLUG, 2003) Environmental education has been a key component of many of SLUG’s programs. Rooted in Community is a specific program sponsored by SLUG whose focus is to develop a youth movement on food and the environment (Kirschbaum, 2000).

The National Wildlife Federation, a national non-governmental organization, has a program called the Schoolyard Habitats Program and is dedicated to developing school-yard habitats. Founded in 1996, this program creates and restores wildlife habitat on school grounds that become learning sites for wildlife conservation and cross-curricular learning. (National Wildlife Federation, 2003)

Community gardens have been and continue to be used as a tool to realize social issues of their time. Moreover, when combined with environmental education, community gardens offer many pedagogical advantages to the learner. First, they are experiential – they present the learner with a hands-on learning opportunity. Additionally, they allow the learner to physically connect with the soil and at the same time permit the learner to test their preconceptions and misconceptions against real experience, synthesize knowledge and examine nature in its totality.
Summary

People of color and urban minorities have a special investment in environmental issues. Environmental education and the environmental justice movement both play a large and necessary role in educating people of color and urban minorities about environmental threats in their communities. Environmental education in the United States is offered in a variety of ways, through public schools and universities, zoos and botanical gardens, local and national non-governmental agencies as well as governmental agencies. All of these resources for environmental education serve the public in myriad ways: adoption of environmental literacy materials in school curriculum, outdoor recreation, nature center interpretive materials, and local community service projects.

The environmental justice movement has also played a significant role in educating the public about the disproportionate burden of environmental threats that communities of color are subjected to. The environmental justice movement educates the public through community demonstrations, church activism, special environmental intern programs and many more. Although this list of environmental education and environmental justice education is not exhaustive, it is accurate in the fact that none of these groups focus on educating inner-city youth about the environment using community or school gardens.

Community and school gardens have been and continue to be used as a vehicle to address social issues of their particular time. In the past community gardens have been used to provide food for the poor during times of economic downturn, clean up vacant lots in run-down neighborhoods, generate support for various wars, and assimilate
immigrants into the American way of life. Community and school gardens can serve as a catalyst to educate inner-city youth about environmental issues. This study will explore how a community garden combined with an environmental education curriculum impacts inner-city youths’ perception of the environment.
CHAPTER 3

METHODOLOGY

The present chapter provides the methods of this study. It starts with the rationale for the study, followed by the conception and preparation of the study which includes a description of the study site. Next the design of this study is presented and a description of the implementation of this study is given; included are garden lesson plans and activities to illustrate the structure of the project. Finally data sources and methods of analysis are explained.

*Rationale for Study*

Environmental education works to establish general principles about ecology and then uses these principles as a framework from which to effect positive environmental change. Environmental education should include everyone. Geographical and financial constraints inhibit some populations from environmental education endeavors. Age, race, gender, educational background, and socio-economic status also play a role. Minority inner-city youth are often left out of these educational endeavors.

Environmental justice has been defined as the fair treatment for people of all races, cultures, and incomes, regarding the development of environmental laws, regulations and policies. The environmental justice movement works to ensure all people are represented not only in environmental education endeavors but also at the
environmental decision making table. While including inner-city minority youth in their endeavors, the environmental justice movement could benefit from the pedagogical advantages of community gardens.

Some of the educational opportunities community gardens offer the learner includes opportunities to engage in hands-on learning, examine plants and insects in their natural habitat, physically connect with the earth and synthesize knowledge and study nature in its totality. Community gardens provide extra possibilities for minority inner-city youth. Community gardens provide unimpeded natural environments within their neighborhoods at not cost.

This study addresses how a community garden combined with an environmental education curriculum offer an alternative approach to environmental education for inner-city minority youth. The research question that guided my study was how does a community garden combined with an environmental education curriculum impacts inner-city youths’ perception of the environment.

**Conception and Preparation of Study**

In order to expose inner-city youth to the natural world and environmental education, I decided to create an environmental education curriculum to compliment a community garden project. Specifically, I wanted to determine how an environmental education curriculum combined with a community garden program could expand inner-city, minority youths’ definition of community. I wanted to see if their definitions expanded from a basic level of understanding to include a more holistic definition. I defined a basic level of understanding of community as being described as a place where
people live. A holistic definition of community would include both the living and nonliving parts of one’s environment and would allude to connections and interdependencies among the living and nonliving components of their community.

**Study site**

I chose a housing community of mixed racial and socioeconomic backgrounds as the location for the garden study site. The study site chosen was the Villages of East Lake in Atlanta, Georgia. Several factors influenced my decision to house the project at the Villages of East Lake. Conceptually, the Villages of East Lake afforded me the opportunity to work with a population of minority youth. The Villages of East Lake has a majority African American population. People of color and the urban working-class shoulder a disproportionate burden of the earth’s pollution (Bullard, 1992). At the same time people of color and the urban working-class continue to be underrepresented in the environmental workforce. Additionally, because fifty percent of the population of the Villages of East Lake receive federal housing subsidies, I was more likely to have a study population that was considered minority in terms of socio-economic standards. Also, the Villages of East Lake had a partnership with the local YMCA which offered a summer camp for all of the youth of the Villages of East Lake. This partnership provided a program in which I could offer my community garden intervention program. Finally, a community garden was not being used in the community which could be used for the project.

The Villages of East Lake are located in southeast Atlanta in Dekalb County. Prior to 1995, the Villages of East Lake was a failing public housing project best known
for crime, drugs and high rates of unemployment. In 1995 a public-private partnership was formed between the Atlanta Housing Authority and a private developer to renew the failing housing project. Today the Villages of East Lake is a 542 high quality mixed-income apartment complex. Fifty percent of the apartment units are dedicated to market rate leasers and the remaining fifty percent are dedicated to public housing recipients. (Tucker, 1999). The median income for the public housing residents is $13,972. Ninety-five percent of the residents are African American (East Lake Community Foundation, 2001).

The Villages of East Lake is a 185 acre planned community. The perimeter of the Villages is surrounded by an eighteen-hole public golf course and highly trafficked roads without sidewalks. Additionally, there is a public swimming pool, tennis courts and a playing field. Visibly, there is a large amount of green space. A large amount of this green space is reserved for the golf course. Only, a very small percentage of the land is has open access for the residents of the community to enjoy. The perimeter of the Villages is surrounded by highly trafficked roads with no sidewalks (see map in appendix).

