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“But Our Hands Are Tied”: Assessing School Gardening Efforts at Title I Elementary Schools in Pinellas County, Florida

by

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A thesis submitted in partial fulfillment of the requirements for the degree of Master of Arts
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Abstract

This research was designed to understand current school gardening efforts in Pinellas County, Florida. School gardens have become an important aspect of experiential learning and nutrition education in schools throughout the United States. Many not-for-profit organizations have attempted to increase the prevalence and efficacy of school garden programs as a means of providing educational opportunities and working to curb diet-related health issues in children. Most of these organizations are seen as apolitical in nature, because they access mainly private sector funding sources and volunteer support. This provides flexibility for these social projects, but also takes pressure off of the state to support school food and nutrition education efforts and reinforces neoliberal ideas about food systems. Paradoxically, strict public school standards and measures of success as a result of neoliberal education reform often prevent teachers and school administrators from utilizing these school gardens fully, and from using them as a sufficient means to fully discuss nutrition, healthy eating, and local food (instead focusing on other topics that fit more closely with state-regulated education standards). This research analyzed one such organization in Florida that installs gardens in “failing” Title I schools. Ethnographic research was conducted with these two organizations in an attempt to uncover some of the infrastructural challenges faced and uses a comparative approach to offer critical insights, suggestions for improvements, and best practices for navigating these challenges as determined by teachers, school administrators, and organization staff and volunteers.
Chapter One: Introduction

Growing concerns in the U.S. regarding our nation’s food system include concerns about sustainability and where our food is coming from, where it will come from in the future, and how our food system is tied to eating, nutrition and health outcomes. These issues have come to the forefront of this discussion in the media, in academia across a variety of disciplines, and in our homes as families decide what to feed themselves and their children. Scholars and practitioners seek to understand and shape how children learn about food and sustainability, how they develop relationships with the environment and where their food comes from, and how to reduce and prevent the childhood obesity epidemic that affects 18% of children aged 6-11 and 21% of adolescents aged 12-19 nationwide (Ogden et al. 2014), while also addressing the paradox that 15.3 million children were food insecure for at least part of the year in 2014.

So, then, how can schools, practitioners, and community organizations help children learn about sustainability and food systems, while improving health outcomes and educating a future generation of consumers how be conscious eaters\(^1\)? Programs have been implemented in recent years to combat food insecurity, obesity and poor nutrition, and one of the main foci for change among policymakers is nutrition for children in schools, due to the fact that children consume a large portion of their daily food intake at school. Further, school serves as the primary venue for learning about nutrition and modeling positive nutrition-related behaviors (Crooks

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\(^1\) Moore, Wilson, Kelly-Richards and Marston (2015) argue that “alternative futures can be fostered in the midst of school gardens, providing leverage for different ways of being and doing...[gardens] can affect new ethics and enable noncapitalist logics to take hold” (413), thus creating a generation of eaters and consumers who are not only knowledgeable about where their food comes from, but how the food choices they make are intertwined politically, socially, and ecologically.
Additionally, the National School Lunch Program (NSLP) is the second largest federal food assistance program, providing free or reduced-price lunches to more than 30 million children every day in 2014 (U.S. Department of Agriculture [USDA] 2015). Even the USDA itself has been “encouraging school districts to use locally-produced foods in school means and to use ‘farm-to-school’ activities to spark students’ interest in trying new foods. More than a third - 36 percent - of U.S. school districts reported serving local foods in the 2011-2012 or 2012-2013 school years” (USDA 2015).

As a means to improve school-based efforts in nutrition education (and many other areas, such as environmental education and improvement in science education efforts), school gardens have been implemented in schools across the U.S. with varied goals. An estimated 60% of schools in California have school gardens, and structures are in place in Florida, Louisiana, South Carolina, Vermont, New York, Massachusetts, Texas and Colorado that actively support school gardening in public schools (Blair 2009). Estimates in 2013 place the percentage of public schools with gardens across the U.S. at 26.6% of all schools (Turner and Chaloupka 2012). A 2010 survey of district food service directors throughout the state of Florida indicated that about 67% of districts surveyed (24 out of 36) had some sort of school garden program in their district, a statistic that the authors believe is representative of the state of Florida as a whole (Martin 2010). In the Tampa Bay area\(^2\) alone, there are dozens of schools with gardens in place, and the movement is growing throughout the country.

School gardens can be a valuable component in successful school nutrition education efforts as a means of obesity prevention and nutrition intervention in children, especially within

\(^2\) Consisting of Hernando, Hillsborough, Pasco, Pinellas, Manatee, Sarasota and Polk Counties with an estimated population of about 4.4 million people. For our purposes, this work is focused primarily on efforts in Pinellas County, with comparisons to those in Hillsborough County.
the context of under-resourced schools, where children are already at an academic and economic
disadvantage, and who are often food insecure (Moore et al. 2015). Children learn about fruits
and vegetables and are more likely to eat them (Blair 2009, Ratcliffe et al. 2011), and gardens
can provide a key point of access to teach children about healthy eating and nutrition and have
open conversations about health and the consequences of poor diet. Foods grown in school
gardens can also be used to make changes to the school food environment by providing fresh
fruits and vegetables for snacks and meals (Blair 2009). Children also can learn about local food
systems, become engaged in learning about where their food comes from and come to care more
about sustainability and the environment (Pudup 2008, Ralston 2011, Craven et al. 2011, Moore
et al. 2015). Thus, school gardens have gained the attention of researchers and practitioners in
many fields. Up until recently, the focus on research with school gardens has been evaluative in
nature, with most of the scholarship centering on identifying the assets and benefits of school
gardening programs. However, in the last few years, social scientists have begun to look
critically at the role school gardens are playing in food systems education within the context of
neoliberal education reform in public schools.

**Anthropological Contributions and Theoretical Framework**

*The role of anthropology.* There are scholars and practitioners in biology, nutrition
sciences, medicine and public health, and many community health coalitions working toward
childhood obesity prevention and food systems education with school health officials,
administrators, non-profit organizations, and communities (McAleese and Rankin 2007, French
and Wechsler 2004). Yet, in the U.S. programs and policies vary significantly in their efficacy,
and research that evaluates program efficacy in terms of student perceptions of health and
socioecological agency\(^3\) could improve the success of school food regulation, and nutrition education programming in schools around the world remain quite noticeable. Applied anthropologists, specifically, are working with researchers and professionals to address childhood obesity and malnutrition through school based policy and school garden program interventions both in the U.S. and abroad (Sands et al. 2009). However, this appears to be largely out of the public eye. Researchers and practitioners with anthropological training are seemingly absent from writing, publishing, or discussing the theoretical implications of their work.

While there are some researchers and professionals attempting to use qualitative methods, in addition to more traditional quantitative studies of the impacts of school gardening programs, even employing ethnographic methods to develop or evaluate specific school gardening programs and policies in schools (Thorp and Townsend 2001, Moore et al. 2015), one of anthropology’s most valuable contributions is missing. Anthropological perspectives and frameworks could not only be applied to building a better nutrition education program in one (or even ten) schools, but also in understanding and developing a broad understanding of how children experience obesity and food insecurity and how school garden programs may or may not mitigate some of the key contributing factors and challenges. Further, anthropologists are among the few scholars uniquely positioned to link different levels of analysis (political, economic, ecological, educational, cultural, local/community, family, biological) (Himmelgreen 2002). In doing so, not only can they improve school garden programming or policies at individual schools, but they can also build upon existing theories to inform programming and

\(^3\) Defined by Manuel-Navarette and Bezundi (2009) as a “characteriz[ing] humans as ecological actors, social actors, and individuals at the same time…Human agency is conceptualized within this framework as the ways in which different social actors manage and interpret their surrounding environment” (1-3)
policy change to address childhood obesity, nutrition and food security on a national (and international) scale.

My own contributions to this growing and complex field of study take the form of research I conducted from November 2014-November 2015. Ethnographic fieldwork and mixed-method survey design were used to gain information and understanding of the challenges and experiences faced by the various stakeholders involved in developing school garden programs at Title I schools in Pinellas County, Florida. Additionally, secondary analysis of similar data was used to draw conclusions about the generalizability of this work and how it can be used to develop stronger school garden programs.

Theoretical framework. This research was informed by two key theoretical perspectives. First, political ecology contributes to our overall understanding of how humans interact with and respond to their environment (including the food system) and the ways differential access to resources and power affect those interactions. Second, critical pedagogical theory provides a basis for understanding how humans (specifically, children) learn about the environment and their food system. Political ecology is based on political economy in that it emphasizes the role that power, political structures, and economic systems play in nearly every aspect of human life. (Robbins 2012). However, political ecology uses a broader scope that further emphasizes human-environment relationships. This framework is aptly suited to evaluate the critique that strategies used by alternative food systems actually reinforce neoliberal ideas about consumers and producers (Tyler 2014). This provides a lens through which to view food systems education as it incorporates not only policies and political structures with economics, but also examines how agriculture and the environment itself affect our perceptions of food production and consumption. Critical medical and biological approaches in anthropology have also come to
value ecological perspectives (Baer 1996), as an increased emphasis on diversity and social life has led political ecologists to pay attention to communities, no longer viewing them as stagnant, immovable units. As Fabinyi, Evans, and Foale (2014) state, the focus has shifted “to emphasize hierarchies, conflicts, and tensions within communities…[and] how different actors and interest groups within these communities interact with both their social and physical environment” (5).

Additionally, critical pedagogical theory provided a basis for understanding the nuances in food systems education efforts in conjunction with neoliberal education reform policies. Taking a critical eye to the way school gardens are used and experienced, not only by children but by the administrators and educators that support and run them, we can deepen our understanding of these programs, their challenges and their efficacy. Contextualizing school gardens within structures of income inequality and legacies of segregation in schools is critically important to understanding the potential effects of school gardens in a more intersectional way (Hoodfar 1992). While much of the literature surrounding school gardens focuses on lauding its perceived benefits, “Evaluating these claims through ethnographic research…would allow for a more nuanced understanding of the pedagogical value of school gardens and their impacts on children’s environmental perceptions, knowledge and skills” (Zarger 2008, 8). Thus, pedagogical frameworks are crucially important in filling in the gaps in school garden research, as well.

