COMMUNITY GARDEN IMPACT STUDY IN ATHENS, GEORGIA

by

LAURA ANNE INGWERS

(Under the Direction of Dennis Duncan)

ABSTRACT

Community gardens in Athens, Georgia provide the community with sustainable, local produce, but little quantitative data has been collected on their effectiveness. This study presents findings from eight community gardens in the Athens area that are owned and maintained by different community groups. An original questionnaire was created and pilot tested before being given to 43 participants to determine who was using these gardens and if the gardens were creating a measurable impact. The results indicated that volunteering or receiving food from the garden increased participants' sense of community (81.37%), gardening skills (69.7%), ability to identify fresh produce (83.8%), and sense of pride in the food they grow (80%). Participants also reported having a better knowledge of the health benefits of fresh produce (88.1%). With the current lack of quantitative data on community gardens, studies such as this could help acquire funds to support additional growth in sustainable agriculture.

INDEX WORDS: community gardens, sustainable agriculture, local food systems, food security, nutrition, sense of community, social learning theory, embeddedness theory

COMMUNITY GARDEN IMPACT STUDY IN ATHENS, GEORGIA

by

LAURA ANNE INGWERS

BS, University of California, Davis, 2009

A Thesis Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

MASTER OF AGRICULTURAL LEADERSHIP

ATHENS, GEORGIA

2014

COMMUNITY GARDEN IMPACT STUDY IN ATHENS, GEORGIA

by

LAURA ANNE INGWERS

Major Professor:	Dennis Duncan
Committee:	Nick Fuhrman David Knauft

Electronic Version Approved:

Maureen Grasso
Dean of the Graduate School
The University of Georgia
May 2014

DEDICATION

This publication is dedicated in memory of Lewis Carter, who passed away in January 2014. He was a dedicated member of the Mae Willie/ Brooklyn Community Garden and one of the many lives that have been touched through community gardens. Although, I only had the pleasure of meeting him once, he told me that his neighborhood garden was the reason that he got up in the morning and that he loved to water it and make it beautiful. He will be greatly missed.

ACKNOWLEDGEMENTS

My first thanks goes to my husband, Miles, who always sees more in me than I see in myself. Without him and the rest of my family, I never would have believed I could achieve so much.

And of course without the help and support of my advisor, Dr. Dennis Duncan and my committee members, Dr. Nick Fuhrman and Dr. David Knauft, this study and publication would not have been possible. Thank you for always having your doors open and your advice readily available.

Thank you to all of the Agricultural Leadership, Education and Communication Department for making me feel like part of the family and for creating a tight knit community in the midst of such a large University. Especially my friend and office mate, Natalie Kincy, for helping me get through this last semester!

And last, but certainly not least, as they are the heart of this project. Thank you to Athens Land Trust, the Community Garden Network and all of the volunteers for working with me and providing me with such valuable data and information. Thank you for welcoming me into your world of community gardens and local food systems. What I have learned about food, health and community will stick with me throughout my life.

TABLE OF CONTENTS

Page

ACKNOWLEDGEMENTS v

LIST OF TABLES viii

CHAPTER

1 INTRODUCTION 1

Purpose and Objectives 1

Background and History 1

Theoretical Framework 2

Definition of Terms 2

Study Limitations 4

2 REVIEW OF LITERATURE 6

Introduction to the Local Food System Movement 6

History of the Local Food System Movement 7

Aspects of a Local Food System 9

Descriptions of Athens Community Gardens 14

Theoretical Framework 17

3 RESEARCH DESIGN AND METHODS 20

Purpose and Objectives 20

Justification of Mixed Methods Approach 21

Quantitative Data Collection Procedures 21

Qualitative Data Collection Procedures 31
Data Analysis 33
4 RESULTS 34
Purpose and Objectives 34
Research Objective #1 34
Research Objective #2 36
Research Objective #3 39
5 DISCUSSIONS AND RECOMMENDATIONS 43
Purpose and Objectives 43
Review of Methods 43
Discussion of Population 45
Summary of Findings 47
Recommendations for Future Research 49
Relevance Statement 50

REFERENCES 52

APPENDICES

A Questionnaire Instrument – Pilot Version.....57
B Questionnaire Instrument – Final Version 59
C Consent Form - Questionnaire.....61
D Consent Form – Focus Group 62
E Focus Group Guiding Questions 63
F IRB Approval Confirmation Page 64

LIST OF TABLES

Page

Table 1: Pilot Study Questionnaire Constructs and Corresponding Reliabilities 26

Table 2: Final Questionnaire Constructs and Corresponding Reliabilities 29

Table 3: Participant Responses to Demographic Items Reported in Valid Percentages 35

Table 4: Percentage of Participants Who Agreed or Strongly Agreed with Individual Questionnaire Items 38

Table 5: Domain Analysis: Common Themes for Open-ended Question 1 40

Table 6: Domain Analysis: Common Themes for Open-ended Question 2 40

Table 7: Domain Analysis: Common Themes for Each Focus Area Identified in Focus Group .42

Table 8: Demographics as Compared Between Sample Population and Population of Athens....45

CHAPTER 1

INTRODUCTION

Purpose and Objectives

The purpose of this study was to determine and understand the impacts that the community gardens have on the community of Athens, Georgia. This includes impacts on the food security, food purchasing behavior, sense of community and nutritional aspects of the population. A questionnaire was used to measure the impact on volunteers working in eight different gardens in Athens. The objectives of this study were (1) to identify and describe the demographics of participants in community gardens in Athens, Georgia, (2) to determine if participating in community gardens has a measurable impact on a person's a) Sense of community, b) Food security, c) Ability to grow food, and d) Overall health and nutrition, and (3) to understand why a person participates in a community garden and what barriers would prevent a person from participating.