For this project, I partnered with the local YMCA to offer the environmental education community garden program to the youth of the Villages of East Lake. The Southeast Metro YMCA of Greater Atlanta offers all youth of the Villages of East Lake between the ages of 5 and 13 the opportunity to participate in Camp East Lake every summer. By partnering with the YMCA I was able to recruit youth to participate in this program. I worked under the guise of a “service learning” program component for Camp East Lake’s daily activity schedule. This partnership was mutually beneficial. While I
was able to access a large study population, the YMCA was able to provide their summer campers with a community gardening experience.

A former community garden plot was located within the Villages of East Lake property. Because the garden had lain fallow for several years, the community gladly loaned it for the summer camp program. The garden was located within walking distance of a pavilion that was the center of Camp East Lake’s activities and was approximately one eighth of an acre.

**Design**

This project employed qualitative methodologies. In qualitative research, the focus of the research is on understanding and explaining the meaning of social phenomenon while disrupting the natural setting as little as possible. Qualitative research is interested in understanding the way people make sense of their world and is interested in understanding how all the parts of a phenomenon work together to form a whole. In contrast, quantitative research takes apart the component parts and examines them separately.

Three main characteristics distinguish qualitative research from other research methods: (i) the focus of the research is on understanding particular phenomenon in the context of the situation; (ii) the primary instrument of data collection and analysis is the researcher, and; (iii) the research typically conducts fieldwork. (Merriam, 2001).

This project demanded a qualitative methodology based on the inherent differences between qualitative and quantitative methods. First, in qualitative research the focus of the research is on the nature and essence of the phenomenon under study
whereas in quantitative research, the focus is on determining how many or how much of something. This project sought to understand how a community garden and an environmental education curriculum changed inner-city minority youths’ definition of community. Secondly, in qualitative research the goal of the investigation is on understanding, description, discovery and generating hypothesis rather than on predicting, controlling and testing hypothesis as in quantitative research. Again, this project did not try to predict or test a hypothesis. Its focus was on understanding and describing the phenomenon under study. Furthermore, in qualitative research the sample is a small, nonrandom and purposeful population rather than a large random representation which is the case in quantitative research. Because I was interested in understanding how a community garden combined with an environmental education curriculum changed the perceptions of a specific population – that of inner-city minority youths’- a large, random population would not answer my question. Finally, the mode of data analysis in qualitative research is inductive meaning that the meaning is derived from the data where as in quantitative research data analysis is deductive which employs statistical methods.

The action research case study method was used to conduct this study. A case study is particularistic, meaning that “[it] is an intensive, holistic description and analysis of a single instance, phenomenon, or social unit” (p. 29). Three characteristics distinguish case studies from other qualitative research methods. First, case studies are particularistic. The research is focused on understanding a particular event, phenomenon, situation or program. The focus of this case study was the community garden intervention program coupled with the environmental education curriculum. Secondly
case studies are descriptive, they are “complete, literal descriptions of the incident being investigated” (p. 29). Descriptive case studies illustrate the complexity of the situation under investigation, include vivid material such as quotations and interviews and have the advantage of hindsight but are still applicable in the present. Finally, case studies are heuristic meaning that they “illuminate the reader’s understanding of the phenomenon under study” (p. 30). (Merriam, 2001)

Action research case study is “a small-scale intervention in the functioning of the real world and a close examination of the effects of such intervention” (Cohen & Manion, 1985). Action research includes four common characteristics. First, it is situational, meaning that it is on-the-spot procedure designed to deal with a concrete problem at a specific location. Secondly, it can be collaborative – it sometimes includes teams of researchers and practitioners working together on a project. Thirdly, it is participatory, team members and researchers directly or indirectly implement the research. Finally, it is self-evaluative - the researcher is constantly comparing and evaluating the ongoing situation and making adjustments as necessary. The goal of action research is “to add to the practitioner’s functional knowledge of the phenomenon he or she deals with” (p. 209). (Cohen & Manion, 1985)

The community garden and environmental education curriculum program administered to the youth of the Villages of East Lake was the intervention program. The program was designed to address what impact community garden enrichment programs have on environmental education for minority inner-city youth. This project was participatory in that I implemented the program. Finally, the project was self-evaluative and the data analysis was inductive.
Hand-drawn mental maps were another qualitative method employed as a one-group pretest-posttest qualitative measure. “A mental map is a graphic representation of the cognitive image pertaining to a certain place or location” (Nazarea-Sandoval, 1995, p. 103). The tradition of mental mapping comes from the discipline of geography. Mental maps are used to ascertain people’s understanding of their surroundings. Cognized models have been defined as a “description of a people’s knowledge about their environment and their beliefs concerning it” (Rappaport, 1979, p. 97 from Nazarea-Sandoval, 1995). Mental maps represent people’s understanding about their surroundings. This project used mental maps as a means of measuring growth or change of the participants’ definitions of ‘community’, ‘garden’ and ‘community garden’ after a community garden environmental education intervention program.

The methods employed in this study were derived from various methods in geography, ecology and educational research. The specific methodology for collecting and analyzing data from hand-drawn maps was based on a method employed by Nazarea-Sandoval (1995).

**Description of Community Garden Environmental Education Program**

The number of students participating in the community garden environmental education project fluctuated every day. The daily average was 14 participants. Prior to participating in the gardening project the participants were asked to sign a consent form. It was explained to them that they did not have to sign the form if they did not want to and did not have to participate in the project if they did not want to.
Next, the students were asked to complete a pre-test. The pre-test consisted of three questions and three corresponding drawings. The questions are listed below.

1. What is a community?
2. What is a garden?
3. What is a community garden?

To answer these questions, students were given one piece of paper and a pencil. The question was written on the board and was read aloud to the participants. The students were asked to write out the answer to the question. After the question was answered, the students were given another piece of paper and asked to draw the answer to the same question. Students that did not know the answer were asked to write down “I do not know the answer”. Assistance was given to students asking for help. The participants were given as much time as necessary to complete their answers and were excluded from each other to ensure originality. It was emphasized that neatness was not a priority and that they should put down what came to their mind when I said the word “community”, “garden” or “community garden”. This process was repeated for the post test at the completion of the study.

**Garden Activities and Environmental Education Curriculum**

An environmental education curriculum was developed to correspond with gardening activities. Students were presented with basic ecological concepts and asked to talk about them in terms of the community garden. The community garden intervention program was conducted over seven weeks.

A general format was followed at the garden. The students spent 1 hour every other day at the garden. When the students first arrived, we would sit down together on
the sidewalk and have a discussion about an ecological concept. A portable dry-erase board was used to write out definitions, generate lists as a group and illustrate concepts. When the students arrived, a question would be on the board for them to consider. We would go around the group and each student would share their answer and at the same time a list would be generated on the board. From there, I would incorporate a major definition or ecological concept that I wanted the students to learn for the day. I would lead the discussion in such a way as to focus the students first on what they knew and then have them apply and broaden their definitions to include the garden. Approximately 15 minutes of each day was spent discussing new terminology and learning ecological concepts. From there, the students were introduced to the day’s project in the garden.