**Research Questions and Study Site**

*Research questions.* In sum, these frameworks provide methodological guidance, as well as situate this case study within a larger body of scholarship. Specifically, political ecology and critical pedagogy help us to investigate the various economic and socioecological factors at play in designing and implementing school garden programs, while contextualizing them within the

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4 See Chapter 2 for a detailed discussion on the history of these policies in context
contemporary public school system. Can school gardens serve as a productive way to provide alternative food systems education programming while also helping schools meet their goals? Do the way these programs are designed and implemented have an effect on their ability to do so? Thus, I aimed to meet the following research objectives:

- Evaluate the infrastructure, pedagogical approaches, and intended learning outcomes of a current school gardening program in Pinellas County, FL.
- Document multiple perspectives from different stakeholders involved with the program (coordinators, staff, volunteers, teachers)
- Make recommendations for the improvement of such programs that allow these programs to meet the needs of public Title I schools facing standardized testing pressures while also serving as a counterpoint to neoliberal school policies and allowing students to become conscious eaters
- Contribute distinctively to an anthropological assessment of food systems education in school gardening programs
- Carry out research to begin to build an anthropology of food systems education
- Identify potential points of resistance for school gardens to serve as a counternarrative to neoliberalized education policies

Absent from the literature is a deeper understanding of how teachers are actually interacting with these programs, how and why they are getting their students involved, and what is appealing and/or difficult about school administrators and teachers encouraging integrating the school gardens into their classes as a requirement during the school day, while situated in a high-pressure, standards-based public school environment. Most of the school gardening research to this point has focused primarily on observing and describing current programs – specifically, the
benefits children experience when participating in school gardens (Blair 2009, Robinson-O'Brien, Story, and Heim 2009, Morris and Zidenberg-Cherr 2002, Thorp 2005). However, the last few years have seen a critical turn in attempts to situate these programs within the confines of the public education system (Moore et al. 2015, Allen and Guthman 2006, Hayes-Conroy 2010, McClintock 2014). This shift in focus gives way to two main focal areas of study: infrastructural and curricular. First, how are school gardens implemented within this neoliberal education structure, and how does this influence the ability for these programs to be successful and achieve their intended outcomes, while also fulfilling the needs of the school? Second, how do the curricula used in these gardens support or further standards-based education? Or, could they be used as a form of resistance, a way for students to learn about food systems and become conscious eaters in a public school system that otherwise provides little space for the formation of such knowledge and experiential learning? Based on this and other relevant literature (described in more detail in Chapter 2), and the defined research objectives, this project was guided by the following research questions:

Infrastructural: What are current variations in organizational structures of school gardens at the study site(s) and how do those structures impact the management of the gardens? What challenges do these gardens face in operating within the confines of the public school system?

1. How are the school gardens built, developed, and maintained? How are they used (after school, curriculum, etc.)?

2. How is programming tailored differently at different schools? Do schools utilize them differently? Are they designed or programmed with different school communities in mind? Do the school-specific stakeholders play a role in the development of each of these gardens?
3. What structures are in place from the USDA or other federal/state agencies in helping to support school gardens? Are these organizations utilizing these resources? Why or why not? Are there other organizations that support these programs? How do these organizations fundraise?

4. What kinds of community stakeholders are considered when constructing and maintaining the school gardens?

Program-based/curricular: In each of the study sites, how does program content linked to food systems and sustainability education relate to the intended outcomes of participation for schools? How do the programs use the curricula to achieve their own goals?

1. What are the intended outcomes for the organization—health-related, academic, both? What do they do to achieve these goals?

2. What are the goals and desires of teachers who sign their classes up to participate in these gardens?

3. What are commonly cited reasons that teachers are unable or unwilling to participate?

4. How much and what types of information about healthy eating and nutrition are part of garden programming or practices?

Research sites. This research was conducted with a nonprofit 501 (c) (3) organization in Pinellas County, Florida, called the Edible Peace Patch Project (EPP, hereafter). EPP was founded in 2009 with an explicit goal to “eliminate poverty as a factor in education success and diet-related health issues.” They have expressed long-term goals of developing a farm-to-school program and constructing an urban farm in south St. Petersburg, Florida. EPP is usually staffed by an Executive Director (full-time)\(^5\), a part-time school program coordinator, and a part-time

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\(^5\) EPP’s most recent Executive Director stepped down in June 2015 and has yet to be replaced at the time of writing.
garden manager. They also rely on volunteers and interns from local colleges and universities, as well as other community members. They are overseen by a board of directors, mostly made up of local community leaders and philanthropists. In the time I was working with them, their staff and organizational system shifted somewhat, but followed this basic structure.

Key to the success of EPP to date was a dynamic staff that enlisted the help of community members, interns from local colleges, universities and law schools, high school student volunteers, and had a well-connected Board of Directors. The most recent Executive Director was a prominent member of the community and worked to bring national attention to EPP’s work using her connections from her long career in journalism. These connections gave EPP access to powerful funding sources; gardens have been supported by The Tampa Bay Rays (a professional MLB team), Duke Energy, and other large private foundations.

EPP has fundraised for, constructed, maintained, and programmed for seven school gardens in Title I elementary schools in the county (one of which has since become an International Baccalaureate school and is no longer recognized as a Title I school). They have also provided expertise, support, and advice on gardens at other elementary, middle and high schools and a community garden.

The four schools selected (see Figures 1.1-1.3) were all schools where at least 67% (and as high as 78%) of students are eligible for free or reduced lunch based on the National School Lunch Program standards, which are themselves based on family income and the poverty line. Additionally, 88-92% of the students at each school are students of color, and all of the schools received failing grades for the 2013-2014 school year based on Florida education standards.

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6 They have built eight gardens in Title I elementary schools, but currently have about five schools with active programming at any given time. They have also provided guidance for a small number of school gardens at middle and high schools.
Because of their “failing” status, new, stricter regulations have been imposed on the daily schedules of students, teachers and administrators, with modules for classroom instruction that are scheduled down to the minute.

Figure 1.1: A photo of a school garden currently maintained by EPP.
Figure 1.2: Another photo of a school garden currently maintained by EPP

Figure 1.3: A map created using Google Maps software showing the locations of each of the four study sites in relation to the city of St. Petersburg. Each school is marked with a star.
Conclusions

The proceeding chapters will discuss the current debate and scholarship surrounding school gardens as spaces for learning about health and sustainability and improving nutrition. Chapter 2 provides a review of the relevant literature and situates this research within the sociopolitical context of the public school system. This chapter also provides insight into scholarship that details the successes and failures of school gardening programs from a variety of disciplinary perspectives, and highlights the best theoretical methods within anthropology for evaluating and understanding these programs. Chapter 3 describes the methods of data collection and analysis used for the case study described in this thesis, and Chapter 4 outlines key findings and themes that emerged from this research. Finally, Chapter 5 will tie these findings back into the relevant literature discussed in Chapter 2, and contextualize these findings within the paradox of neoliberal education reform and efforts for alternative food systems education. I will also draw conclusions, suggest directions for future research and make recommendations for the improvement and expansion of school garden programs.
Chapter Two: Background, Relevant Literature and Theoretical Framework

Background: Neoliberal Education Reform in the United States

In order to contextualize the challenges facing many of the study site schools and how generalizable these results are, it is useful to understand the history of neoliberal education reform in the United States and the impact it has had throughout the nation, and in Florida specifically. Hursh and Martina (2003) trace this history from the 1970s, when neoliberal policies started to take the place of “Keynesian economic policies [which] focused on providing a stable and growing economy through government intervention in the economic cycle and support of social services such as education, health and welfare” (33). The new neoliberal agenda of the 1970s focused, instead, on reducing taxation (and therefore making cuts to federal social service programs, putting the responsibility of social spending on states). These policies became stronger and more pervasive under the Bush administration at the beginning of the 21st century.

Crucial to the success and longevity of neoliberal reform is the ideological shift that accompanied political and economic changes. An emphasis on individuals and personal responsibility (particularly that takes the place of societal and social programs) has been touted by politicians and leaders throughout the U.S. over the past several decades, and thus has become a widespread ideology (Moore et al. 2015, Hursh and Martina 2003). The ideas of social mobility and a meritocracy based on individual hard work and competition have become the primary

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7 Neoliberal policies are defined in this context as those that aim to reduce social spending and taxation, encourage a free market, and prize economic productivity. This is accompanied by an ideological emphasis on individualism and personal responsibility (Hursh and Martina 2003).
drivers of American life. This has created a culture of economic competition that drives the market, as well as how we view social programs and policies.

This economic and ideological shift has, of course, been imposed upon the school system. “Schools are decreasingly concerned with developing thoughtful informed citizens and more concerned with raising test scores and preparing economically productive employees” (Hursh and Martina 2003, 31), as a result of economic competition and the development of educational markets. This was further solidified by the 2001 No Child Left Behind Act, which requires that all schools achieve the exact same standards, as enforced by standardized tests given to their students, and report their “adequate yearly progress” publicly. Schools are graded based on these test scores and determined to be either “passing” or “failing”. This model is supposed to bring all students to the same level, regardless of socioeconomic status, race, ethnicity, etc., and is supposed to create a more efficient system by touting an objective evaluation system for all schools. However, for many students, especially students of color, students who speak English as a second language, or students who live in poverty, this system has proven to do very little to promote equitable education practices (Hursh and Martina 2003). Schools that “fail” lose substantial funding, but are tasked with finding their own ways to achieve this standards, with little state or federal support.

Howes, Graham and Friedman (2009) equate this neoliberal approach in education (especially as it relates to school gardens) to the concept of “McDonaldization,” a sociological concept that emphasizes “rationality, efficiency, predictability, calculability, and control” (127). Building on neoliberal ideologies, these words have come to characterize the U.S.’ approach to education. School gardens have a long history in the U.S. school system dating back to the
1800s, but gained a renewed popularity at the end of the 20th century. The authors argue this could be in response to neoliberal education reform:

Because children have the power to decide collectively what to plant and where, their sense of pride and ownership in the garden will be strong, ultimately impacting their attitudes toward school as well as their self-image. Gardening pedagogy is a philosophy for engaging students in activities that have a direct impact on themselves, their communities, and the natural world. Overall, a pedagogy of gardening bears more resemblance to de-McDonaldization than it does to McDonaldization. First of all, gardening generally requires learning outdoors rather than in the more predictable indoor disciplinary space of the classroom where territories are clearly marked and a wall clock determines the day’s schedule (135).

In this way, gardens can be viewed as a way to provide students and teachers ways to be innovative and creative. However, in many places, “understandably, teachers and administrators in the most McDonaldized schools do not have the opportunity to contemplate school gardening as a viable educational practice: They are too strapped for time and resources to stray far from textbooks and test preparation” (Howes et al. 2009). This results in schools, especially in Florida, that are discouraged from having or utilizing school gardens in innovative ways that resist neoliberal education policies. Therefore, in schools that do have gardens, neoliberal ideas of efficiency and control are often reinforced, rather than mitigated.

Neoliberal Education Policies: Talking about Food and the Environment in the Classroom

In a recently published study by Moore, Wilson, Kelly-Richards and Marston (2015), the authors assert that “for some children in ‘struggling schools’, school gardens become spaces where the alienating aspects of neoliberal school reform in the United States can be overcome by forging connections with classmates, university students, plants and animals” (407), but by the same token they “have also been critiqued for reproducing neoliberal subjects who look to self-help and social entrepreneurialism to solve problems of access to food” (407). Questions regarding the role of school gardens in educating a new generation of consumers are complicated
by these neoliberal policies that reinforce student independence and strict education standards.