Background and History

Local food systems, especially community gardens, first became popular during times of war to take the pressure off of the national food supply (Goodman, 2000 as cited in Twiss, Dickinson, Duma, Kleinman, Paulsen & Rilveria, 2003). They had another spike in popularity as an attempt to assist low-income residents in urban areas who didn't have access to fresh, healthy food (Allen, 1999). Communities turn to local food systems when there is a threat to the

national, or global, food system. The threats today are of a different nature, but some of the same alternatives are being implemented. Sustainable community projects such as farmers markets, community supported agriculture and community gardens offer consumers local options that are integrated within the community (the importance of that integration or embeddedness will be addressed in the next chapter). Community gardens have been springing up in large metropolitan areas, such as Toronto, San Francisco, New York and Detroit in response to food safety concerns and falling economies (Baker, 2004; Ferris, Norman & Sempik, 2001; Schmelzkopf, 1995; Heckler, 2012; Anonymous, 2012).

Theoretical Framework

There are two main theories that provided the framework for this research and subsequent results. *Social Learning Theory* describes one of the many forms of learning that is associated with community gardens and *Embeddedness Theory* supports the role of the community garden or local food system within a community. The significance of these theories will be explained in more detail in Chapter Two.

Definition of Terms

Athens Land Trust: "A private, non-profit 501(c)(3) corporation established in 1994 with the goals of land preservation, affordable, energy efficient housing, and neighborhood revitalization" (Athens Land Trust, 2014).

Certified Naturally Grown: "The Certified Naturally Grown produce standards are based on the USDA National Organic Program standard, but Certified Naturally Grown is neither accredited by nor affiliated with the National Organic Program" (Certified Naturally Grown,

2014). It is a grassroots alternative to the United States Department of Agriculture regulated organic certification.

Community: A social unit of any size that shares common values. It can be a city, town, neighborhood, organization, etc.

Community Garden Participant/ Volunteer: To be a participant (for this study) a member of the community must be involved with the garden in some way, whether that is actively gardening and helping to build or maintain gardens or receiving food from the garden. Participants are further identified as "volunteer" if they are actively involved with the gardening and maintenance.

Food Security: Access by all members of a household, at all times to enough food for an active, healthy life. Also includes being able to acquire enough nutritious, culturally acceptable food in a socially acceptable way (Coleman-Jensen & Nord, 2013).

Low Socio-economic status: Socio-economic status is a measure of a person's economic and social status in relation to others in a community. It is based on income, education and occupation.

Meals on Wheels: a national organization that provides meals to seniors to combat senior hunger.

Organic: "Organic agriculture produces products using methods that preserve the environment and avoid most synthetic materials, such as pesticides and antibiotics. USDA organic standards describe how farmers grow crops and raise livestock and which materials they may use" (USDA, 2014).

Raised beds: type of gardening that utilizes wooden structures above ground to grow produce. This method is often useful when the soil needs to be amended or supplemented to be more effective.

Rural Area: The geographic region located outside of cities, towns or any metropolitan area. More typically referred to as the country and highly associated with farming and agriculture.

Conventional rural agriculture: The cultivation of plants or animals for food or fiber, also called farming or husbandry. One of the main forms of industrial agriculture used large scale in the United States is a monoculture system, or the growing of a single crop intensively. "Conventional farming systems vary from farm to farm and from country to country. However, they share many characteristics: rapid technological innovation; large capital investments in order to apply production and management technology; large-scale farms; single crops/row crops grown continuously over many seasons; uniform high-yield hybrid crops; extensive use of pesticides, fertilizers, and external energy inputs; high labor efficiency; and dependency on agribusiness. In the case of livestock, most production comes from confined, concentrated systems" (Gold, 2007).

USDA: United States Department of Agriculture, a department of the federal government, which provides leadership and research in the areas of food, agriculture, natural resources, rural development, nutrition, and related issues (USDA, 2014).

Study Limitations

This study was conducted solely in the community gardens in Athens, Georgia and therefore the results cannot be generalized to community gardens nationwide. While the sample

size of 43 participants was strong enough to do a statistical analysis on the data, a larger sample size would have provided a more complete picture of the community garden system of Athens, Georgia. It also would have provided a better population on which to conduct the pilot study. Because it was so small it was difficult to find a group to compete the pilot study that was similar to the sample population. The lower response rate was probably due to several factors. First, the data collection for this research was combined with the efforts of Athens Land Trust, a local nonprofit organization that needed data to submit for a grant summary that was due at the end of November 2013. This research was approved through the Internal Review Board at the end of October, so that left a very narrow window of almost exactly one month to collect responses from participants.

Second, this window also fell during a time of year where some of the gardens in town are not as active as they are in the summer and early fall. Several of the gardens had already harvested their last summer and fall crops and tended not to have as many volunteers that wanted to participate in the garden during the winter months. Because of this, visiting the gardens in person to recruit participants was not an effective method and many of the inquiries for questionnaire responses were conducted through email. This also meant that the gardens with the most responses were the ones located at residential facilities because the participants actually lived there (this included Athens Community Council on Aging and Athena Gardens – both residential retirement communities) and might have skewed some of the demographic data, such as age, income or education level.

Another limitation of this study may have been the involvement of Athens Land Trust. They were a huge benefit, but they also may have caused a bias in the participants if they thought that by answering more positively they would ensure more funding for their gardens.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction to the Local Food System Movement

The local food system movement is a broad term that encompasses many, more defined, ideas and concepts. It has been linked to everything from organic food to community equality. It can also be synonymous with terms such as foodsheds (Kloppenburg, Hendrickson & Stevenson, 1996; Peters, Bills, Wilkins & Fick, 2009) and community food security (Allen, 1999; Baker, 2004; Gottlieb & Fisher, 1996). Going with the widest definition available, Peters et al. (2009), defines "Local Food", "In part, [as a] geographical concept referring to the distance between food producers and consumers" (p. 2). While that distance is not determined, it is often thought of as approximately 100 miles or within a state (Brown & Miller, 2008, p. 1296; Peters et al., 2009, p. 2). As stated by Kloppenburg et al. (1996), "… though their precise boundaries will rarely be sharply defined, we insist that foodsheds are socially, economically, ethically, and physically embedded in particular places" (p. 38). This is a critical concept in any Local Food System. The important part of the movement is not the geographical definition, but the development of community that occurs as these systems are constructed; the connections between producers and consumers that are formed. "The community food security movement is part of this trend, emphasizing decentralization, community action, local decision making and finding a sense of place" (Allen, 1999, p. 119).