The curriculum was designed with an entire gardening season in mind. Ideally the students would be involved with creating, planting, maintaining and harvesting fruits and vegetables from the garden. The curriculum was broken down into units representing basic ecological concepts. Within each unit there were mini-concepts associated with a lesson intended to represent one visit to the garden.

**Unit 1 – Organic Gardening**

The first unit of the curriculum was on organic gardening. The objectives of the unit were to: (i) introduce organic gardening; (ii) map the garden space; (iii) introduce garden tools and; (iv) define garden rules. The curriculum started with a general discussion about what the students could expect for the summer. A list of rules was generated and time was spent introducing the tools and how to care for them. Other activities included mapping the garden and playing a game to learn the tools.
At the start of the program, the garden was just a tilled plot of land. The first week involved weeding the soil, breaking the large clumps of dirt into manageable dirt, marking the edges of the beds and creating pathways in the garden, and planning what we wanted to plant and where it should be planted. These educational objectives and gardening activities occurred during the first week of the program.

Unit 2 – Ecology and Ecosystems

The second unit of the curriculum was on ecology and ecosystems. The objectives of the unit included: (i) defining ecology; (ii) defining ecosystem; (iii) distinguishing between nonliving and living parts of the ecosystem; (iv) differentiating among producer, consumer and decomposers. This unit of the curriculum was focused around the word “community”. The students were asked to describe the community they lived in. A definition of service learning was explored because the community garden program was included in the summer camp’s program as a service learning component. Students were also asked to think about the words respect, responsibility, honesty and caring in terms of their communities. These words are part of the mission statement of the YMCA and were talked about regularly by the YMCA staff to the students throughout the summer camp.

Garden activities included exploring and mapping all of the living and nonliving components of the garden. Another game was played to reinforce relationships between and among the living and nonliving components.

Unit 3 – Energy

The third unit of the curriculum was on energy. The objectives of the unit included: (i) learning the source of all energy; (ii) define renewable and nonrenewable
energy sources; (iii) classify different energy sources into renewable and nonrenewable energy; (iv) learning about alternative sources of energy and; (v) tracing the flow of energy from the sun to their homes and back. The question that focused this unit of the curriculum was “When did you use energy today?” Garden activities included diagramming the flow of energy throughout the garden.

Unit 4 – Soil

The fourth unit of the curriculum was on energy. The objectives of the unit were to: (i) define soil; (ii) describe and identify the abiotic and biotic components of soil; (iii) diagram a food web and; (iv) appraise the value of soil and human beings dependence. The question that focused the unit was “What did you eat for breakfast and where did it come from?” Garden activities included identifying various soil organisms, examining the compactness of the soil and mulching the various beds.

Unit 5 – Plants

The fifth unit of the curriculum was on plants. The objectives of the unit were to (i) learn the anatomy of the plant; (ii) learn the general equation of photosynthesis; (iii) define biodiversity and; (iv) understanding the relationship between plants and medicine. The question that focused this unit was “What is your favorite fruit or vegetable?” Garden activities planned (see results) were the dissection and labeling of plant parts, tracing the path of photosynthesis in the garden, and tasting herbs and herbal teas.

Unit 6 – Water

The sixth unit of the curriculum was on water. The objectives of the unit were to (i) understand and draw the hydrological cycle; (ii) differentiate between water quality and water quantity; (iii) list sources of water and; (iv) examine water conservation issues.
The question that focused the unit was “How much water have you used today?”

Planned garden activities (see results) were to calculate the amount of water used in a day, diagram the flow of water into the garden and out of the garden, set up a rain gauge and measure the rainfall in a week.

**Unit 7 – Insects**

The seventh unit of the curriculum was on insects. The objectives were to (i) identify a variety of insects in the garden; (ii) describe the importance of insects for plant pollination; (iii) describe the impact of beneficial insects in the garden; (iv) describe the potential harmful effects of certain insects. The question that focused that unit was “What is your favorite insect?” Garden activities included drawing and labeling insects, and placing Japanese beetle bags in the garden.

**Limitations of Curriculum**

The last units of the curriculum included plants, water and insects. Although the insect curriculum was planned as the seventh and final unit, a Japanese beetle infestation provided an opportunity to implement the unit earlier in the program.

Unfortunately, the units on plants and water were not covered. This was due in part to the fact that the students, afraid of contracting West Nile Virus, did not return to the garden for the last two weeks of the summer camp. A dead bird near the perimeter of the garden generated the fear over West Nile Virus. I do not believe this indicated a general fear of nature. Rather, it provides a good example of the culture of fear the media helps to perpetuate in the US. Several news accounts reported the ever-increasing numbers of people contracting the virus. Often overlooked or missed by the general
public is that West Nile Virus generally affects those with compromised immune systems.

**Data Analysis**

Action research relies mainly on observation and behavioral data. The constant comparative method (Glaser & Strauss, 1967) was the primary method of data analysis. Constant comparative is a method of data analysis in which the researcher constantly compares data from observation, field notes, interviews and other sources and compares it with other incidents with the goal of creating categories which can then be compared (Merriam, 2001). The purpose of the constant comparative method is to generate theoretical constructs which ultimately produce a theory that explains and encompasses the observed situation (Sherman & Webb, 1988). The production of a theory was not the purpose of this study. Rather, the constant comparative method was employed to generate themes which helped to explain the phenomenon under study. Data collection was conducted for a set amount of time. During data collection, themes were constantly formulated and reformulated based on observation and collected data.

Category construction was a second method of data analysis. In category construction, “the challenge is to construct categories or themes that capture some recurring pattern that cuts across ‘the preponderance’ of the data” (Merriam, 2001, p. 179). Guidelines for constructing categories are general. Although category construction is mainly an intuitive process steered by the researcher’s knowledge and orientation as well as the study’s purpose, certain guidelines can be used to determine the efficacy of the categories constructed. First the categories constructed should reflect the
purpose of the research; they should attempt to answer the research question. Secondly, categories should be exhaustive and include all important and relevant data in a category or subcategory. Thirdly, categories should be mutually exclusive meaning that a unit of data should only fit into one category. Fourthly, categories should be named so that an outsider can understand the meaning and gain some sense of their nature. Finally, categories should be conceptually congruent meaning that they should all have the same level of abstraction. (Merriam, 2001).