Allen and Guthman (2006) discuss how neoliberal school policies influence and shape nutrition and sustainability-related programming in schools, but also (and perhaps most significantly) that such programming is poised to be used either as a way to reinforce those ideas, or as a way to resist and mitigate them. The authors write:

> [School food programs] have the potential to politicize and mobilize many otherwise alienated people, fostering critical thinking and political action. Innovative school food programs can be developed that pair values of equity and universal access with the latest knowledge about the role of fruits and vegetables in a healthy diet...public funding and state support should be used to effect improvement across the board for all children...a step toward resisting neoliberalization could be to develop healthy food programs in schools where they are most needed, which is not necessarily where conducive circumstances readily materialize (Allen and Guthman 2006, 412)

But, as Allen and Guthman (2006) conclude, “neoliberal governmentality\(^8\) has entailed new forms of state intervention in private lives...rather than producing knowledge through traditional forms of education and socialization, schools and other institutions are simply ‘held accountable’ for meeting what appear to be rather random objectives such as standardized test scores” (410).

This is especially relevant in the context of Pinellas County’s Title I schools, which continue to receive failing scores based on state education standards, which only results in stronger restrictions and more rigid objectives.

Another ethnographic case study with school gardening programs conducted by Hayes-Conroy (2010) investigates this paradox as well. She acknowledges the potential for school garden programs to reinforce capitalist ideologies, but complicates these ideas further by suggesting that they can, in some ways, reproduce neoliberal mechanisms and drive students to become even stronger capitalist consumers. But, by the same token, Hayes-Conroy raises

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\(^8\) Defined by Foucault (2012 [1973]) as the ways that power is exerted, not only by the state hierarchies, but also through social control in systems such as schools.
questions regarding whether promoting food- and environment-based change in these ways is explicitly neoliberal, or if the capacity for change can extend beyond this and serve as point of resistance. In fact, giving students a space to engage with “food in relation to broader political and economic structure” (2010, 82) could serve as one that helps students create a space for diverse academic opportunities and creating new understandings about food and sustainability. These critiques force us to consider that while school garden programs may have many benefits, there is the potential for them to reinforce the very systems of inequality and oppression that they are purporting to mitigate and change. However, as I will discuss in Chapter 5, these critiques also point out the unique position school gardening programs are in to offer an alternative, or point of resistance, to this ideology and produce new forms of knowledge for students who participate.

**Narrowing the Focus on School Gardening in the Public School System**

School nutrition programming has been a key focus of scholars, practitioners, policymakers and other leaders due in large part to the fact that children consume a large portion of their total calories at school. School serves as the primary venue for learning about nutrition and modeling positive nutrition-related behaviors (Crooks 2003, Li and Hooker 2008). In other words, schools have the strong potential to serve as a way to convey local, nutritious foodways and norms to students both in classrooms and in the cafeteria. Thus, it is important to understand the influence that specific programs have on improving child nutrition behaviors at school and at home and poor academic performance due to malnutrition (Lancey 2015). These are important areas to address in order to continue to fight childhood obesity and challenges of fresh food access, and to find new ways to use these programs as a way to educate a new generation of consumers about local food systems and sustainability.
One of the primary areas of nutrition education programming for children in schools has shifted to include a focus on school gardens, but only when the programs are centered on a curriculum that discusses healthy eating and nutrition, specifically. Because of the increasing popularity and support for school gardens across the country (Blair 2009) they have become a key area for students to learn about natural science and the environment. However, messages about healthy eating and nutrition within the context of school gardens are underemphasized in both curriculum planning and studies of learning outcomes. In this case, then, some of the measured benefits are an increased desire to consume (or actual consumption) of fruits and vegetables (Robinson-O'Brien, Story, and Heim 2009, Ozer 2007, McAleese and Rankin 2007). Many researchers have looked at school gardening efforts from a variety of different perspectives, but these have tended to be pre- and post-test evaluations of specific populations or case studies until recently. Little is being done to synthesize this work or make efforts toward a model or broad understanding of best practices. With this thesis, I aim to contribute to this effort.

Based on existing literature, it is evident that school-based food education programs, such as school gardens, have the potential to be very successful in improving classroom morale and behavior, increasing knowledge of science, and possibly improving nutritional knowledge, but there is little ethnographic work that attempts to understand how these programs are developed or implemented, beyond basic exploration or curriculum and ideas.

In recent years, many public health and nutrition scholars have looked to schools for obesity intervention and prevention efforts for children. Most of this work is evaluative in nature. Public health and nutrition experts often focus on evaluating specific programs or policies put in place by nonprofits, coalitions, or local and state government agencies. These studies have involved specific programs and specific (mostly quantitative) measured outcomes. Probart et al.
(2007) study looks at a Pennsylvania program designed to help school food service personnel and administrators strategize and work to improve school environments and school food, while providing small grants to help with assessment and development. The authors of this study assisted in this evaluation using, interestingly enough, qualitative in-depth interview methods. Major barriers to improving school food environments in the 22 schools interviewed in this Pennsylvania study included time and money, communication, adult skepticism, and student involvement/ownership.

Other studies have looked more specifically into programs designed for smaller or special populations. Craven’s (2011) study looked specifically at ninth graders in rural high schools that were enrolled in a health class. The class “received 6 hours of nutrition education based on social cognitive theory” (2011:141). They measured the success of the program in overall BMI change and reported fruit and vegetable intake, and concluded that a required health class, then, could be an effective method for change. Hollar and colleagues (2010) conducted a similar study that studied the effects of a specific intervention that both attempted to bring nutrition foods and incorporate healthy eating information curricula to low income elementary students. The authors of this study, too, used qualitative BMI measures to determine whether this kind of intervention could be successful with their specific population.

Other relevant studies have looked at school gardening efforts as an attempt to emphasize wellness and healthy eating, or farm to school programs as a way to address school food environments (Crooks 2003, Galarneau, Millward, and Laird 2013, Milliron, MacCurtin, and Nadel 2014, Craven et al. 2011, Graham et al. 2005, Graham and Zidenberg-Cherr 2005, Morgan et al. 2010, Morris and Zidenberg-Cherr 2002). The vast majority of these studies use quantitative measures to determine outcomes (BMI change, reported fruit and vegetable intake,
dietary recall methods), with little emphasis on assets and barriers surrounding this kind of work (Galarneau, Millward, and Laird 2013, Sharma 2011, Milliron, MacCurtin, and Nadel 2014).

In sum, there are many professionals and researchers who are interested in understanding how childhood obesity can be combated through school intervention efforts, looking at a variety of different, specific programs and policies in certain areas or with certain populations. Some of these researchers are utilizing qualitative methods, but it is my view that this is not nearly enough. Anthropometric information gained from analyzing a student’s BMI before and after participating in an isolated program (Hollar et al. 2010, Robinson-O'Brien, Story, and Heim 2009, Story 1999) does not provide for a thorough or holistic understanding of just what elements of these programs appeal to students, are difficult for teachers, etc. Qualitative information about why these programs are or are not successful and coming up with community-based strategies for improvement or expansion is crucial to informing community, state, or nation-wide policy change.

**Anthropological Contributions to Food, the Environment, and Education**

Anthropologists have long been looking critically at these key issues relating to food, health, and sustainability education for children. In answering these questions, there are historical anthropological frameworks, as well as current theoretical perspectives, that can be used to frame and understand these questions and will be later applied when interpreting results and drawing conclusions.

*Historical frameworks.* At the beginning of the 1980s, anthropologist Gretel Pelto (1981) highlighted two key areas where anthropologists could contribute to nutritional education research in general: “1) the study of dietary behavior (food habits) and 2) the evaluation of nutrition education activities” (Pelto 1981, S2). She based her analysis on the assumption that
while a variety of cultural, biological, and physical anthropologists had been working on various aspects of nutrition (and by the same token, nutritionists were incorporating anthropological perspectives into their work), nutrition education efforts were one of the few areas left that were devoid of anthropological voices. “From its very inception, a major feature of anthropological theory has been the concept of ‘holism’, which emphasizes a multidimensional approach to studying and understanding human behavior and society. Social, cultural, economic, political, environmental, psychological, and physiological factors are all dimensions of human existence to be reckoned with” (1981, S3) she writes, yet she asserts that this kind of true holism is impossible because anthropological research always emphasizes a few of these dimensions over the others. However, anthropologists are well positioned to use both qualitative/ethnographic methods and quantitative statistical analyses to develop models or systems that can help explain cultural phenomena in regards to nutrition and child education as well as developing models for successful programming or policy initiatives at both community and state levels. Food systems education research in recent years has sought to build on Pelto’s holistic approach to food and nutrition (even that from outside of the anthropological academy).

The postmodern turn in anthropology is described by McGee and Warms (2012) as “a touchstone for many, if not most, anthropologists working today” (492). In my opinion, it was the postmodern turn that encouraged (if not required) anthropologists to look at power relationships, social structures, and questions of agency and discourse. Similarly, it turned a keen eye back on the discipline itself, and raised questions of authority, representation, and objectivity. Bourdieu’s (2012 [1980]) discussion of *habitus* and the relationship between “the scientifically constructed objective probabilities (for example, the chances of access to a particular good, such as nutritious foods) and agents’ subjective aspirations brought to light
questions of access and inequality. Specifically, how structures of inequality can become internalized into affecting individuals’ choices (even a choice as small as what to serve students for lunch on a given day). Similarly, Foucault’s (2012 [1976]) discussion of how discourses are created, given volume, or silenced changed the way anthropologists think about representation and politics. He turned ideas of culture and power inside out, looking at how power influenced and was influenced by individuals. This was in conjunction with the analysis of language in relation to power. Language is not value-free, and the types of words (and voices) that are used, heard, or emphasized are often determined by a very specific group (or, as Foucault posits, a specific discursive system) (Foucault 2012 [1973]). Thus, we come to appreciate the utility of polyvocality, or incorporating the voices, or truths, of many different people. This has become especially useful in modern applications of policy analysis and education program development.