In addition to the geographical component, there is a social and political aspect as well. A local food system is an "…alternative system of food production that addresses the perceived ills of the modern food system" (Peters et al., 2009, p. 2). It can address concerns such as carbon emissions and environmental sustainability as well as, fresher, tastier produce and public health. "The local food movement is a part of a worldwide trend in which many consumers are becoming motivated to use their food purchases to support a sustainable food system" (Rose, Serrano, Hosig, Haas, Reaves, & Nickols-Richardson, 2008, p. 272). Not all of the purported benefits are present in every system and the actual ability of a local food system to effectively address these concerns is currently up for debate. As of now, it is better to look at each community situation individually to determine if that particular system is effective at addressing these concerns.

History of the Local Food System Movement

Local food systems have historically vacillated in popularity. For example, during World War I and II the number of community gardens spiked in several countries, including the United States, United Kingdom, Canada and Germany. This was to take the pressure off of the public food supply. "Community gardens began at the turn of the 20th century and had a renaissance during the world wars in response to food shortages" (Goodman, 2000 as cited in Twiss et al., 2003, p. 1435). The interest dropped off again after the wars were over and food shortages were no longer an issue.

There was another increase in local food systems in the 1970's. In an effort to assist low-income people in cities to grow and preserve food, the public housing authorities along with the USDA began encouraging urban agriculture in 1976. Urban agriculture is by definition,

producing food within a metropolitan community. "[Often] using residential plots, public or vacant land, balconies, or rooftops" (Allen, 1999, p. 123). This use of urban agriculture has continued and, according to Allen, one third of farms are currently located within urban areas (1999). Urban agriculture is an important part of local food systems and community food security because it allows a community to work towards a self-sustaining system rather than relying on the transportation of food grown in the rural areas back to the cities. "Farming in low-income urban settings creates an opportunity to explore sustainable and healthy food systems that are equitable and respectful of local culture" (Hu, Acosta, McDaniel & Gittelsohn, 2013, p. 74).

There are several examples of urban agriculture taking root in metropolitan environments around the nation. In Toronto, there are 110 community gardens spread throughout the city. They provide a place for recent immigrants to connect and create a sense of place (Baker, 2004). In the San Francisco Bay Area, specifically the cities of Berkeley, Oakland and Richmond, there are several school gardens and urban agriculture programs right in the middle of the city. Many of these programs and gardens aim to empower local youth of low socio-economic status that often get into trouble with guns, gangs and violence (Ferris et al., 2001). In the Lower East Side of Manhattan, New York there are more than 75 gardens that have been developed in vacant, abandoned lots by residents of all nationalities living in this poor part of town. Much of the land and properties were abandoned during the fiscal crisis of the 1970's and is now owned by the city. Many of these gardens were created in an effort to reclaim derelict space and combat rampant drug activity and violence (Schmelzkopf, 1995). In Detroit, urban agriculture is being used to counteract the effects of the shrinking economy and city population that was left in the wake of the industrial collapse. Transforming abandoned lots into productive agricultural land

helps combat rising rates of drug use, crime and violence as well as get rid of food deserts that tend to surround the core of the city. "Residents view urban farming as a solution to economic downturn and abandoned lots" (Heckler, 2012, p. 217). These are just a few of the cities that have turned to urban agriculture as a solution to many of the problems that our economy and communities face today.

Conventional rural agriculture also plays a part in sustainable, local food systems in the form of CSA and farmers markets, which will be discussed in the next section. A variety of different aspects can comprise a local food system and it depends on the unique needs of the individual community.

Aspects of a Local Food System

There are a number of methods for implementing a local food system, limited only by the innovativeness of a community. New methods of food production and distribution are put into action every day, but there are a few methods that have been used with proven, measurable success in many communities. The key is evaluating these different approaches and identifying the benefits and the barriers and finding strategies to make them more effective for all communities. This also requires needs assessments in each community. Peters et al. (2009) calls this a foodshed analysis, where the key players and channels of food production and distribution are identified. Once a community knows where it stands they are more aware of the areas that need to be improved and how to incorporate new locally based food systems.

Community Supported Agriculture

Community supported agriculture (CSA) is an arrangement between producer and consumer that reduces the risk for the producer and increases the consumer's say in how their food is grown. Consumers pay a certain amount at the beginning of the growing season for a share of the producer's crop throughout the season. This creates a bond between consumer and producer and a shared risk between them. According to Janssen (2010), "The CSA movement in the United States began in the mid-1980's" (p. 4). This is usually a good option, along with farmers markets, for small and beginning farmers to market their products to consumers. They have grown in popularity since their introduction. In 1990 they were estimated at about 50 participating farms nationwide and now number just under 2,000 throughout the United States (Brown & Miller, 2008).

Farmers Markets

"Farmers markets could be considered the historical flagship of local food systems" (Brown & Miller, 2008, p. 1296). Farmers markets are also a way of bringing the consumer and producer closer together by removing the middleman. Farmers markets provide a venue for small and local farmers to sell their products and allow community members to have more choices in the type of food they purchase. Many consumers are looking for organic, naturally grown or environmentally friendly produce, so this encourages farmers to alter their practices or not remain competitive. They have grown tremendously with the recent surge of locally and organically grown food. The number of markets nationwide has increased by 184%, from 2,863 to 8,144 since the year 2000 and by 33% just since 2010 (USDA, 2013). They also provide a space to promote local activities and create a sense of community (Brown & Miller, 2008).

Community members benefit from the atmosphere and entertainment of the outdoor markets. They interact with friends, neighbors and local producers, therefore, creating a stronger community bond.