Units of data, such as written responses to specific questions and mental map responses to questions were sorted into categories which had a common theme. Lincoln and Guba (1985) state that units of data must be heuristic and must be “the smallest piece of information that can stand by itself [meaning] that it must be interpretable in the absence of any additional information other than a broad understanding of the context in which the inquiry is carried out” (p. 345) (Merriam, 2001, p. 179). Heuristic refers to the unit’s ability to “reveal information relevant to the study and stimulate the reader to think beyond the particular bit of information” (Merriam, 2001, p. 179).

Category construction was the method used to analyze the pre-test and post test mental maps and questions. This step of data analysis included a review of the written answers and drawings from the pre-test and post test. As the written answers and mental maps were reviewed, notes, comments and thoughts were written down. This was the first step in the creation of categories. Categories that captured recurring patterns and themes from the written answers and mental maps were constructed. The answers and pictures were inventoried in a spread sheet. Then common features and words were noted. The written answers and pictures were also sorted into categories depending on
their dominant features. For example, a picture containing a large building labeled YMCA was put into the building category. After the categories were constructed, comparisons were made from the pre-test and post test responses and drawings.

Summary

Chapter three begins with the rationale for this study. Next the design used to determine how a community garden combined with an environmental education curriculum impacts inner-city minority youths’ perception of the environment is outlined. In this study an action research case study and a one group pre-test post test using mental maps provided the qualitative methodology. After that a description of the implementation study is offered as well as garden lesson plans. The chapter concludes with an explanation of the data sources and methods of analysis.
CHAPTER 4

RESULTS

This chapter presents the results and discussion of this study. It begins by describing the demographics of the study population. Next a description of the intervention program and the evolution of themes generated using the constant comparative method are offered. After that the mental map data is presented along with a discussion. Summaries are offered at the conclusion of the chapter.

Student Demographics

The community garden project had a fluctuating summer enrollment. A typical day consisted of fifteen students evenly mixed between males and females. All students were between the ages of 7-9. Every student was African-American and they all lived at the Villages of East Lake.

Fifteen students took the pre-test and thirteen students took the post test. Of the students participating in the pre-test and post test, only three students took both the pre-test and post test. The nature of the summer camp allowed student enrollment to vary. While fifteen students were consistently participating in the garden, the same students did not come every day. Reasons for the fluctuating enrollment include illness, behavior problems, absenteeism as well as YMCA field trips.
Description of Case Study Themes

The research problem this study sought to address was to assess the impact of a community garden enrichment program on inner-city youth. The constant comparative method (Glaser & Strauss, 1967) was the method employed to generate themes to describe and understand the phenomenon under study. Because the themes evolved concurrently with the progression of the curriculum, a discussion is offered after each theme. The themes are the following:

Theme # 1:

*Community gardens can serve as a catalyst for teaching inner city youth about the environment.*

The first theme was generated prior to the intervention program. This theme was influenced by readings from early philosophers, John Dewey, Jean Piaget and Alexis de Tocqueville, who believed that “learning occurs best when students are actively involved in their own learning and when the learning has a distinct purpose” (Billig, 2000). This theme was also generated as a response to a need to incorporate more people of color into the environmental field, be it as students studying environmental sciences, working for non-governmental agencies or government entities whose mission includes the protection of diversity, natural places and environmental integrity.

Theme # 2:

*A community garden intervention program could serve as a tool to broaden youth’s perception about the environment and provide a natural environment experience for them.*
After starting the community garden intervention program and gaining a better understanding of where the students were (their thoughts about the environment, their interactions with the environment, and their knowledge about the environment), another theme was formulated. This theme stated that a community garden intervention program could serve as a tool to broaden their perception of the environment and provide a natural environment experience for them. This theme was created in part, after learning and understanding better where the students were coming from. As stated previously, all of the students in the program resided in the Villages of East Lake. The community is surrounded by 18-hole public golf course. The perimeter of the community is further insulated by highly trafficked roads with sidewalks surrounding less than one third of the perimeter. Natural areas open to play for the youth in the community are limited to a centrally located large soccer playing field and green curbsides along the roads leading into the various apartment units. Because the participants of the study were youth, none were independently able to leave the community.

Theme # 3:

*Through a community garden intervention program youth broaden and expand their definition of community to include the natural environment.*

The third theme generated was the result of combining several sub-themes formulated at the end of each unit of the environmental education curriculum. These sub-themes included:
Theme # 3a:

The students do not have a holistic definition of community.

A holistic definition of community would include both the living and nonliving parts of one’s environment and would allude to connections and interdependencies among the living and nonliving components of their community.

The theme that students do not have a holistic definition of community was formulated as a result of the first two units of the community garden intervention program which were (i) Organic Gardening and (ii) Ecology and Ecosystems. This part of the curriculum was focused around the word “community” and “relationships”. At one point, the students were asked to describe the community they live in. Typical verbal responses included East Lake (the name of the apartment complex in which the students resided), Hillside, Clubside, Lakeside and Greenside (specific apartment units that the Villages of East Lake apartment complex is divided into). Other definitions of community included (i) places where people live, (ii) neighborhoods, and (iii) where people work together to help each other. When discussing community, students were also asked to talk about caring, respect, responsibility and honesty in terms of their community. These words are part of the YMCA mission statement and were referred to frequently by YMCA staff members throughout the summer camp program. A definition of service learning was also explored because the community garden program was included in the YMCA summer camp’s program as a service learning component. Most students were familiar with this terminology from participating in summer camp the summer before. One student, Dustin, defined service learning as:

“Citizenship, like when you help people out.”
After this initial discussion and time with the students a more developed theme was developed to explain the relationship between the students and the community garden intervention program. The new theme stated that students do not have a holistic definition of community.

The next part of curriculum included a discussion about ecology. Terms discussed included ecology, environment and nonliving and living factors. From there, the students were asked to generate a list of living and nonliving things in their community. The nonliving list included such things as televisions, game boys, cars, buses, apartment homes. The living list included people, sun, bugs, rain and plants. The students were also asked to explore the garden and generate a list of living and nonliving factors in the garden. Because it was early in the season, not many plants were growing. A lot of the students were unable to distinguish between living and nonliving things. For example, rain and the sky were included on the living list.

Theme # 3b:

*The students do not have a holistic definition of relationships.*

When students were asked to describe relationships, the typical verbal responses included (i) familial relationships (among parent – child, grandparent – child, sibling) (ii) relationships among friends and (iii) relationships between girlfriends and boyfriends. When the students were asked about relationships with pets several students suddenly acknowledged this oversight. Again, missing from their definitions of community and relationships were factors related to the natural environment.
Theme # 3c:

In terms of energy, water and soil, a community garden intervention program could help students to relate these concepts to themselves and their environment.