Scheper-Hughes raises questions about ethics and value-driven anthropology, which is especially present in “The Primacy of the Ethical” (1995). "If we cannot begin to think about social institutions and practices in moral or ethical terms, then anthropology strikes me as quite weak and useless” (410). This was an important realization for anthropologists that emerged from the postmodern turn. In regards to food and nutrition, there are many value-based assumptions that anthropologists are making. As anthropologists and researchers interested in food systems education, not only are we assuming that access to nutritious healthy foods is a basic human right, but that on a political level, schools (and therefore governments) should be providing this food to children. Looking at these issues and turning toward a reflexive perspective that takes into account these assumptions (as well as our own value-laden ideas about what nutritious foods should be, how they should be acquired, etc.), and why we are making them, helps to frame more contemporary theoretical perspectives about nutrition and food
systems education. "Anthropologists, no less than any other professionals, should be held accountable for how we have used and how we have failed to use anthropology as a critical tool at crucial historical moments. It is the act of "witnessing" that lends our word its moral, at times almost theological, character” (419), she argues, and this is only becoming more relevant as anthropologists who are interested in childhood obesity and school nutrition efforts must use their work to demand change and local, state, and national levels.

These three elements of the postmodern turn: the power and implicit influence of social structure, the emphasis on discourse and language, and the importance of reflexive, value-centered and engaged anthropologists, set the stage for a new era of anthropology that not only sought to understand the deeper causes behind behaviors and interactions, but allowed for a more reflexive and authoritative applied anthropology that could inform widespread social change at many levels. All of these elements are useful for understanding how knowledge (of what is good to eat, for example) is produced, handed down, and reinforced by a certain group. This is especially useful in interacting with non-profit organizations, whose primary goals (especially when related to food and obesity) are to package a certain piece of knowledge and disseminate it to certain groups of people.

Similarly, understanding the underlying power structures in all aspects of everyday life for individuals is necessary to uncover the factors that influence decision making surrounding food and eating. This allows us to view and describe how these power structures are reinforced and applied on an even larger scale when school nutrition policies are made on national levels, and implemented in individual communities and schools. In order to investigate how neoliberal policies and beliefs toward education and contemporary school gardening efforts are intertwined,
anthropological perspectives aimed directly at understanding power and influence are quite applicable.

**Biocultural perspectives.** Deb Crooks (2003) is one of the primary biological and medical anthropologists that has been successful in combining various levels of analysis in regards to school nutrition. In her analysis of the sale of snack foods in schools in Kentucky, she explains that, “Research in nutritional anthropology has long been guided by a biocultural approach, one that recognizes that cultural ideologies and social and ecological circumstances come together to shape food-related behaviors and consequent nutritional status…in most cases, biocultural research combines ethnography with quantitative measures of human biological outcome to better determine how human/environment interactions shape health” (2003, 184). Here, she summarizes precisely the benefits of a biocultural approach to nutrition, especially in schools where there are so many political, governmental, and economic constraints and influences. This particular study helps to highlight how biological anthropology and cultural or political economic approaches can come together to create more thorough explanations of a seemingly biological problem. In looking at the sale of snack foods in schools, a public health official or nutritionist may notice that these foods are unhealthy and should not be accessible to children at school, and call for a policy that restricts or eliminates it completely. Crooks, however, as an anthropologist, notices the sale of unhealthy snack foods, and asks why this practice began. In this case, Crooks asserts, it was “linked to poverty in the community and the constraints it places on educational success. To provide a higher-quality education to help poor children…the principal supplements the school’s budget with revenues from the sale of snack foods, bringing the production of a good education into opposition with the production of good nutritional status” (2003, 184). Particularly, the neoliberal funding models being imposed upon schools
encourages private earnings and revenue production, as evidenced by the snack machines in Crooks’ study. In understanding the reasons behind why the decision to sell snack foods was made, she is able to make stronger recommendations for solving this problem and provide a stronger perspective for policymakers. Childhood obesity is often combined with not having enough food and food insecurity, and this paradox can be confused and oversimplified. While it complicates the issue, Crooks’ recognition of this paradox of “trading nutrition for education” as “the better of a bad choice” (2003, 195) can be far more useful to policymakers and practitioners in creating long term change.

**Political Ecology and Critical Pedagogies.** Recently, much attention has been paid to political ecology and critical pedagogies as environmental education and political debates surrounding public education have come to the forefront of scholarship and public conversations. Political ecology incorporates and considers politics and economics into discussions of ecology and the environment (Wolf 1972). Thus, political ecology provides us a lens for understanding how ecology and the environment play a role in education, and conversely, how educational efforts in regards to the environment are framed by political and economic constraints that dictate their efficacy. Further, in recent years, ecological perspectives have been increasingly incorporated into critical medical and biological approaches in anthropology, with many medical anthropologists increasingly making the case for the inclusion of political ecology in discussing nutrition and health-related decisions (Leatherman, Goodman, and Thomas 1993, Baer 1996). Fabinyi, Evans, and Foale (2014) note that ecological approaches in anthropology have changed in recent decades as a result of:

…both a greater focus on linkages outside of what is typically considered to be the “community”—for example, markets and trade—and social diversity within the community…this has led anthropologists to emphasize hierarchies, conflicts, and tensions within communities. More common anthropological approaches to the
environment now typically focus less on how a local population or community will behave in relation to the physical environment than on how different actors and interest groups within these communities interact with both their social and physical environment (5).

In relation to both food systems and education reform, political ecology provides us with a way to draw out the various levels of analysis at play (system, sociopolitical, ecological, cultural and individual) and make sense of them. It also provides a framework for linking these levels of analysis and understanding how they influence and reinforce one another for a complete picture of a set of complex relationships.

Critical pedagogy is also important to our understanding of just what kinds of knowledge are being produced and practiced as a result of school gardening programs. It is best understood as a theoretical framework that seeks to “[challenge] the exclusionary practices of racism, sexism, ablism and heterosexism in the dominant society…while attempting to encourage more critical teaching and learning methods” (Hoodfar 1992, 303). While spearheaded by Paolo Freire, feminist scholars and scholars of color have taken it on to further understand the intersectional nature of knowledge production, teaching and learning. It is often used to challenge dominant power and social structures while engaging in alternative teaching techniques that encourage students to do the same and assess these structures critically. Further, this approach confirms the importance of culturally relevant pedagogies, especially in schools with populations of students of color or in area of socioeconomic inequality. This kind of work among anthropologists has led to “helping scholars think about their intersections and consider possible classroom/instructional adjustments” (Ladson-Billings 1995, 468). It has also led to new understandings of how knowledge is translated to students, and also how it is conceived and understood by teachers. In the case of the study by Ladson-Billings (1995), the key was that
teachers found the most value in students learning from each other, knowledge being shared, and knowledge being viewed through a critical lens.

In conclusion, there is much that anthropology has to offer school nutrition efforts to curb childhood obesity and improve food security, but it requires applied anthropological work that is grounded in theoretical perspectives. Using theory to inform strong applied anthropological efforts not only helps to understand deeper causes of social problems, but it allows anthropologists to communicate with more people that are working on these same problems more effectively. Similarly, when it comes to implications for policy change, advocacy, or program ideas, applied anthropologists have the skills to make the strongest, most effective recommendations only when they are well-informed and supported by theories that help us truly dig down to a problem’s roots. Thus, we can work towards stopping the problem before it begins, addressing it at its roots, rather than chopping away at one part and hoping it goes away. Anthropologists are working diligently on school nutrition efforts and finding new ways to approach food systems and environmental education; unfortunately, because this work is done largely outside of the academy (or within other disciplines), their theoretical frameworks are largely ignored or underemphasized, leaving major gaps in the body of knowledge that could help build a stronger theory of applied anthropology and social change.

**Conclusions**

With the development of new USDA initiatives being implemented in schools nationwide, it is important to understand how schools, operating as individual, unique communities, are differently affected by these programs and policies. Though current public health research is useful, it is not nearly enough to develop a working theory of school nutrition education or to make broader policy recommendations. Using an anthropological lens, and
incorporating key elements that anthropologists have developed (theoretical perspectives, models and systems of analysis), program evaluations can be used to find broader themes and ideas when it comes to timely topics that need space in a neoliberal education system. Political ecology provides the tools for linking the different levels of analysis that are present in understanding how school gardening programs fit in with food security concerns and food systems education, and how they are shaped by (and, in turn, could shape) neoliberal public school systems. Critical pedagogy allows us to investigate this critique of neoliberalism even further, by understanding how different forms of education and knowledge production have the ability to instill, reinforce, or perhaps resist these pervasive ideologies. Anthropologists often produce this neoliberal critique, but can also understand and describe it in context as it relates to school gardening programs provides us with a wide lens through which to address research questions centered on how these programs are structured, what makes them successful, what challenges they face, and how they can be improved.

Israel et al. (2001) suggest that in working with communities, when looking at socioecological and structural determinants of health outcomes, “the potential for translating research findings into policy is especially critical. [Community based participatory research-grounded] results will be grounded in the experiences of the communities involved, and reflect a comprehensive understanding of the complex issues under investigation and addressed through action” (192). Thus, future research into programming and policy surrounding environmental and health-based education in schools should continue to utilize and emphasize anthropologists to fully understand the importance of community-level, political economic, and biocultural factors. Only then can we develop new theories to assist school health officials and
administrators, non-profit organizations, and policymakers create widespread, sustainable change in the lives of children.

Additionally, this kind of understanding differs from the standard approach that is often used in implementing programs in schools by various stakeholders but “fundamentally ignores the multiple school-level variables that may affect intervention effectiveness (such as financial concerns, labor issues, staff behavior, parental reactions, etc.)” (Coleman et al. 2012, 81). Recognizing the wide variety of influential factors at play in this kind of programming could be key in identifying where mechanisms of neoliberalization are at play, and how they can be navigated or mitigated to improve education regarding nutrition and the environment in schools.

Further, leadership, resources, and parent involvement all have a role to play in the efficacy and success of nutrition education programs. Coleman and colleagues (2012) outline four key shortcomings that can most often be attributed with why these programs are not achieving their predicted outcomes, defined as 1) inability to change certain aspects of the school nutrition environment; 2) inability to restrict unhealthy foods brought to school from home; 3) a lack of clear direction and information from research staff to allow school officials to properly integrate interventions into the school day; and 4) problems implementing curriculum alongside the necessary curriculum for standardized testing. This structure can serve as a valuable method for understanding and explaining program successes in light of a neoliberalized education system and can be helpful in interpreting data.