Community Gardens

Community gardens are another staple of local food systems and the focus of this study. Community gardens can exist in many different environments and for many different purposes. "Community gardens can serve an array of agendas because of their association with fundamental core values related to nature, individualism, and democracy… community gardening provides a photogenic, nostalgic, and therapeutic representation of agriculture and its associated values" (Lawson, 2009, p. 203). The variety within this category will be discussed further in the following sections.

What defines a community garden?

Community gardens can be found in every shape and size all over the country. They can be in a neighborhood, an abandoned lot, behind a church or even outside the homeless shelter. Community gardens have a necessarily broad definition. "What distinguishes a community garden from a private garden is the fact that it is in some sense a public garden in terms of ownership, access and degree of democratic control" (Ferris et al., 2001, p. 560). In Athens, Georgia, there are about thirteen of these various gardens around town. Managed by a local Non-profit organization, Athens Land Trust, and labored in by local volunteers, these gardens are part of a much bigger movement that is growing steadily around the nation. According to Ferris et al. (2001), ""Community gardens are now recognized to be an international phenomenon, and

urban gardening is widely seen to be a way of improving local food supplies as well as leisure and recreational activity" (p. 560).

Types of community gardens.

There are some consistencies that brand it as a community garden, but there are many different types of gardens that fall under the broad umbrella term of *community garden.* The different types can be broken up into categories by looking at the underlying purpose of the garden. For the purpose of this study, the multitude of garden types and descriptions from the literature have been condensed down into four main categories that closely resemble the gardens present in Athens, Georgia, but could also apply to other locations and communities (Ferris et al., 2001). These garden categories are not mutually exclusive; one garden may serve multiple purposes in a community.

Entrepreneurial market gardens.

This form of garden is usually created to produce either supplemental food or income for families in the community. The members of the community that volunteer to work in these gardens are either taking the produce home to feed their families or they are selling the produce at a local market to earn extra income. They are also gaining valuable skills in food production and sales that can aid them in increasing their family's income over time.

Community building gardens.

These gardens can serve several purposes, but they are usually considered a gathering place or place of healing. They include gardens used for therapy, healing, memorial or leisure.

Retirement homes may have one to increase physical activity of their residents. A community organization or hospital may have one to help clients deal with a death or illness in the family. Leisure gardens are also created in neighborhoods or other community spaces to give locals a place to work together and enjoy being outside.

Reclamation gardens.

A reclamation garden is where a neighborhood or community joins together to create a peaceful, beneficial space out of a place with a violent or negative history. For example, in Athens, Georgia, the Mae Willie Morton Community Garden was created in an old neighborhood on a site where a drug house used to stand. The neighborhood took back the space that held so many negative memories and created an aesthetic green space that provides fruits and vegetables as well as community pride.

Educational school gardens.

Gardens created on school property for the purpose of educating children about the food they eat are increasing all over the country. Many are in association with the Farm to School programs that are making their way into curriculums in many states. In 2012, almost 18% of schools nationwide had a farm to school program that connected school districts with local food producers and/ or set up school gardens on site (Schneider, Chriqui, Nicholson, Turner, Gourdet & Chaloupka, 2012). For this study, school gardens were not included in the community garden network and were not studied. There is extensive research happening in the realm of Farm to School and school gardens, so they were left out of this group of respondents. There is also a

different dynamic when it comes to volunteers and participants of these gardens since they are usually owned and managed by the school system.

Descriptions of Athens Community Gardens

Although the gardens in Athens have been grouped into categories, each one is unique and serves a specific purpose. Each one usually has one or two dedicated volunteer gardeners that keep it running and then a few other, more sporadic, helpers. The following briefly describes each of the eight gardens that participated in this study and what purpose each one serves in the Athens community.

AIDS Athens – CARE Garden

Community building garden.

This garden is located onsite at the facility for the AIDS Athens organization. In a sunny spot behind the building you can find clients and their friends and families spending time out in the garden on a weekly basis. With a few well-placed raised beds, they are able to get quite a bit of produce out of their small garden. Along with fresh produce, it also provides a place for people to support each other and enjoy being together.

Athena Gardens Retirement Community

Community building garden.

In this full-service senior living community they have incorporated this community garden into their daily activities. With fourteen raised beds, it takes the efforts of many of the residents to tend the vegetables grown here. Some residents enjoy staying active and

volunteering in the garden and some just enjoy watching and being a part of the community. They all enjoy the delicious meals that are prepared onsite using the fresh produce from their garden.

Athens Area Homeless Shelter

Community building garden.

The local homeless shelter began a small garden that sits right outside the front door of the facility. Volunteers come two to three times per week to help grow fresh produce that is then used to feed the residents. It also provides a good hands-on activity for the children that are temporarily utilizing the shelter's services.

Evergreen Church Community Garden

Entrepreneurial market garden.

On several acres of land, the Evergreen Church of Athens is committed to living as greenly as possible. The put their words into action by starting a community garden where volunteers grow fresh produce that they either take home to feed their families or give to friends or neighbors. They even have a local agriculture class that used the garden to grow crops that were then donated to Meals on Wheels.

Mae Willie Morton/ Brooklyn Community Garden

Reclamation garden.

This garden is a great example of a reclamation garden and is taken care of completely by the neighborhood. One of the oldest community gardens in the city, the garden is planted on a

site that used to contain a drug house. After the house was demolished, the neighborhood was given the land by the Housing Authority and began growing fresh produce and reclaiming the land that once caused so many problems.

Riverwood Apartments Community Gardens

Community building garden.

In a sunny spot on the property, this apartment complex has a garden for all of the residents to enjoy. One resident even said the garden was why she chose to live there over other options here in Athens. With a very small group of dedicated volunteers, the residents receive fresh produce and a place to get to know each other.

Athens Community Council on Aging Gardens

Entrepreneurial market garden.

The Athens Community Council on Aging facility houses a large garden plot onsite. Residents spend time helping in the garden or they benefit by purchasing food that is sold at the onsite produce stand. Many residents just enjoy spending time with others outside in the garden.

West Broad Market Garden

Entrepreneurial market garden.