When the curriculum moved to a discussion about energy, several students stated “I used energy to walk to the garden” or “sleeping,” or “jogging.” There was no mention of the energy used to cool their homes, light their homes, cook their food or fuel their cars. When challenged to think about the amount of energy they used to make their breakfast or to cool their apartments, they really began to expand their definitions. The students were asked to think about how they use energy at home and how they might use more than is necessary. Comparisons were made about how much more energy Americans use than people in developing countries. When the students were asked to think about all the energy they use daily and report back how they can use less, typical responses from this exercise were to “leave lights off when leaving the room,” and “turn off television when not using it.” At this point in the discussion, it was necessary to relate their energy use in their homes to the energy in the garden. This was done first by having the students map the flow of energy into their home back to its origination. This allowed the students to see that the sun is the original source of all energy. A map that traced the energy required to cool a home included the: (i) electricity to run the air conditioner; (ii) the power company; (iii) the fossil fuel burned at the power company; (iv) the decaying plant which made the fossil fuel, and finally; (v) the sun that was necessary for the plant to photosynthesize. Energy use was further related to the garden by discussing the fact that plants are producers and human beings are consumers.
During the unit on soil the students were asked what they had eaten for breakfast and where it came from. The point of this discussion was to make the students think what they eat daily and to connect it all the way back to the soil, where it came from. The response was “orange juice and cereal and milk.” This was the main response because the summer camp provided breakfast for the students. When asked where their breakfast came from, they were able to trace it back to the grocery store. No further connections were made. This response led to the next activity in which they were asked to map out the different steps involved in getting the product from its origination to their homes for breakfast (or in this case, the summer camp dining pavilion). This was an extremely illuminating project for the students. At first, when asked to trace orange, they only went as far as the grocery store, but after the exercise and discussion they included the grocery store but went beyond and associated orange juice with orange juice factories, orange trees and Florida soils. This was reinforced further when discussing vegetables that the students ate that we had recently planted in the garden.

Summary of Themes

To summarize, the previously described action research case study served as a setting to generate a working theme to be tested the following summer in a one group pre-test post test comparison study. The concluding theme formulated to be tested the next summer was through a community garden intervention program students can expand their definition of community to include the natural environment.
Mental Map Data

Category construction was the method used to analyze the data from the pre-test post test mental maps and questions. Categories were constructed to determine whether or not a community garden intervention program could expand students’ definition of community to include the natural environment.

The first categories were constructed to analyze the mental map pre and post test answers to the question “What is a community?” The maps were broken down into 5 major categories: (i) buildings; (ii) buildings and people; (iii) buildings and nature; (iv) people and nature, and; (v) buildings with people and nature (table 1). Buildings refer to drawings of apartments and houses. The category buildings and nature refers to drawings which include a building such as a house or apartment as well as some sort of reference to the natural world. References to the natural world included drawings of suns, clouds, rain, birds and plants. From pre-test to post test, the drawings included fewer drawings of just buildings and more drawings of buildings combined with natural elements. The number of drawings including people and buildings did not change at all. There was only one drawing that included a building with people and the natural environment and this was in the post test.
Table 1: Mental Map Data of “What is a community?”

<table>
<thead>
<tr>
<th>Answers</th>
<th>Pre-test</th>
<th>Post test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings only (apartments, houses)</td>
<td>33%</td>
<td>7%</td>
</tr>
<tr>
<td>Buildings and people</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>Buildings and nature</td>
<td>33%</td>
<td>60%</td>
</tr>
<tr>
<td>People and nature</td>
<td>14%</td>
<td>7%</td>
</tr>
<tr>
<td>Buildings with people and nature</td>
<td>0%</td>
<td>7%</td>
</tr>
</tbody>
</table>

The next categories were constructed to analyze the mental map data corresponding to the question “What is a garden?” Four major categories were constructed: (i) plants; (ii) plants and people; (iii) plants with buildings, and; (iv) plants with animals (table 2). In both the pre-test and post test one drawing of plants and people were included. Also, in the pre-test and post test, two drawings of plants with birds were drawn. Only one drawing in the post test included plants and buildings.

Table 2: Mental Map Data of “What is a garden?”

<table>
<thead>
<tr>
<th>Answers</th>
<th>Pre-test</th>
<th>Post test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plants only</td>
<td>83%</td>
<td>75%</td>
</tr>
<tr>
<td>Plants and people</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Plants and buildings (apartments, houses)</td>
<td>0%</td>
<td>6%</td>
</tr>
<tr>
<td>Plants with animals (birds)</td>
<td>11%</td>
<td>13%</td>
</tr>
</tbody>
</table>

The next categories were constructed to analyze the data from the mental map drawings of “What is a community garden?” There were six categories created: (i) plants or garden patch only; (ii) plants and people; (iii) plants and buildings; (iv) plants, people and buildings, (v) plants and roads, and; (vi) no drawing indicating that they did not know what a community garden was (table 3). In the post test the number of drawings including both plants and people increased from 4 to 5. The number of plants drawn along with buildings remained the same.
In the mental map drawings of “What is a community garden,” there were no drawings of plants, people and buildings. This is significant because when asked to draw a map of a community, 13 respondents on both the pre-test and post test included diagrams of a building. Furthermore, when asked to draw a garden, all respondents on both the pre-test and post test included plants in their mental maps.

In addition to drawing mental maps in response to the questions: What is a community, what is a garden and what is a community garden, students were also asked to write out answers to these questions. Categories were also constructed to analyze the responses to these questions. There were 4 categories constructed to sort the responses to the question “What is a community?” They were: (i) where people stay or live; (ii) where people live and help each other; (iii) where people plant fruits and vegetables (table 4).

<table>
<thead>
<tr>
<th>Answers</th>
<th>Pre-test</th>
<th>Post test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plants or garden patch only</td>
<td>35%</td>
<td>20%</td>
</tr>
<tr>
<td>Plants and people</td>
<td>24%</td>
<td>34%</td>
</tr>
<tr>
<td>Plants and building (house, apartment)</td>
<td>17%</td>
<td>20%</td>
</tr>
<tr>
<td>Plants, people and buildings</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Plants and roads</td>
<td>0%</td>
<td>13%</td>
</tr>
<tr>
<td>No drawing</td>
<td>24%</td>
<td>13%</td>
</tr>
</tbody>
</table>

Table 3  Mental Map Data of “What is a community garden?”