As previously mentioned, anthropologists have been some of the least prevalent voices in looking at school gardening efforts, so this work begins to add to scholarship on school gardening that provides an in depth look at the various factors that influence school gardening’s success and efficacy in schools. Further, most of the literature does not look at how these
programs are implemented on the ground, and the external organizations that install and operate them, to understand the challenges they face and the problems with integration that can occur, the benefits to this kind of community-based school garden programming, or how teachers and school administrators interact with these programs. A ground-up approach to looking at how the various stakeholders involved in school gardening efforts can help to identify and investigate areas of tension will help to build a broader understanding of assets and barriers, ideas for improvement (Lancey 2015). This can also help in the development of a model for school gardening that can navigate the pressures of public schools and standardized testing-based curriculum in order to make these programs as accessible to teachers and classes as possible while still meeting the needs of all those involved as effectively as possible.
Chapter Three: Methods

The data presented in the following chapters were collected from January to November 2015. Data were collected primarily through participant observation in multiple settings, key informant interviews, and an online survey. The theoretical basis and details of each method are outlined in Table 3.1. The main site for this project was the Edible Peace Patch Project (hereafter EPP), a not-for-profit 501 (c) (3) organization in St. Petersburg, FL. EPP builds, supports, and maintains gardens at public elementary schools in Pinellas County, FL. As described in Chapter 1, EPP operates six gardens in Title I (as determined by percentage of students eligible for free or reduced lunch through the National School Lunch Program) elementary (K-5) schools that have received “failing” grades on standardized testing in accordance with Florida’s education standards. This organization was selected as the primary organization for observation. From here, four garden sites were selected for primary observation (see Figure 3.1). Participants included organization staff as well as teachers and school administrators from each of the four gardens selected. The guiding research questions, methods for data collection and data analysis techniques used are outlined below.
**Figure 3.1:** A map created using Google Maps software showing the locations of each of the four study sites in relation to the Tampa Bay region. Each school is marked with a star.

**Table 3.1:** Research Questions, Methods of Data Collection and Analysis

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Methods of Data Collection</th>
<th>Data Analysis</th>
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<tbody>
<tr>
<td>What are current variations in organizational structures of school gardens at the study site(s) and how do those structures impact the management of school gardens?</td>
<td>Interviews with staff, observation of daily organizational activities, secondary analysis of school gardening literature and organizational reporting</td>
<td>Transcription and systematic qualitative coding, grounded interpretation</td>
</tr>
<tr>
<td>What stakeholders (community and otherwise) are considered when constructing, maintaining, and running the school gardens and education program? How are the goals and needs of these different stakeholders similar? How are they different?</td>
<td>Interviews with staff, observation of daily organizational activities, observation of community fundraisers and conversations with volunteers</td>
<td>Transcription, field notes and systematic qualitative coding, SPSS analysis of survey data</td>
</tr>
<tr>
<td>How does program content linked to nutrition, healthy eating and food systems relate to the intended outcomes of participation?</td>
<td>Analysis of school garden curriculum, interviews with teachers and educators, observation of education programming, survey of teachers</td>
<td>Transcription, field notes and systematic qualitative coding, SPSS analysis of survey data</td>
</tr>
</tbody>
</table>
Participant observation was used at classroom programs and community events and fundraisers. The main focus here was on observing the actual curriculum and language used with the students in the gardens, relationships between students and educators/teachers, and understanding how the programs operate. I was also invited to and attended a volunteer/work day in a garden and a community fundraiser. This helped build rapport as well as provided support for activities occurring at the organization and further insight into the degree of community integration and fundraising for these organizations.

I attended four garden sites twice each (n=8 total visits) and recorded observations, information and insights using detailed field notes (Emerson, Fretz, and Shaw 2011, Bernard and Gravlee 2014). I selected schools for observation based on scheduling and availability. Each site was visited once during the spring of 2015, and once in the fall of 2015, when different classes, teachers, and volunteer educators would be in the gardens at each school. I attended a work day in the spring of 2015, where neighborhood volunteers, school faculty and staff, and organization staff and volunteers helped with the construction of a new garden at a local high school. I also attended a community fundraiser. EPP’s Executive Director and Board of Directors in the spring of 2015 wanted to raise funds to construct an urban garden, and members of the Board hosted an event in their home to do such. Informal interviews and conversations with teachers during the school gardening program were also recorded as part of ethnographic field notes.

Field notes from participant observation were typed and organized, and then coded into major themes, ideas, and key observations (Charmaz 2014). This information was used to draw conclusions and provide ethnographic support to secondary data gathered (see below). Field notes were also used to guide the development of interview schedules and survey design.
For the interviews, an interview schedule was constructed to keep the conversation on track and allow for open conversation and a natural flow of ideas (Bernard and Gravlee 2014). The interviews aimed to get an idea of perceptions of the school gardening program by teachers, assets and barriers to participation and incorporation into the classroom, and perceived outcomes for students. This helped in an understanding of what goals teachers have when they choose to sign their classes up to participate in school gardens, and what barriers teachers cite for not being willing or able to participate.

EPP staff themselves were contacted for interviews via email, and interviews were scheduled. All staff including the existing Executive Director and the school programs coordinator in spring of 2015, and the new school programs coordinator and garden manager in the fall of 2015 were interviewed (n=4). Follow up interviews were scheduled at various stages of the research process to gather additional information and fill in gaps as participant observation unveiled new insights and questions. Volunteer educators for both semesters over the course of this research (spring and fall 2015) were also interviewed. All volunteers working for EPP were contacted via email addresses provided by the organization for an interview and three agreed to participate. Interviews were scheduled in a location of their choosing and lasted about 30 minutes.

EPP staff provided a list of contacts at each school consisting of the school principals and the contact at each school in charge of coordinating volunteer schedules and the school garden programming (usually a Community and Family liaison or administrative secretary). Each of those contacts was invited via email to participate in a 30-40 minute interview (a total of 18 possible participants in total). Each staff member that agreed to participate then scheduled an in-person interview in the location of their choosing (usually their office at school). A total of eight
school administrators were interviewed, representing five different schools. Teachers were interviewed informally during the participant observation process. Interviews were audio recorded using an application for iOS, and played back and transcribed. They were coded for major themes, ideas and quotes.

Table 3.2: Guiding interview questions for teachers, volunteer educators, EPP staff, and school administrators

1. Let’s start by talking about school gardening programs related to healthy eating and nutrition: What programs and activities related to nutrition have you experienced?  
   a. What role did you play, if any, in putting on this program?  
   b. Were there successful elements of this program? If so, what was successful?  
   c. What do you think children learned about healthy eating from this program?  
   d. What did you learn from this program?  
   e. Was it easy, or more difficult, for you to be involved in this program?  
   f. What would you change about this program, if the school were to do it again?

2. For staff/educators: What can you tell me about how these gardens are supported? What is difficult about supporting or implementing these programs? What does a typical day look like for you?  
   For teachers: How do you get your classes involved in school gardening programs? Is it easy or difficult to get involved in programs? What do you like about it? What is challenging about it?  
   a. What can you tell me about the school gardening curriculum? How is it structured? What do you like about it? What do you dislike?  
   b. What types of learning outcomes do the gardening curriculums focus on?  
   c. How do these relate to learning standards or state requirements?

3. For teacher/educators: I’d like to move on now and talk a little bit more about (what goes on in your classroom/your interactions with students). What messages do you try to share with students about healthy eating and nutrition (in the classroom and the gardens)?  
   a. How do you try to share this information? (Probe for using the garden)  
   b. Do you believe students would benefit from having more time devoted to healthy eating and school gardening programs?  
   c. What makes participating in the school garden difficult? (Probe for time)  
   d. What are some things that would make it easier for you to (teach your students about nutrition and healthy eating in the classroom/share information about healthy eating in the cafeteria)?

4. Thinking about your personal experience (in the classroom/with student interactions) we have talked about so far, how do you believe education about healthy eating and nutrition at school influence nutritional behavior at home?

5. What are some examples of changes in student behavior/attitude/classroom experience as a result of participating in school garden activities? (Probe for: positive/negative changes)

6. We’re almost done here, but this is an important final question: Do you have any other ideas for improving, changing, or adding school gardening programs that may help improve nutritional behavior and healthy eating in students?  
   a. (What could school officials/teachers/educators do to implement or improve such programs)?  
   b. (What else could the organization/staff do?)  
   c. Is there anything else you think we should know (or that you would like school officials to know)?

Note: Italics indicate changes in probes or language depending on the role of the participant.
After the majority of key informant interviews with teachers, school administrators, and EPP staff were completed, I constructed a brief online survey to reach out to teachers at all six elementary schools with gardens operated by EPP (n=15). This survey was based on responses from school administrators and EPP staff and volunteers in key informant interviews, as well as observations made at the garden sites and informal conversations with teachers. It consisted of both quantitative and qualitative questions and asked teachers if they’d had experience with the garden program at their school, their perceptions of school gardening and how it benefits students academically and personally, and whether or not they incorporated discussion of nutrition and healthy eating into their classroom.

I drafted the survey in Qualtrics and distributed it using an online link to administrators at each of the seven schools. Four schools agreed to distribute the survey to all of their teachers. From there, a total of 15 teachers completed the survey. The responses were downloaded and quantitative responses were entered into SPSS statistical analysis software. Qualitative responses were recorded and coded, and the major themes were also entered into SPSS for analysis. Frequency and descriptive statistical analyses were run on all the data, as well as chi-square analyses for associations between several variables (participation in the garden program and belief about academic and behavioral benefits, beliefs about areas of knowledge supplemented by school gardens and discussion of healthy eating in their classroom).

Secondary data sources. In addition to primary data collection, useful data also came from secondary sources. As school garden programs expand across the country using a variety of organizational structures and techniques, annual reporting data (required from most organizations of this kind) is shared widely to be used for grant writing, donors, and public outreach and research. Additionally, Graham, Friedman and Zarger (2007) conducted a study
with teachers at a charter school with what was viewed as a successful school garden (and teachers who did not work at this charter school and other schools as well) to discuss assets and barriers to utilizing school garden programs. Major themes and quotes were determined and organized, and these data were used to compare results from my small study to larger key issues in the field of food systems education research.

Table 3.3: Data and Sample Sizes

<table>
<thead>
<tr>
<th>Method</th>
<th>Data</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant observation</td>
<td>Field notes</td>
<td>n=8 school sites, n=2 community events</td>
</tr>
<tr>
<td>Key informant interviews</td>
<td>Audio recording, transcripts, fieldnotes</td>
<td>n=11 (5 school administrators, 4 EPP staff and 2 EPP volunteer educators)</td>
</tr>
<tr>
<td>Surveys</td>
<td>Survey responses (qualitative and quantitative)</td>
<td>n=15</td>
</tr>
<tr>
<td>Secondary analysis</td>
<td>EPP curricula and lesson plans, Annual reports from Teacher interviews from unpublished Graham, Friedman and Zarger (2007) study</td>
<td>n=4 lesson plans, n=2 annual reports, plus teacher interview major themes and key quotes</td>
</tr>
</tbody>
</table>

Data analysis took place from October-December 2015. The following chapters will discuss the key ideas, issues and themes that emerged from the data collection and analysis techniques described above.
Chapter Four: Results

Introduction: Notes from the Field

The results presented below are based on a total of 11 key informant interviews, 15 surveys, and 25 total hours of participant observation at community fundraisers, volunteer workdays, and during regularly scheduled activities in the school gardens. Upon entering the schools, it is impossible not to notice the security procedures. All of the schools are locked entirely from the outside, with the exception of one door that opens into a lobby or main office. At every school, I sign in at the front desk. Some schools require me to show some form of ID: my driver’s license or a school ID showing that I am there for a reason. Some schools give me a visitor sticker. At all of the schools, I am asked if I know where I am going, if I know how to get to the school garden. While I always get directions, even after my first visit to each school, I somehow still get lost in the maze of hallways, locked doors, and empty courtyards.