As one of the bigger gardens in Athens, this site is used for providing produce for the monthly farmers market, selling to local stores and restaurants or as a demonstration site for gardeners. It is located in the schoolyard of an abandoned elementary school and could also be

considered an example of a reclamation garden. Volunteers are working hard to expand the garden and get more of the local community involved and benefiting from the garden.

Theoretical Framework

Everett M. Rogers has categorized people based on how they adopt certain innovations and made generalizations about their characteristics through the Diffusion of Innovations Theory. Several of these generalizations state that people who adopt an innovation earlier than other people are typically more highly educated, have a higher income level and have a higher social status. They also have a greater degree of upward social mobility and usually have larger-sized units (farms, facilities, companies, etc). According to these generalizations, "socioeconomic status and innovativeness appear to go hand in hand" (Rogers, 2003, p. 288). This characterization of people adopting innovations supports the current literature surrounding community gardens. In this situation the community garden, farmers market or any other component of a local food system is considered to be the innovation. The literature generally agrees that farmers market and CSA customers tend to be in higher income brackets and have higher education levels (Byker, Shanks, Misyak & Serrano, 2012). The researcher was unable to find similar data for community garden volunteers, but since farmers markets and CSAs are other aspects of local food systems the target population is thought to be closely related. The results of this study actually show a slight divergence from this generalization since 78.8% of participants fell in the lowest income bracket (less than $29,000 annually) and 36.1% had a high school diploma as their highest level of education (see *Study Limitations* section for possible reasons behind this difference). Along with these generalizations there are two theoretical frameworks that were used to support this study.

Social Learning Theory

Pioneered by Albert Bandura in 1977, this social psychological theory explores how people learn through social systems and exchanges by means of observational modeling. "…In social modeling the observer extracts the essential elements from an observed behavior pattern in order to perform a similar behavior" (Rogers, 2003, p. 342). In other words, verbal communication does not need to occur for behavior change to occur. This is a very appropriate model for the type of learning that occurs in community gardens. Both the actual skills involved in gardening, as well as the overall idea of starting or working in a community garden are passed on through interpersonal networks as well as public displays. One important aspect of this theory is that "the observer's behavior is not exactly the same as the model's…" (Rogers, 2003, p. 342), so each individual, neighborhood or organization can adapt their community garden to their own unique situation.

Social Embeddedness Theory

Social Embeddedness Theory focuses on societies' interpersonal networks and connections and how they impact the presence of trust and malfeasance (Granovetter, 1985). When one person is more closely linked socially to another person their exchanges will generate more trust and less malfeasance leading to a more secure network. This can be seen as an argument for local food systems as they are more embedded in the local community and rely more heavily on interpersonal connections and networks than the global food system. Polyani, as referenced in Izumi, Wright & Hamm (2010), maintained that as global markets became more destructive, society would swing back toward more embedded, local markets. An embedded food system is built on trust and local connections between producer and consumer. With recent

trends in food safety concerns and a lack of trust in large agricultural corporations, many consumers are starting to prefer a more localized, embedded food system. Community gardens promote the building of relationships and a sense of community around a common purpose. They help to strengthen the ties between members of a community, therefore, leading to a more embedded and trusted food system.

CHAPTER 3

RESEARCH DESIGN AND METHODS

Purpose and Objectives

The purpose of this study was to determine and understand the different impacts that the community garden network has on the communities of Athens, Georgia. This includes impacts on the food security, food purchasing behavior, sense of community and nutritional aspects of the population.

The objectives of this study were as follows:

1. To identify and describe the demographics of participants using community gardens in Athens, Georgia.
2. To determine if participating in community gardens has a measurable impact on a person's…
    a. Sense of community
    b. Food security
    c. Ability to grow food
    d. Overall health and nutrition.
3. To understand why a person participates in a community garden and what barriers would prevent a person from participating.

Justification of Mixed Methods Approach

A mixed method approach was taken to ensure measureable, comparable data as well as to get more in depth responses from participants. A questionnaire was chosen as the quantitative method to collect data from a potentially large sample and a focus group was chosen as the qualitative method to ensure in depth responses to particular questions. This methodology combines techniques to gain a more complete picture of the impact that these gardens have on the local community of Athens, Georgia. Mixed methods research has become more popular in recent research because it can be a form of triangulation in order to ensure completeness and accuracy of the data collected (Bloor, Frankland, Thomas & Robson, 2001; Hittleman & Simon, 2002).

There is little to no previous research on community gardens that focuses on and makes use of quantitative data. Throughout the literature, interviews and focus groups are much more common forms of evaluation. The quantitative method of response scales to items on a questionnaire ensures a standardized set of results that can be compared to other gardens and sustainable programs in the future.

Quantitative Data Collection Procedures

Prior to Data Collection

The researcher began volunteering with Athens Land Trust to understand the unique facets of the different gardens in Athens and to become familiar with the key informants. Visiting the gardens and meeting the people who were involved established credibility and trust with the volunteers. According to Dillman, establishing trust with the participants will increase response rate because they perceive the researcher as trustworthy and reliable (2009).

Understanding the program before conducting the evaluation was also very important to not miss any crucial details.

The researcher started in June 2013, working at the Tuesday afternoon farmers markets that was also run by Athens Land Trust and met many of the local vendors and volunteers who were helping in the main market garden. West Broad Market Garden is the main community garden managed by Athens Land Trust and one that has been classified as an entrepreneurial market garden. It is also an educational garden and serves as a demonstration site for other gardens around town. The produce grown in the garden is sold at the farmers markets that occur once a month on Saturday or the smaller Tuesday afternoon markets. If members of the community volunteer in the garden they are encouraged to take produce home with them as well. By attending these markets and workdays the researcher was able to meet some of the key informants for this group of people. One of the employees who worked for Athens Land Trust had already formed relationships with many of the key stakeholders for each garden during her time working with them. It was though these relationships that the researcher was able to get questionnaires completed. It is important to note that the managers of the gardens administered many of the questionnaires, so any influence from the researcher that might sway the response of participants was minimized.