<table>
<thead>
<tr>
<th>Answers</th>
<th>Pre-test</th>
<th>Post test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where people live, stay, home</td>
<td>20%</td>
<td>38%</td>
</tr>
<tr>
<td>Like a country</td>
<td>7%</td>
<td>0%</td>
</tr>
<tr>
<td>A city with people</td>
<td>0%</td>
<td>8%</td>
</tr>
<tr>
<td>A place where people plant vegetables and fruit</td>
<td>0%</td>
<td>8%</td>
</tr>
<tr>
<td>Like a neighborhood</td>
<td>0%</td>
<td>8%</td>
</tr>
<tr>
<td>A place that people live tighter in and help out each other</td>
<td>0%</td>
<td>8%</td>
</tr>
<tr>
<td>A whole bunch of people clean up, big clean complex</td>
<td>7%</td>
<td>15%</td>
</tr>
<tr>
<td>I do not know</td>
<td>66%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Table 4  Written answers to “What is a community?”
Table 4 shows that the students responded differently before and after the community garden intervention program to the question “What is a community?” In the pre-test, ten students replied that they did not know what a community was. Only 2 students did not know what a community was in the post test. Answers that described where people lived were the dominant response in both the pre and post test. From the post test, it can be inferred that students expanded their definition of community. The answers in the post test were more descriptive and varied than the pre-test. For example, one student responded that a community “Is a place that people live in and help out each other.” Another student responded that a community is “A place where people plant vegetables and fruit.” This answer illustrates a definition of community that also included the natural environment. The more descriptive and varied answers describing community is consistent with the change seen in the mental map drawings in response to depicting what a community is.

The written responses to “What is a garden” were divided into 5 categories; (i) flowers and vegetables; (ii) insects and birds; (iii) where food grows; (iv) where you plant food + more description, and; (v) people and plants.

<table>
<thead>
<tr>
<th>Answers</th>
<th>Pre-test</th>
<th>Post test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flowers and vegetables only</td>
<td>39%</td>
<td>8%</td>
</tr>
<tr>
<td>Insects and birds and plants</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>Where food grows, where you plant food &amp; flowers</td>
<td>46%</td>
<td>31%</td>
</tr>
<tr>
<td>Where you plant food + more description</td>
<td>0%</td>
<td>23%</td>
</tr>
<tr>
<td>People and plants</td>
<td>0%</td>
<td>23%</td>
</tr>
</tbody>
</table>

Table 5 shows that in the post test, more students included people along with plants in response to the question “What is a garden.” The majority of the responses on
the pre-test listed flowers and vegetables or stated that a garden is where food grows. In the post test, the answers were more descriptive. One student stated in the post test response that a garden is “where you plant fruit and vegetables and dig roots so we can plant whatever we want.” This response illustrates the knowledge gained from working in the garden, not only do you grow plants in a garden, but you must first prepare the garden prior to planting. In another post test response a student included a description that shows some understanding of relationships within the garden, she stated that “A garden is where people eat fruit and a garden is something where bees and butterflies come and eat the stuff in the garden.” A third student responded that a garden “[is where] the sun helps the plants to grow, the scarecrow scares the birds away and the water helps the plants to grow.”

In order to describe the written responses to the question “What is a community garden” the following categories were constructed: (i) garden in a community; (ii) garden with people; (iii) garden with houses; (iv) garden with animals, and; (v) did not know (table 6).

<table>
<thead>
<tr>
<th>Answers</th>
<th>Pre-test</th>
<th>Post test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garden in a community</td>
<td>20%</td>
<td>0%</td>
</tr>
<tr>
<td>Garden with people</td>
<td>0%</td>
<td>31%</td>
</tr>
<tr>
<td>Garden with a house</td>
<td>0%</td>
<td>15%</td>
</tr>
<tr>
<td>Garden with animals</td>
<td>0%</td>
<td>8%</td>
</tr>
<tr>
<td>Garden with flowers</td>
<td>7%</td>
<td>0%</td>
</tr>
<tr>
<td>Garden and a city</td>
<td>0%</td>
<td>23%</td>
</tr>
<tr>
<td>Did not know the answer</td>
<td>73%</td>
<td>23%</td>
</tr>
</tbody>
</table>
Table 6 shows that there were eleven students that did not know how to describe a community garden at the start of the program and only three unable to explain a community garden at the end of the program. The majority of the responses from the pre-test that did describe a community garden included references to a garden being in a community. These answers did not go further and describe what a garden was or what a community was. In the post test, four responses included references to people in their answers. These included, “A community garden is a place that people help each other grow stuff together like apples and peaches,” and a community garden is “When whole bunch of people grow a garden.” These responses indicate that the definitions of community garden include people and garden. One post test response included animals in their description of a community garden. “Plants, worms, butterflies and birds” were listed in response to the question. Although this question includes another variable (nature) in the answer, it does not include any references to a human community.

**Limitations of Mental Map Data**

The data gathered did not adequately address the research question proposed and are presented here to illustrate some of the limitations of the study. Reasons for the limited outcomes from the data include irregular program attendance by youth and incomplete tracking of youth who did participate in the program. Both of these issues limited the results of the pre-test and post test. Only three students took both the pre-test and the post test. Furthermore, the pre-test and post test design do not fully address the question of how a community garden combined with an environmental education curriculum impacts inner-city youths’ perception of the environment. Additional tests
and measures should be incorporated to more accurately understand the results of the study. These issues as well difficulties that arose in relation to implementing the community gardening environmental education program will be more fully discussed in chapter 5.
CHAPTER 5

FINDINGS AND LIMITATIONS OF STUDY

We are all dependent on the Earth’s natural resources for our survival. Yet we do not all manage these finite resources as though our lives depended on it. Mismanagement of the Earth’s resources results in global environmental health problems. Unfortunately, environmental injustices occur; some populations are subjected to greater amounts of these environmental hazards than others. Inner-city minority youth are such a population. Environmental education that is made available to all people – regardless of age, race, educational background or socio-economic status – is a tool that can work to correct these environmental inequities. Furthermore, a community garden is an advantageous means by which environmental education can serve communities of inner-city minority youth because they provide inner-city youth with an opportunity to experience nature in their neighborhoods at no cost as well as several other pedagogical advantages.

In this study a community garden combined with an environmental education curriculum was offered as an approach to educating inner-city minority youth about the environment. The purpose of the study was to explore how a community garden combined with an environmental education curriculum impacts inner-city youths’ perception of the environment. To address this research question an environmental education curriculum was created to correspond with a community garden program. One
instructor and approximately fifteen inner-city minority students explored basic ecological concepts and participated in garden activities. The impact of the students’ perception of the environment was measured using qualitative research methods.