Each hallway in every school is marked with a thick, bright red line through the center of the floors. These straight lines guide students: I am frequently passed by groups of children with a teacher or paraeducator instructing them, sternly, to stay on the line at all times. They take these rules so seriously, and remind the children of this with such authority, that I often hesitate to step off the line, myself.

One school, in particular, has a notable design. As a magnet school, it was given a “theme” or a central idea that all programs and structure are centered around. This school’s theme is “Health and Wellness.” The central courtyard, in the middle of the school building, opens up to several hallways that are all named after parts of the human heart; one hallway is the left
ventricle. Another is the right atrium. The cafeteria is labeled the “Wellness Kitchen.” In this school, on this particular day, I wait in the garden with three volunteers who are there to run programs for the students. The garden is overrun with wildflowers and many of the papaya trees and other produce is overripe, as a result of too few students and not enough time for volunteers to tend to the gardens.

This particular day’s topic: soil. We wait for the students to arrive for the 9:30am session. At about 9:35am, 5 minutes after their 20 minute lesson was supposed to start, there are still no children in the garden. “This happens a lot,” warns one of the volunteers. “Especially this late in the semester, in the spring. Teachers are getting ready for testing, so they just can’t bring the kids out.”

Later that day, I meet with an administrator in charge of scheduling the times for students to use the gardens. There, sitting in the library (located in the “left ventricle”), she tells me, “I know [EPP’s] goal is to teach health and wellness…we just really don’t have time during the school day to accommodate that, most days.” This day was not unlike many others I had in these four schools. Children being disciplined, led from one place to another on bright red lines, and a constant question of whether or not their classes would, in fact, arrive at the gardens for their scheduled lessons. When students do arrive, EPP educators run the lesson while the teacher watches on, participates, or sits down nearby to keep an eye on things. The teachers usually chime in to express frustration when students do not seem to be behaving properly, or to threaten students with being removed from the garden if they do not comply with instructions. The educators show students plants, vegetables, insects, and discuss the day’s lesson plan. The lessons are short, no more than 20 minutes. Each one has been developed by the EPP staff, with the help of college student interns with background in education and the environment. They
cover topics that range a wide spectrum of topics; the plant cycle, soil and insects, seeds and reseeding, and harvesting plants.

Students are excited about the activities in the garden: they are engaged, focused, and noticeably excited to listen and learn. However, when students begin to play with one another, or ask questions out of turn, they are quickly told to “quiet their bodies” or to stop talking by the teacher who looks on. “They love coming out here, but it’s a lot for me logistically, and then of course to have to keep them in line while they’re out here,” explains one teacher. This day is not unlike many that I experienced in the garden. The following data will draw out some of these moments in detail and discuss some of the major themes and idea that emerged from this fieldwork.

Participant demographics. Table 4.1 shows some of the key demographic information from each of the four schools observed. Each school was an elementary school with Title I status, all of which had received failing grades from the school board for the 2013-2014 school year (the most recent year reported). A significant majority of students at each of the schools were students of color, and more than two thirds of students at each school were eligible for free or reduced lunch.

The educators of these programs are primarily white, college-aged women (19 women), an older adult white woman (1), and a few college-aged men (3) and Additionally, Table 4.2 shows the breakdown of survey participants (n=15) (subjects and grades taught, participation in the school gardening program, opinions on discussing food and eating in the classroom). Table 4.3 shows the roles of all key informants that were interviewed for this study.
### Table 4.1: Demographic Information for School Garden Sites

<table>
<thead>
<tr>
<th>School 1</th>
<th>Students of color (%)</th>
<th>92%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>School grade (2013-2014)</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>Free/reduced price lunch (%)</td>
<td>78%</td>
</tr>
<tr>
<td>School 2</td>
<td>Students of color (%)</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>School grade (2013-2014)</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>Free/reduced price lunch (%)</td>
<td>76%</td>
</tr>
<tr>
<td>School 3</td>
<td>Students of color (%)</td>
<td>91%</td>
</tr>
<tr>
<td></td>
<td>School grade (2013-2014)</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>Free/reduced price lunch (%)</td>
<td>67%</td>
</tr>
<tr>
<td>School 4</td>
<td>Students of color (%)</td>
<td>91%</td>
</tr>
<tr>
<td></td>
<td>School grade (2013-2014)</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>Free/reduced price lunch (%)</td>
<td>71%</td>
</tr>
</tbody>
</table>

### Table 4.2. Survey Participant Information

<table>
<thead>
<tr>
<th>What subjects do you teach?</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>All/General Education</td>
<td>10</td>
<td>66.7</td>
</tr>
<tr>
<td>Math &amp; Science</td>
<td>2</td>
<td>13.3</td>
</tr>
<tr>
<td>N/A</td>
<td>3</td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What grade levels do you teach?</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-2</td>
<td>10</td>
<td>66.7</td>
</tr>
<tr>
<td>3-5</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>N/A</td>
<td>2</td>
<td>13.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Have any of your classes participated in the school gardening program?</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>9</td>
<td>60</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Are there elements of your classroom curriculum that include talking about nutrition and healthy eating?</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>12</td>
<td>92.3</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>7.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Would you like to be able to devote more classroom time to discussing nutrition and healthy eating or using the school garden?</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>7</td>
<td>53.8</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>46.2</td>
</tr>
</tbody>
</table>
The results below are presented based on three major focal areas: curriculum and instruction, organization infrastructure, and garden ownership and community involvement. The following discussion incorporates results from both interviews and surveys.

**Infrastructure**

*Barriers to participation.* Organizational goals and challenges proved to be a key part of the barriers to participation experienced by the schools. The Edible Peace Patch also struggles with organizational structure, and this prevents them from being as successful as possible with timing of their programs, getting teachers onboard and knowledgeable about the programs, and consistency in scheduling and volunteer coordination. Time and scheduling were, across the board, the biggest barriers to participation for teachers. This was mostly due to schedule constraints with standards-based teaching requirements, as the majority of participant observation took place near the end of the spring semester when standardized testing was about to begin, but pressure to spend time only on the pre-set modules given to teachers by the state were present in the fall, as well.

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**Table 4.3: Roles and Positions Held by Key Informant Interview Participants**

<table>
<thead>
<tr>
<th>EPP Staff and Volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: School Program Coordinator</td>
</tr>
<tr>
<td>2: Executive Director</td>
</tr>
<tr>
<td>3: School Program Coordinator</td>
</tr>
<tr>
<td>4: Garden Manager</td>
</tr>
<tr>
<td>5: Volunteer</td>
</tr>
<tr>
<td>6: Volunteer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>School Administrators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Family &amp; Community Liaison</td>
</tr>
<tr>
<td>2: Secretary to the Principal</td>
</tr>
<tr>
<td>3: Volunteer Coordinator</td>
</tr>
<tr>
<td>4: Principal</td>
</tr>
<tr>
<td>5: Principal</td>
</tr>
</tbody>
</table>
Time was also indicated as an issue on EPP’s end. Finding times for all of the volunteers that were also compatible with schools was an issue. “The volunteers, they all have their own schedules and conflicts. Trying to find a time for everyone that works, and then getting those times to work with enough teachers at the school… I think we’re doing well with what we have but, yeah, it is a challenge,” said an EPP staff member charged with scheduling and coordination. Figure 4.1 shows the most commonly reported barriers that prevent teachers from participation in garden programs at their school.

Both scheduling and standardized testing needs were the challenges that teachers faced most often, with 33% of teachers stating it was “often” a problem (n=9) in both cases. “It’s hard to fit the lessons into our rigorous and strict schedule,” wrote one teacher. “It is unorganized,” wrote another. Many teachers mentioned not having enough time: “Time constraints is what I think would be the most challenging,” wrote a teacher on a survey. “Our schedule doesn’t allow time for it,” wrote another.

Additionally, student behavior, scheduling, and standardized testing needs were the most commonly cited challenges, with two-thirds of teachers saying all three of these areas were “sometimes” or “often” a factor in making it challenging for them to bring their classes to school garden programs (n=9). Teachers mentioned keeping their students’ attention focused on the task at hand in the garden: “The kids’ attention span isn’t as long as their instruction,” wrote one teacher. “Keeping the students focused on the topic in the garden for the day [is challenging],” wrote another. A third teacher wrote, “kids can sometimes get restless.” Teachers, on the whole, described challenges with maintaining standards of personal discipline and conformity, ideas of control, efficiency and individual responsibility that were a key part of neoliberal reform (Hursh and Martina 2003).
Teachers not knowing about the program at all was also a significant barrier; 62.5% of teachers stated it was “often” or “sometimes” challenging (n=8), and this was mirrored by many of the teacher responses who had not yet participated in the garden. One teacher wrote of school gardens on the survey, “I think they are great, but I did not know we had a gardening project at our school. Do we?” This response was mirrored by other teachers, who made statements such as “One of the biggest challenges would be not knowing it exists…” The least commonly cited barrier was student enjoyment, with 90% of teachers saying it was "rarely” or “never” a challenge (11/15 total).

![Figure 4.1: A clustered bar chart showing commonly cited barriers to participation in school gardening programs, according to teachers.](image)

**Curriculum and Instruction**

*The dominance of standards-based teaching*

Teachers, school administrators and EPP staff and volunteers all shared many thoughts and feelings on the dominance of standards-based teaching. One of the first things I learned when I started speaking with staff and volunteers at EPP was how carefully they worked to tie their curriculum in with Florida education standards. Each 20-minute lesson in the garden,
whether on insects, soil, photosynthesis, or how plants grow, was explicitly and concretely tied to one or more key standards. This was apparent in conversations with EPP staff who designed and edited the curricula, but also was clearly outlined in writing at the top of each physical lesson plan for volunteer educators. This was explained as being primarily done as a way to help make life easier for teachers, while also helping to justify the validity and importance of the garden to be used during classroom instruction time to principals and other upper level administrators. “It’s hard to get the teachers to want to dedicate time and energy to bringing their classes out there, so we have to prove that it will be helpful by using the standards. This really helps us get the principals to come onboard to begin with, too,” stated one staff member, a part-time employee of EPP who was focused entirely on programming and coordination of the programs at each school.