At the beginning of fall, the researcher began working more closely with the different gardens in town through the Community Garden Network. The Community Garden Network was a program that was created and supported by a grant three years earlier and came to a close in August 2013. The grant and network was responsible for getting several of the community gardens off the ground and connecting the ones that already existed into a network. This allowed for distribution of resources such as tools, soil, compost, plants and seeds to the different

gardens. There was also a monthly educational workshop that would cover a different topic about gardening for the volunteers. Some gardens flourished under this system because they already had the volunteer base and just needed occasional support and troubleshooting, but others continue to struggle because of lack of volunteers or resources. Now that the grant is over, the gardens are going to need to become more self sufficient, but there is a website in the works that aims to direct volunteers to organizations that can provide them with resources such as seeds or compost. Future financial support will be instrumental in the continuing care and maintenance of these community gardens. Data garnered from this study might help secure external funding for sustainable garden projects.

Instrument Development

After a review of the literature, it was determined that there were no other widely used or available quantitative instruments for this type of study. The researcher developed a questionnaire under the advisement of Dr. Nick Fuhrman, University of Georgia, who is well respected and published in the field of evaluation. The publications and expertise of Dr. Don Dillman were also referenced throughout the creation and pilot testing of the instrument. The questionnaire was short and printed back and front, so it was only one piece of paper to ensure that participants did not see it as too time consuming (1993, 2002, 2009). A questionnaire developed by the United States Department of Agriculture (USDA) to assess food insecurity in US citizens was used as a reference, especially for the section on *Food Security* (Coleman-Jensen & Nord, 2013). The other sections, *Community, Fresh Produce* and *Nutrition* were included based on impacts that were described in other studies on community gardens or local markets in general (Allen, 1999; Baker, 2004; Twiss, et al., 2003). The questionnaire was

developed using standard statements and a response scale of “Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree, Unsure”. These responses were coded 1, 2, 3, 4, and 5 respectively (the unsure response was removed for the purpose of analysis). Several demographic items were included to ensure an accurate and complete description of the population that utilizes the community gardens in Athens, Georgia and to enhance understanding of other quantitative responses. This contextual information would also help to determine if the results are generalizable to a larger population (Hittleman & Simon, 2002).

The first version of the questionnaire was used for the pilot study, after which, the questionnaire was reviewed and edited to reduce measurement error. The instrument was peer reviewed by several graduate students as well as Dr. Nick Fuhrman to ensure face and content validity. It was checked for ambiguous or confusing language, statement content and general presentation (Dillman, 2009). Cronbach’s alpha was used to check for reliability within each construct and alpha coefficients of 0.70 and above were deemed indicative of adequate internal consistency (Davis, 1971).

Pilot Study

The pilot study consisted of five respondents, so the sample size was regrettably small. The reason behind this small number was the small size of the actual sample population. It was important to find participants who would closely resemble the target population, but not remove too many from the actual sample population. This presented a problem in finding a good group to complete the pilot study. The researcher decided to give the questionnaire to Athens Land Trust interns and employees, in person during a farmers market. That way they were familiar with the gardens and the experience, but they were not eligible to participate in the study because

they were receiving a paycheck or university credit for their work in the gardens. Many of these individuals had originally joined the organization as a volunteer, so their previous experience closely resembled that of the current garden volunteers. They were asked to complete the questionnaire as well as indicate if it contained any issues or errors, sometimes called a "think aloud" and then return the instrument to the researcher onsite. Despite the small sample size, the reliability was good for most of the constructs (Cronbach's alpha was above 0.70). Post analysis, the constructs were broken into four constructs instead of three to avoid reverse coding some of the items.

Pilot questionnaire constructs.

The first construct, *Community*, had four items that related to the role community plays in community gardens. The answers from the pilot study were fairly consistent across the board with an average summed score of 18.2 (SD= 2.49) on a scale of 4-20. This is a relatively high average, falling in between agree and strongly agree. An item analysis test revealed that the first item was not working well with the other three, so it was removed, making the construct comprised of three items.

The second construct, *Food Security*, had three items that addressed the different aspects of food security. The average summed score was 9.4 (SD= 3.29) on a scale of 3-15. The average response was very close to neutral for this construct. Item analysis revealed that all items were working well together, so they all remained within the construct.

The third construct, *Fresh Produce*, also had three items that dealt primarily with the buying behavior of fresh produce after starting work at the community garden. All of the answers were consistent with an average summed score of 13 (SD= 1.22) on a scale of 3-15,

which meant that it fell between agree and strongly agree. The reliability of these items was very low (below the acceptable 0.70 level for Cronbach's alpha), so it was clear that these items did not work well together. This construct was later changed substantially, so many of these items were either not included or moved to different constructs.

The fourth construct, *Nutrition*, had four items that related back to the nutritional aspect of the community gardens. The average summed score is 16.2 (SD= 4.82) on a scale of 4-20. It fell between agree and strongly agree according to the answer choices.

Table 1, below, presents the Cronbach's alpha scores for each construct in the pilot study and whether or not that construct was determined to be reliable.

Table 1

Pilot Study Questionnaire Constructs and Corresponding Reliabilities

Construct	Cronbach's Alpha	Reliable?
(1) Community	0.753 **0.882** (item #1 removed)	Yes
(2) Food Security	**0.778**	Yes
(3) Fresh Produce	0.200	No
(4) Nutrition	**0.983**	Yes

Questionnaire demographics.

Within the sample of five there were four females and one male of the ages 21,22, 25,27 and 78. This resulted in an average age of 34.6. Four of the participants were Caucasian and one

was African-American. In terms of previous experience, one participant had none, three had worked in a garden before and one grew up on a farm. Three of the participants lived a few blocks from the garden, one had to drive to get there and one declined to answer. Two of the participants lived by themselves, one person lived with one other person and two lived with three people at home. None of the participants lived with children in the home. Three had an annual household income of less than $29,000, one had a household income of $35-39,000 per year and one had a household income of over $60,000. When asked about education level, one participant had a high school diploma, one had attended some college, two had obtained a college degree and one had a graduate degree.