Presented in the previous chapter were data that was gathered from working with a group of inner-city minority youth in the context of a community garden environmental education summer camp program. The data that was gathered do not paint a complete or correct picture of the results and findings of the study. The reason for this is multifold. This chapter presents the findings of the study, discusses the limited outcomes of the research question and offers recommendations for further studies. The chapter closes on a personal note.

**Findings**

**Ecological Perspective and Environmental Justice Perspective**

One contribution made through this study was that I approached it from an ecological perspective. A holistic approach was initially conceived to address the lack of diversity in the environmental workforce. I examined various systems that contributed to this problem – namely environmental racism and educational barriers. At the same time, I examined approaches that could work to correct this imbalance at a systemic level – the environmental justice movement, community gardening and environmental education.

By educating the youth in the community about the environment and their interrelationships and interdependencies with the Earth through a community garden, I worked towards a holistic solution to this problem. By facilitating learning about the environment and providing opportunities for inner-city youth to connect with nature, the
community garden environmental education program served as a tool to empower youth and perhaps foster the creation of an environmental ethic.

At the same time, this study also addressed an environmental justice issue by alleviating a distributional problem. This was done by providing immediate access to an unimpeded source of nature, the community garden. Community gardens in particular offer the inner-city minority youth with unique opportunities that more traditional approaches to environmental education do not afford. Namely, community gardens are located within the community of the learner. For my study, this was definitely the situation. The accessibility of the garden was necessary because of the population I was working with. To some, this may seem of little importance, however to a youth residing in the inner-city whose attainable environment is surrounded by very busy streets and an inaccessible golf course, a community garden provides a welcome and unimpeded source of nature. Also, there were no fees associated with the community garden. To youth coming from a home on a very fixed and marginal income, fees provide barriers that can be the determining factor of whether or not they are able to participate.

**Challenges of Implementing a Community Garden Environmental Education Endeavor**

Another finding from my research is that implementing a community garden environmental education endeavor is a challenging task. Challenges that arose included: (i) working in a community that was different than my own; (ii) implementing environmental education endeavors to inner-city minority youth for the first time, (iii) a perceived lack of institutional commitment from the YMCA, and; (iv) implementing a community garden program for the first time.
Working in a Different Community

First, I was attempting to implement a program into a community that was not mine. Not only was the community new to me, I was also attempting to implement a program into a community in which there were significant differences in race, education and socio-economic backgrounds. As a college educated, upper-middle class Caucasian, I was attempting to implement a program into a community that was made up of African American residents whose socio-economic and educational backgrounds were different from mine. Before creating the curriculum and beginning the program, I became directly involved with the population of students I would be working with. This was done in a couple of ways. First, I started attending and volunteering with two after-school programs in the community. One volunteer program was tutoring at the local YMCA where I helped students with their homework. A second volunteer program was a recreational program administered by young adults in the community. Both of these experiences provided me with an opportunity to learn about the community I would be working with. As a white, graduate student from a middle-class socio-economic background planning an environmental education curriculum and community garden program for black youth from a federally subsidized apartment complex, this was a very important and necessary step. Additionally, I also met frequently with leaders in the community including the Program Manager of the local YMCA, the Program Director of the East Lake Community Foundation (a nonprofit organization working within the community to help revitalize the neighborhood), and Chaplains of the Villages of East Lake Apartment Complex as well as some of the residents in the community.
A final way I learned about the community I would be working with was by moving into the community. This further illuminated my understanding of this new community and allowed me to appreciate significant cultural differences that I would have more than likely overlooked had I not been so closely involved with whom I was working. By getting to know the community, I was able to communicate ecological concepts in terms that related to their everyday experiences. For example, prior to getting to know my community, I had planned to really stress the importance of organic gardening as well as the importance of making smart consumer decisions in regards to foods. However, after working within the community, I realized that organic foods were not something of primary concern, nor were they necessarily available to them because of budget constraints. It would have been insensitive to stress something that was unavailable to them because of economic barriers.

Although these were honest attempts to learn about and become part of the community I would be working with, it is not the same as coming from the community. There was a certain amount of distrust that perhaps resulted from this. For example, on a couple occasions students told me that their parents thought that I had them “working in my garden”. When this situation arose, I explained again, as I had from the outset of the program, that the garden was a community garden and was for everyone’s enjoyment.

Implementing an Educational Endeavor for the First Time

Another difficulty that existed was those associated with implementing an educational endeavor for youth for the first time. Although I had experience as an educator before, my experience came from teaching science labs to college students.
Teaching youth requires an entirely different set of skills and abilities to ensure success. One requirement is the ability to motivate youth. Motivation is of utmost importance. By motivating the youth and maintaining their interest, you alleviate distractions that occur which have the potential to escalate into a discipline problem and could ultimately take away from the learning opportunities for the entire group of students. Another important skill is the ability to teach youth. The same formula one might use to educate college students does not necessarily work when educating youth. Unlike college students, youth do not stay seated when you ask them to and do not remain focused for extended amounts of time. For youth, it is best to have several short activities planned rather than one extended activity planned for the entire hour. Although I had this notion in mind when designing the daily activities, I still had to modify my plans to create more short activities to accommodate the learning styles of the youth.

**Perceived Lack of Institutional Support from YMCA**

A third difficulty with implementing the program arose from a perceived lack of institutional support from the YMCA. This was perceived in two ways, first by a lack of support from the YMCA staff assigned as counselors for the youth and by a lack of responsiveness by the YMCA administration for the program.

As the sole educator and adult implementing the program, I was not properly prepared to handle the discipline issues that arose in the garden. Although the students were chaperoned by a YMCA staff person, I was left to handle all of the discipline problems that arose. While the average class size was approximately fifteen, it was often difficult for one person to serve as a researcher, educator, disciplinarian and safeguard (to
ensure no one got hurt). Part of this was because the YMCA staff person was disinterested in the community gardening program and at times would spend their time talking on their cellular phones. When I discussed this situation with the leadership of the summer camp program, no visible changes were made. There was a discernible difference in the involvement of the youth which came to the garden with YMCA staff people that were interested in the program from those that were talking on their cell phones. The youth whose counselor was interested were much more involved and eager to participate in the gardening activities with few to any discipline problems.

Furthermore, there was also a perceived disinterest from the YMCA administration. This resulted from the fact that no one from the YMCA administration visited the garden. The garden was located down a hill from the center of the summer camp activities and was therefore out of sight. This is stated as perceived disinterest because as the implementer I recognize that I was very passionate about this project and had put all of my energy into making it a success. In defense of the YMCA, it was their first summer at a new facility within the community and was also a much larger operation than their former site.