Adherence to these standards was apparent throughout the programming and daily activities of EPP. One volunteer, a college student studying education, served the sole purpose of going through all of the garden lesson plans and picking which state education standards they could tie the lessons too. “Her job, her focus, is to familiarize herself with the standards, mostly the science ones, and figure out which lessons point to which standards. It’s really important, and so that’s basically her entire internship,” explained the school program coordinator. Throughout these interactions, the focus was primarily on finding ties to the science standards, though school administrators and teachers discussed the desire for school gardens to be better incorporated in many aspects of academics for students, and for the gardens and lessons to be easier for teachers to integrate in their classrooms in a variety of subjects. Common subjects that were cited for possible integration, aside from the science-based curriculum, were art, reading and writing, and mathematics.
In the gardens, it was clear that earth science was the primary focus for educational activities. Each time I observed students in the gardens, the lessons were about reseeding, photosynthesis, the role of worms and insects in the gardens, or soil and fertilization. These students were in the garden for 20-25 minutes either with their dedicated science teacher, or with their core teacher during instructional time dedicated to science. This was explained by participants to be entirely due to the strict schedules imposed by teachers, school administrators and organization staff alike. All repeatedly brought up the difficulties teachers face when trying to meet all of the necessary requirements for school based standards. “The pressure [for teachers] is insane,” said one EPP staff member. All of the participants interviewed stated that they believed that more teachers would participate in the gardens if they had more time and flexibility in their schedules, explaining that because all of the schools are “failing” schools on state watch programs, they have even stricter schedules and modules they must follow and implement in strict time blocks.

Teachers used to be able to be more flexible…if their class read for an hour of their reading block, they could spend a half hour of that time in the garden. They could be more in control of their own schedules. But now, with the block scheduling, they have to meet this module this day and talk about, like, space for an hour for their science block and can’t do anything else, they can’t flex it like they could before. If they don’t have time during science, they won’t go, and even then…it’s not always fair to assume they will have the time to make it out there. Especially before testing, which is probably when the students could use the time outside the most, forget it. (Interview Participant, School Administrator. May 2015)

Perceptions of learning. Once in the garden and participating with their classes, teachers expressed different perceptions of success and ideas about what students were (or were not) learning. Figure 4.2 shows teachers’ perceptions of which subjects they felt students were learning about the most when participating in education programs in the garden during the school day. These topics were selected based on similar studies (Blair 2009), as well as the intended
outcomes for participation stated by EPP staff. Nearly all of the teachers who responded when asked whether students learned about science in the garden said that they learned a lot about it (77%, n=13). Less than 16% of teachers (n=13) felt that students either did not learn, or only learned a little, about science in the garden. About half of teachers surveyed said that they thought students learned a little about math and language arts (50%, n=10; 54.5%, n=11, respectively). Only one teacher felt that students did not learn about math in the garden, and only one teacher felt that students did not learn about language arts.

When it came to health and environment-related topics, teachers were more likely to express that they felt students were not learning anything at all in these areas during their time in the garden. More than half (55.6%, n=9) of responding teachers surveyed said that they did not think students learned about nutrition, and 50% of teachers (n=10) felt that students were not learning anything about health. However, third of teachers surveyed felt that students learned either a little or a lot about nutrition, and about 40% of teachers said that students learned either a little or a lot about health. Additionally, almost 64% (n=11) of teachers said that students were not learning about the environment at all during their time in the garden, and less than a third (27.2%, n=11) of teachers felt students were learning at least a little about the environment.
Garden Ownership and Community Involvement

Perhaps one of the most compelling observations made in the gardens at each school was the lack of ownership and community involvement present. On several occasions while I was in the gardens with just the volunteers, community members would come up to the chain link fences that surround the school (and garden) to talk to the volunteers. “I always see this garden and things look like they could really use some help”, said one man as he stood outside the fence. “I’m retired, I wouldn’t mind coming over to help take care of things. It gets so overgrown.” Not only are there untapped opportunities for community involvement from the surrounding neighborhoods, but also with other members of each school community (peer mentors, volunteers, and other school staff who work with students), who also do not seem to be engaged with gardening activities.

Figure 4.2: A bar chart representing teachers’ opinions of student learning on various subjects in school garden programs and their school.
Teacher involvement and student engagement. Differences in needs and goals between the schools and EPP themselves was an interesting area for discussion with participants. Many participants at schools felt quite positively about EPP and their organization goals, but also stated that the needs of the schools were quite different from these purported goals and ideals. While wellness, healthy eating, and growing food were described by staff members and school administrators as a meaningful and tangible goal for EPP, school administrators also noted other ideas and uses they had for the gardens, and expressed the challenges of utilizing the garden and maximizing its influence for students in a way that met their needs. Administrators shared ideas about programs and events they could host for families using the gardens, uses for the produce in school stores and farm stands, and the many other times of day (before/after school, recess, during special instruction time for students) that the garden could be used. Said one school administrator, “I know their deal is wellness, food, sustainability, living well…but we just don’t have time to do that during the school day here.”

Ownership and community integration. One of the school administrators I spoke with was particularly vocal about the challenges she experienced with feeling that the garden did not belong to the school itself, and therefore, were not theirs to use outside of EPP’s programs:

They did so much for us, you know, finding a big donor to pay for the garden and getting everyone out here to build it. And it’s so great that they want to come and do the lessons for the kids in the gardens. I guess, it’s just that I used to work at another school, and we were always in the garden. Parents, teachers, people from the neighborhood that would see things needed to be picked or taken care of. We had oranges, like, so many oranges and we would use them for everything, workshops, PTA meetings, those oranges were everywhere. We loved our garden. (Interview Participant, School Administrator. May 2015)

This was also mirrored in the way the teachers talked about the garden in the surveys, with many of them not even knowing the garden existed (as mentioned above). For their part, EPP sees the gardens as primarily their responsibility. An EPP staff member mentioned that
other school staff do not use the gardens, even with students, and while they would like to, it would require a lot of extra work to coordinate activities and harvests in the garden, “so people aren’t just planting carrots every day”. EPP staff believes this would be necessary in order to facilitate teachers using the school gardens without EPP volunteers present, which currently does not occur at all.

Another area of improvement that many participants suggested was to integrate more community members and organizations into the garden. As one participant suggested, allowing the school more ownership over their gardens would help them get their own community partners involved in YMCA programs, mentor programs, and other community-based programs into the gardens with students, both during the school day and after. “If students could go into the garden with their mentors, work and play outside while they’re working with their mentor and talking, then they could talk about food and health and take [the] pressure off the teachers to do so.” Participants on the whole were interested in getting students into the gardens as much as possible, but wanted to strategize ways to do it that didn’t rely on class time and teachers.

In sum, these were the primary themes, challenges and ideas that came up in interviews, surveys, and in participant observation that will be explored in the final discussion chapter (five).
Chapter Five: Discussion

An anthropological analysis of school gardening programs can be key to unlocking successful practices for food systems education in a neoliberal public education system. As growing concerns about food security, nutrition and health continue to make their way to the forefront of public consciousness and public policy, teaching children to be conscious consumers and sustainable eaters may be the key to shifting paradigms and forcing policymakers and agribusiness to adopt more sustainable, healthful practices that will provide healthy, affordable, accessible food for the planet, bolster the economy, and protect our environment. When looking at system-level strategies for changing the food environment in the United States, it is clear that efforts on a small-scale, starting at a local level, have the potential to be highly successful in increasing access to food, changing food choices, and changing individual and cultural ideas about sustainability and healthy eating. Additionally, sustainable agriculture practices in conjunction with a bolstering of small-scale, locally-based economic structures for growing and producing food are important areas of growth and change moving forward (Esteva 1994, Hamm and Bellows 2003, Hayes-Conroy and Hayes-Conroy 2013, Hinrichs 2003). Thus, it is a logical next step to focus on educating children starting at a young age, especially those who are traditionally underserved by both the current public education system, and the current food systems in place.

The reasons for what some could argue are the failures of neoliberal education reform are not unlike those behind the current struggles in food security and nutritional well-being. As Moore and colleagues (2015) argue:
…not every child is equally valued or encouraged to imagine and enact different futures…This is a salient point in contextualizing school gardens in terms of their relationship to a broader political economy that produces both segregated neighborhoods and schools…This special segregation aligns with significant differences in curriculum, building conditions, and other educational components between underresourced urban schools and better funded suburban schools (409).

Understanding these differences between the privileged and the “underresourced” as it relates to public policy is important in understanding how these differences in education, even within the same state or county, occur and are perpetuated. But these are deep-seated, long-standing issues that are rooted in a history of inequality and social injustice, and the neoliberal education reform policies of the last few decades only seek to reinforce these, rather than mitigate them. “Rather than attending to the larger scale political and economic processes influencing these differences, policy rhetoric in the United States describes urban schools as localized sites of ‘failure’” (2015:409).

These differences in the distribution of resources and reinforced capitalist ideologies were seen over and over again in the four schools I worked in. These schools were overwhelmingly made up of students of color (at least 88%), and all of the schools had an overwhelmingly high number (at least 67%) of students eligible for free or reduced lunch (meaning their families’ household incomes were less than 185-130% of the poverty line for reduced price lunch, and less than 130% of the poverty line for free lunch). These are schools full of kindergarten through fifth graders who are all told the same thing over and over again: they are, in the eyes of the school, the state and the federal government, "failures." They are failing students in failing schools, and the flurry of media attention from local news channels (Brown 2016, Douglas 2016, Hollenbeck 2016, Wallace 2016, Fitzpatrick 2015) has only deepened this labeling and rhetoric of failure. The students themselves are conscious of this language, of being distinctly labeled as “failures”. Teachers and administrators discuss it openly
in front of students. Further, parents and community members are made acutely aware of this label, as it is prominent on the schools’ websites, action plans, and daily conversations about the future.

Not surprisingly, these children leave school each day and go home to neighborhoods that are also made up of some of the nation’s most food insecure, hungry, and/or malnourished. That these children are both from low-income, food insecure families and are, at the same time, students in the most underresourced (and perhaps most neoliberalized), "failing" schools is certainly no coincidence.

Children in the schools, then, are underserved by, excluded from, and marginalized within both of these systems (public education and the national food system) at the same time. Thus, school gardens serve as a space where the neoliberal ideology that permeates both the United States education and food system can be reinforced, learned, and acted out. Or, we can consider school gardens as an alternative to these structures that is worthy of our immediate attention; in fact, school gardens are uniquely positioned to serve as a point of resistance to both of these systems at once. By thinking critically about the way garden programs are designed and implemented, we can give these programs a push toward the latter.