As mentioned previously, the group used for the pilot study was not completely representative of the sample population, especially when looking at the demographics reported.

Final Instrument

After the pilot study, the director of Athens Land Trust gave her input on the questionnaire since she was very familiar with the program and its objectives. She recommended some modifications that would put the evaluation more in line with the program and the grant with which it was created. It was also edited to increase reliability in each of the constructs by removing items that were not working well. This is where the third construct was changed to include gardening skills and growing food. An additional qualitative question was added as well to understand any improvements that volunteers thought were needed in the gardens.

The final instrument had four constructs; (1) *Sense of Community*, (2) *Food Security*, (3) *Growing Food* and (4) *Health and Nutrition* with fifteen total items. There are eleven

demographic questions to better understand the target population and two open-ended, qualitative, questions. The open-ended questions ask the participants to identify their favorite part of the garden as well as provide any suggestions for improvement. The *Community* section was created based on the literature, which shows that one of the major benefits to community garden volunteers is the sense of community that is created (Allen, 1999; Baker, 2004; Twiss, et al., 2003). The items in the *Food Security* section were based on a questionnaire created and used by the USDA to indicate the level of food insecurity in US citizens. Food security is identified by all members of a household having access at all times to enough food for an active, healthy life. It also includes being able to acquire nutritious, culturally appropriate food in socially acceptable ways (Coleman- Jensen & Nord, 2013). The low Cronbach's alpha indicated that this section was not reliable in the final instrument. This may have had to do with the negatives contained in the statements, which could have made them confusing. It could have also been caused by the sensitive nature of the topic, so participants were not as likely to answer honestly or at all. The section on *Growing Food* came from the modifications suggested by Athens Land Trust, which was based on their program objectives. The final section, *Health & Nutrition*, is a combination of the original nutrition construct (used in the pilot study) and additional modifications suggested by Athens Land Trust. The *Health & Nutrition* section was also influenced and supported by the literature (Allen, 1999). The Cronbach's alphas for each construct are presented in the table below.

Table 2

Final Questionnaire Constructs and Corresponding Reliabilities

Constructs	Cronbach's Alpha	Reliable?
(1) Community	**0.734**	Yes
(2) Food Security	0.624	No
(3) Growing Food	**0.873**	Yes
(4) Health & Nutrition	**0.816**	Yes

Data Collection

Participant selection.

Participants were selected based on minimal prerequisites. As stated in the consent letter that was approved by the Internal Review Board (IRB), "You must be at least 18 years of age and be a regular volunteer at this garden site to participate" (see appendix C). The requirements were expanded during data collection to include those who received food from the garden on a regular basis and not just volunteers (i.e. retirement community residents who could not physically garden, but received and ate food grown in the garden on site). These two groups were kept separate and were coded separately for the purposes of data analysis. Each participant was given a consent letter, as per IRB requirements, which detailed the study and any risks involved. No signature was required because this was waived by IRB in the initial proposal. It was thought that requiring a signature may dissuade some volunteers from completing the questionnaire and since there were no risks involved with participation, it was not necessary.

Recruitment procedures.

The questionnaire portion of the study was conducted over a period of 25 days. Thirteen gardens were contacted to participate in the survey, either by phone or email. The main coordinator or volunteer at each garden was contacted and asked about times that would be convenient to visit the garden. As many questionnaires as possible were conducted in person (per design of the study), but some participants chose to complete the questionnaire and return it via email due to convenience or time reasons. Eight of the thirteen gardens had at least one volunteer that participated in the study. There were several attempts to contact each garden to ensure that they all had the chance to be represented in the data. The different methods of completing and returning the questionnaire were made available in an attempt to reduce coverage error (Dillman, 2009). No other methods of recruiting participants were used besides a verbal request in person or written request via email (mainly to set up times to complete the questionnaire). No incentives were used to encourage participation and, even with the influence of Athens Land Trust and the grant summary, completing a questionnaire was completely voluntary. Some participants might have been influenced to complete the questionnaire (possible bias resulting from this situation addressed in *study limitations* section) hoping to increase funding to their garden since it was associated with the end of the grant summary. This also connects to Social Exchange Theory, where a participant would be more likely to respond to a survey if they believe that they will receive a benefit out of the exchange (Dillman, 2009).

Qualitative Data Collection Procedures

Focus Group

A focus group was used to support the quantitative data with more in depth qualitative data. The focus group was intended to reach five- seven garden volunteers for a 45 minute long session. The actual group consisted of four garden volunteers from three different gardens and was conducted on a Tuesday evening in February 2014. The session did occur during the planned 45 minutes. When volunteers first arrived they were given the consent letter to read, per IRB requirements, which detailed the study and the risks involved. No signature was required because that requirement was waived by IRB. Participants were also given a worksheet with the guiding questions to get them thinking about the answers. They were also offered refreshments before the session was started. The participants were encouraged to write down some notes about their answers to the questions on their worksheet. When all participants had about fifteen minutes to get settled and write down notes on their worksheet, the official focus group session was started. An audio recorder was set up to record the discussion and the researcher, who facilitated the discussion, read the first question. After each participant was given ample time to answer a question, the researcher would read the next question. There was minimal prompting or discussion from the researcher unless a probing question was needed for clarification. After the questions had all been read, the participants were asked if there was anything else that they wanted to bring up or discuss and then the session was ended. An open and respectful environment was very important to the effectiveness of the focus group, so that all participants felt comfortable giving their opinions (Krueger & Casey, 2009). The volunteers were thanked for their time and participation, which, according to Dillman, is also an important part of Social Exchange Theory (2009).

Participant selection & recruitment.

Participants were selected from the existing group of questionnaire respondents, so they met the above requirements, and were a convenience sample. They received a written request via email and then responded to a poll specifying their availability. A date was selected that worked for all participants who had agreed to take part in the focus group. There were no other recruitment methods used or incentives to participate, except that refreshments were offered during the meeting.