At the same time, community gardens have inherent value and require institutional support to succeed fully. Unlike traditional approaches to education, garden activities provided a means by which to move the students’ education beyond the walls of a traditional classroom. The student is able to physically reconnect with the Earth. Furthermore, community gardens offer pedagogical advantages that are unavailable in a traditional classroom. The hands-on involvement of gardening, the ability to interact directly with natural communities through caring and nurturing plants as well as just
being outside to enjoy the fresh air are some of the advantages as compared to traditional classrooms. Moreover, the student is able to test their preconceptions and misconceptions against real experience. Despite these resources community gardens offer the learner, they cannot be sustained unless there is an institutional commitment.

**Implementing a Community Garden Project for the First Time**

Finally, challenges existed because I was implementing a community gardening project for the first time. Despite the planning and coordinating efforts on my part to develop a solid community garden experience some things unintentionally overlooked. For example, there was no shaded area in the garden for the youth to spend time. It would have been beneficial and appreciated by all if some sort of shaded area was provided for part of the gardening experience. Some of the students refused to participate in the activities because they said it was too hot. Also, drinking water was not available to the students during their time at the garden. Although the students spent only an hour at a time in the garden and their time was split between a learning activity which involved little to no physical exertion and a gardening activity in which they spent the remained of the hour, drinking water would have helped alleviate a lot of complaints and would have gone a long way to build moral. I did inquire with the YMCA staff about a water cooler for the garden and although they said they would furnish one, they never did.

**Discussion of Limitations**

The data that were gathered yielded limited results in part because of irregular and unpredictable attendance issues. Because this program was offered during the summer in
an informal camp setting, students were not obliged to return on a regular basis. There was no discernable pattern in regards to which students came on a regular pattern as opposed to those that came irregularly. Many variables came into play with respect to attendance: illness, discipline problems and the parent’s decision to keep their child at home are some of the factors involved. Furthermore, the summer camp was structured so that students could enroll on a weekly basis. For example, some students would only enroll for the first part of the summer and not return for the last weeks of camp. Lack of regular attendance played a part in the pre-test and post test qualitative measures that were administered. Only three of the students took both the pre-test and post test.

This problem was further exacerbated by a limited tracking of students. In future studies it would be beneficial and essential to develop a system for tracking the students’ attendance while also noting their attitudes toward the program. Because of the irregular patterns of attendance and lack of tracking of students, it is hard to infer any conclusions from the data. At best, the data only hint at an explanation for the phenomenon under study.

In terms of construct validity, additional sources of data could help to explain the phenomenon under study. A source that could really help to explain in more detail and with more validity is reflection writing. Reflection is a type of writing or discussion “that promotes the desire to change values and beliefs through internalization of knowledge and the development of skills through generalizing specific experiential events into generic patterns of problem solving” (Cogswell, 2001 from Sparks-Langer, Mohlman, & Colton, 1991).
At the start of the study, it was planned that the students would participate in regular reflection assignments. However, because of lack of YMCA staff support, regular discipline problems, irregular attendance as well as a lack of accountability in regards to the students, the reflection component of the environmental curriculum was dropped.

Additionally, future studies should rely on mental map pre-test and post tests after each individual unit of study. Rather than asking the questions of what is a community, what is a garden and what is a community garden at the start and finish of the intervention program, it would be beneficial for the participants to create maps tracing the interrelationships and interdependencies of each ecological concept being studied before and after each lesson. For example, in the energy unit, the students were asked to generate a map tracing the flow of energy from the sun to their home and back again. This exercise could be used as a pre-test and post test for the energy unit. These additional data sources would allow the researcher to develop a more thorough chain of evidence which in turn would allow for a higher degree of internal validity. More sources of data would lead to more thorough explanations of the causal links involved in the expansion of the students’ definition of community. Furthermore, when compared against a reflection writing related to the same topic, the researcher could better understand the causal links and determine how in fact the students’ understanding of energy changed.

In terms of external validity, multiple case studies could help to determine whether the study’s findings are generalizable beyond the immediate case and could offer
the researcher the means by which to generate a theory in regards to how community
gardens expand inner-city youths’ definition of community.

**Recommendations for Future Studies**

Because this project worked within the framework of a summer camp program the
focus was not on developing it to conform to the logistics of public school curricula.
There are however many school garden programs offered to learners in the US and this
study could perhaps have benefited from the structure a school could offer. For instance,
as mentioned before, accountability of students was a large factor in part of the data
collection for this study. A classroom setting in this instance is preferable because the
students are held accountable to state mandates to attend school. Also, a school garden
would offer the educator an opportunity to incorporate the garden into multiple subject
areas, which would be a step toward achieving Hudson’s second imperative: to integrate
environmental education into the public school curricula. It should be noted that schools
could also present some barriers. First, the ideal growing season for many gardens is
early spring and summer, a time when students are typically on summer vacation.
Logistical concerns such as fitting a garden activity within the constraints of the tightly
budgeted school day, gaining acceptance from the school administration, finding a space
that is available for use and even dealing with dirty shoes and clothes after a garden
experience are some of the challenges that would need to be addressed prior to
implementing the program in a school setting.

A further approach that could be incorporated would be the inclusion of lessons
tailored to introduce educational paths and environmental career options students could
consider. This was not offered in this study because of the age of the participants and their level of understanding about ecology. The students were between the ages of 7 and 9 and were therefore still in elementary school. Incorporating educational paths and environmental career options in the natural sciences is an easy modification to make. For example, fieldtrips to local nature centers could illustrate the role of the educator, furthermore, state and local governmental agencies are usually willing to give a tour of their office and explain their job as well as the educational requirements.

This study did not focus on the development of an environmental ethic; however it is recommended that in future studies measures be created to assess this phenomenon. This study was guided by the theme that community gardens combined with an environmental education curriculum can expand inner-city youths’ definition of community. A natural next step would be to conduct the study to with the following theme in mind: A community garden intervention program could expand youth’s definition of community to include the natural environment and also to develop a sense of responsibility and stewardship for their environment. Again, reflections could serve as a tool to ascertain whether in fact students were developing an ethic which included caring for the natural environment.

**Personal Note**

Environmental education should include everyone. However, racial oppression and inequality has a long history in this country. There is under representation of minorities in many fields of our society, also and especially within the environmental movement. This project set out to make a contribution to correct this disparity and work
toward fair representation at the environmental decision making table. A student-teacher situation is per se imbalanced. When this imbalance is compounded by racial differences, in my case, by my being a white graduate student working with a group of black youth from the inner-city it becomes increasingly delicate because of the conflicted history of the relationships between blacks and whites in this country. I was aware of these inherent problems. Ultimately, I was driven by the ideal that without diversity at the environmental decision making table, a true diversity of ecosystems could not be managed and protected.
REFERENCES


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