**Political Ecology: The Importance of Infrastructure**

Anthropology, especially, provides the means for describing these underlying systematic causes and bringing them into the light, so they may be understood at an individual level. First, using political ecology allows us to better understand the relevance of the non-profit system and how private funding sources affect school garden programs in the Title I school system (see the description of such funding sources in Chapter 1). Political ecology specifically has provided guidance for this in regards to understanding underlying structural forces. “The key, it seems, is
to encourage these pieces to speak more directly to one another, and to build upon one another, in creating a more comprehensive and honest approach to the practice of alternative food” (Hayes-Conroy and Hayes-Conroy 2013, 88). Thus, the roles of private funding from major donors in conjunction with the public school resources that are allocated (or, in most cases, not allocated) to such programs becomes integral to understanding their successes and challenges.

Allen and Guthman (2006) have a great deal to say about how school food programs are funded:

One question is whether these programs can sustain themselves without increases in regular, stable funding. That FTS [farm-to-school] programs exist at all is due primarily to the largesse of private foundations. Yet foundations change priorities and generally do not provide long-term funding to the same programs. Many FTS programs, particularly new ones, would be in jeopardy if the economy continues to decline and funding becomes even scarcer. The key point here is that while public funding has been regular, universal, and relatively secure, private funding comes from a competitive (market) process that is idiosyncratic, particular, and unreliable over the long term. Traditional school programs, that is, have been supported by federal programs that have subsidized consumers and producers. To date, there is no comparable stable source of support for FTS programs (407).

While the authors are speaking primarily of farm-to-school programs, the concerns are largely the same: what happens when private funds are depleted, or when private funders’ goals change?

Another key issue that was revisited by participants and presented as a major challenge to teachers, administrators, and organization staff alike was the distribution of labor and organizational structure for the school gardening programs. The volunteer structure for EPP is problematic – volunteers have long been used to justify devastating budget cuts in schools, furthering the restrictions on proper access to resources in schools. Parent involvement can be a useful tool in mitigating some of these concerns (Li and Hooker 2008), but even so, parents “tire and tend to move on as their children move through the school system” (Allen and Guthman 2006, 407).
Critical Pedagogy: Designing a Curriculum for the Next Generation of Eaters

Standards-based pressures. As Allen and Guthman (2006) posit, the neoliberal standards-based education system has made it nearly impossible to provide any educational instruction outside of the topics predetermined by the state. Health, wellness, and food choice are all tertiary topics that are given a total of five minutes a day for discussion – and that is assuming the teacher has the knowledge or resources to discuss it at all. Lessons in the gardens are explicitly tied to the Florida educations standards, which are devoid of nutrition, local foods, or knowledge of how to make positive, sustainable food choices. Especially in Title I schools, the curricula and methods of instruction, in conjunction with a teacher on hand to “deal with behavioral issues”, are insufficient.

Further, the idea of “choice” in a school garden program, i.e., that by trying a vegetable and deciding they like it, the child becomes an educated consumer and is equipped to make better choices moving forward, is inherently flawed and deeply rooted in neoliberal ideas about the free market and individualism. While choice is a valuable action step for consumers to take, especially in regards to the food movement, “the distinction between consumers as purchasers and consumers as eaters conflates citizenship and consumerism…This elision thus reinforces the idea that social change is simply a matter of individual will” (Allen and Guthman 2006, 411-412). The local food movement, improving the food system and ensuring food justice goes beyond individual consumer choices, and the idea of school gardens can undermine this. Thus, when turning a critical lens on the pedagogical justifications for many school garden programs, it is clear that neoliberal ideas of consumer choice and freedom in food choice are not only lauded, they are assumed privileges of the students in these schools – privileges that most of them, who
are on at least one nutritional supplemental program through the federal government (the NSLP), are not afforded.

**Are School Gardens Resistance Movements?**

School gardens could provide key access points to serve as resistance movements and a starting point for an alternative food system brought about by the next generation. Yet now, in their current state, they often serve to reinforce neoliberal education policies, serve as somewhat ineffective tools for standardized testing preparation, and fail to provide spaces for “affective and playful labor that become the bases for knowledge production that exceeds the disciplinary functions of standardized testing, individual achievement, and accountability emphasized in neoliberal school reform” (Moore et al. 2015, 407). All of these areas can be expanded upon, improved, and changed to give school garden programs the space allow such playful labor, especially in the Title I schools that could benefit from it the most. As stated in Chapter 1, this research sought to address research questions in two areas: infrastructural and curricular, all aimed at trying to determine if and how school gardens can serve as a form of resistance, and means to create alternative means for food systems education.

First, many of the questions were infrastructural. Primarily, the questions were focused on the development and maintenance of gardens and on the stakeholders and the diversification of programs at each school. The need for greater community involvement and the organizational challenges faced by the organization helped to address these questions. Relying on volunteers directly from the organization was complicated, but there are clearly other opportunities for community involvement and ways to utilize the gardening programs in ways that meet the needs of students. School gardening programs are the same at every school, regardless of their individual needs, and the programs rely almost entirely on private donors. School gardens are
based on beliefs of the benefits of gardening practice as understood by those in power, most of
whom are white and affluent (and have little experience with underresourced schools).

This model creates gardens that are not relevant to the practical problems and needs of
these mostly low income schools that serve students of color, and otherwise marginalized
students. In Pinellas County, Florida, with this particular program, schools do not have the
opportunity to use gardens differently at each site, since they do not have access to the gardens
outside of the scheduled programs. These challenges with tailoring the gardens to the specific
goals and needs of each school could be one of the primary reasons why the gardens are
underutilized by teachers and do not seem to provide the alternative methods of education that
much of the literature seems to call for.

The second half of the research questions were curricular, and aimed to see if the
messages students were getting in the garden were about food and sustainability as a means to
present a counternarrative to the standards-based, neoliberal lessons that students were learning
in school (and also in food insecure homes). The literature suggests that there are challenges in
developing these kinds of creative, innovative curricula because of the dominance of standards-
based teaching and the pervasiveness of neoliberal ideology, and my own analysis confirms this.

The intended outcomes for participation by both schools and the EPP itself, it seems,
were primarily earth science-based, and had little to do with health or food, except as a tangential
area of knowledge that students would ideally have in conversations with one another or with
volunteers. Information about nutrition and healthy eating is sparse, and time and access are the
primary barriers to participation for teachers. However, there is a great deal of interest from
teachers, and teachers believe these programs can be beneficial in helping them achieve their
goals of both achievement on standardized testing and helping inform their students about health
and healthy eating. Nearly all (93%) of teachers surveyed said they would like to be able to devote more time to discussing food and healthy eating, but state standards and Florida’s block scheduling prevent this. Thus, answering these research questions showed that there were some key access points for improving school gardening programs and building on the assets already in place to create more spaces for children to learn about food and health and engage in alternative learning and socialization processes.

In order for this to occur, first curricular developments that seek to address food systems education and making positive food choices need to be developed. Rather than just encouraging students in the most underresourced schools, coming from families who live close to, at, or below the poverty line, to make “better” choices as individual consumers, school gardens must take a role in an alternative food movement that changes “political-economic priorities and patterns that are at the heart of the problems” (Allen and Guthman 2006, 412). But how?

One practical step could be in returning to Coleman and colleagues’ (2012) recommendations for successful nutrition education in schools. Their study, in low-income schools where all children were eligible for free or reduced lunch, showed the importance of mobilizing stakeholders within the schools and the community, but also of developing programs that were incorporated into the classroom, before/after school programming, and in the cafeteria/at recess. This was done within the context of schools’ federally mandated wellness policy, something that EPP has seemingly not tried to accommodate or use to their advantage. Coleman and colleagues also consider the neoliberal critiques lobbied at such programs, though not explicitly: “One main reason for the lack of success in school-based interventions is that they fail to target system-wide policy and environmental factors influencing a child’s/family’s/school’s ability to change behavior” (Coleman et al., 2). As a result, addressing
this shortcoming was made more complicated/challenging to achieve because of the key barriers
the authors highlight: difficulties changing the environment within the school (due to snack sales,
vending machines, unhealthy foods brought from home), integrating interventions into daily
activities within the school day, and difficulties implementing gardening curricula because of
standardized testing requirements. Elements of each of these shortcomings describe issues facing
school gardening programs, as well, but Coleman and colleagues (2012) purport that changing
delivery/implementation protocols are the key factor in mitigating these barriers. They describe
the failures of the general evidence-based medicine approach to these kinds of program
interventions and argue that it “fundamentally ignores the multiple school level variables that
may affect intervention effectiveness (such as financial concerns, labor issues, staff behavior,
parental reactions)” (2). Thus, (though perhaps not on purpose), the authors reinforce the
importance and value of an anthropological approach to the development and study of such
programs – particularly within the context of political ecology and critical pedagogy, which
provide the tools for addressing and explaining all of these school level variables at once.

Moore and colleagues (2015) make strong suggestions for addressing the aforementioned
barriers to successful programming, as they believe school gardens can prove to be key in
providing a space for alternative methods of learning and new ways of knowledge production
that can mitigate the “disciplining ideologies” in schools and viewing them as “sites of potential
socioecological transformation…through consistent practice, centered on affective and playful
labor…to emphasize rationality and solidarity in school space” (414). EPP and organizations like
it should take note: by making their programs more accessible to students and teachers, and
changing the curriculum to provide a space for playful labor and building relationships with
other students, teachers, educators, and also with the environment itself, they can start to change
the dialogue and create spaces not only for learning about food, but for promoting food justice and social movements that can create a more equitable food system. This could be addressed starting with a few key areas for change/improvement based on the experiences in the garden and the relevant literature:

- Offer gardening programs throughout the school day and during afterschool programs. Encourage peer mentor programs and other volunteers/school administrators who work with students to bring their classes out into the garden.

- Design promotional and curricular materials that help teachers understand the gardening programs and integrate the lessons used in the garden not only in a wide variety of course subjects, but also in their conversations about health and food.

- Develop a strong volunteer based for garden programs using community members, and plan community events at the schools using the produce in the gardens (a miniature farmers market, cooking demonstrations, educational workshops) for children, families, and community members.

- Use the foods grown in the garden to change the food environment in the schools, serving foods in the cafeteria or using it in cooking demonstrations/afterschool programs for students.

- Emphasize the garden as a space for playful, active learning in trainings for teachers and volunteers, as opposed to reinforcing discipline and control.

These recommendations and all of the findings from this work will be shared with EPP staff and school administrators. Additionally, these findings will contribute to broader scholarship on school gardens in public schools and will aid in the current efforts to improve
these programs and examine ways to supplement or resist current neoliberal education structures. Future research into school gardens should continue to work toward the expansion and improvement of school gardens to provide a space for children to learn about food and sustainability while also providing reprieve from “bureaucratic violence” and capitalist logics that perpetuate the systems that have placed these students in food insecure areas and underresourced schools.

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9 Defined by Graeber (2009): “If violence is a force capable of radically simplifying complex social situations, if bureaucracy is largely a method of imposing such a simplistic rubric systematically, then bureaucratic violence should logically, consist first and foremost on attacks on those who insist on alternative interpretations” (519)
References


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