Guiding discussion questions.

The guiding questions for the focus group discussion were created originally to coincide with the questionnaire and then they were edited based on the resulting responses from the questionnaire. The final version of the question set is as follows (also see appendix E):

1. How did you first get involved with your community garden and what inspired you become involved?
2. What is the biggest barrier to maintaining and/ or improving your garden?
3. What resources were you given that you found to be most helpful?
4. What is the biggest impact that your garden has had on your life?
5. What impact has your garden had on your local community (i.e. church, neighborhood, organization, etc.)? Please provide some specific examples.
6. In your opinion, do you believe the volunteer population is a diverse group (education level, socio-economic status, gender, ethnicity, etc.)?

7. What do you believe can be done to encourage more volunteers, especially from diverse backgrounds, to participate in these gardens?

Data Analysis

Quantitative Questionnaire

The responses from the completed questionnaires were entered individually into SPSS for data analysis. Cronbach's alpha was calculated for each construct to ensure reliability. Frequencies, percentages, means and standard deviations were calculated for each demographic item. Means, standard deviations, frequencies and percentages were calculated within each construct. Independent Sample T-Tests were conducted on bivariate demographic items to discover any significant differences in the construct means between the different groups. ANOVA tests were conducted on multivariate demographic items to discover any significant differences in construct means between and within groups. These statistical tests were used to identify any differences in response between groups of participants, including but not limited to, gender, income or education level, volunteer status, previous experience, age, etc. All of this information was collected through the demographic items built into the questionnaire.

Qualitative Focus Group

The worksheets from the focus group were collected and used to confirm the audio recording of the session. The audio recording was transcribed verbatim by the researcher. This transcript of the session was then analyzed using domain analysis, which looked for similar themes throughout the discussion. This allowed the researcher to identify the most common themes that emerged from the focus group using color- coding.

CHAPTER 4

RESULTS

Purpose and Objectives

The purpose of this study was to determine and understand the different impacts that the community garden network has on the communities of Athens, Georgia. This includes impacts on the food security, food purchasing behavior, sense of community and nutritional aspects of the population. A questionnaire was used to measure the impact on volunteers working in eight different gardens in Athens. The objectives of this study were (1) To identify and describe the demographics of participants in community gardens in Athens, Georgia. (2) To determine if participating in community gardens has a measurable impact on a person's a) Sense of community, b) Food security, c) Ability to grow food, and d) Overall health and nutrition. (3) To understand why a person participates in a community garden and what barriers would prevent a person from participating.

The results from this study will be presented based on each research objective.

Research Objective #1

To identify and describe the demographics of participants in community gardens in Athens, Georgia.

Population Demographics

There were 36 completed questionnaires and seven partial questionnaires, totaling 43 responses overall. The demographics are presented as percentages of the total number of participants (including those who did not respond to the question). The valid percent was used in order to account for the missing responses. The group was divided between participants who volunteered in the garden (51.2%, n= 22) and participants who received food from the garden (48.8%, n=21). The average age was 62 years old with a standard deviation of 21.20. This number was heavily skewed by the large number of responses that were collected from the garden located at Athens Community Council on Aging. The remaining demographics are presented in the table below (Table, 3) along with the valid percent for each response.

These demographics may or may not be accurate in representing the actual population that volunteers and benefits from community gardens in Athens since there is some bias towards the gardens that had more respondents.

Table 3

Participant Responses to Demographic Items Reported in Valid Percentage.

Demographic Item	Valid Percent (%)	Valid Percent (%)	Valid Percent (%)	Valid Percent (%)	Valid Percent (%)
Previous Experience	21.6 None	21.6 Grown plants	37.8 Had a garden	18.9 Had a farm	N/a
Motivation for Participation	23.1 Friend or neighbor	7.7 Advertising	19.2 Neighborhood meeting	50.0 Other	N/a
Major Source of Fresh Produce	70.6 Grocery Store	14.7 Farmers markets	5.9 Community gardens	8.8 Other	N/a

Location Related to Garden	13.5 Next door	24.3 A few blocks	62.2 Have to drive	N/a	N/a
How Many People Living at Home	39.5 Alone	28.9 One other person	13.2 Two other people	13.2 Three other people	5.3 Four other people
How Many Children at Home	88.2 None	8.8 One child	0.0 Two children	2.9 Three children	0.0 Four or more
Income Level	78.8 $0-29,000	6.1 $30-34,000	3.0 $35-49,000	0.0 $50-59,000	12.1 $60,000 +
Education Level	19.4 Some high school	36.1 High school diploma	16.7 Some college	19.4 College degree	8.3 M.S./ Ph.D
Ethnicity	44.4 Caucasian	52.8 African-American	2.8 Asian	0.0 Hispanic	0.0 All Others
Gender	35.1 Male	64.9 Female	N/a	N/a	N/a
Age	12.9 Under 30 Years	12.9 31-50 Years	22.6 51- 65 Years	51.6 Over 65 Years	N/a
Volunteer Status	51.2 Volunteer	48.8 Recipient	N/a	N/a	N/a

Research Objective #2

To determine if participating in community gardens has a measurable impact on a person's a) Sense of community, b) Food security, c) Ability to grow food, and d) Overall health and nutrition.

Construct Means and Percentages

After the constructs were tested for validity and reliability, the means and standard deviations were calculated for each construct. The percentage of participants who indicated that they agreed or strongly agreed with a statement was calculated to determine the impact of the community gardens on respondents. The first construct, *Sense of Community*, had a mean of 12 on a scale of 3-15 (SD= 1.87), which implies that the respondents agreed that the garden built a

sense of community for them. The second construct, *Food Security*, had a mean of 8.68 on a scale of 3-15 (SD= 2.91), which translates close to neutral. The third construct, *Growing Food*, had a mean of 16.16 on a scale of 4-20 (SD= 3.43), which translates to agree. The fourth construct, *Health and Nutrition*, had a mean of 19.53 on a scale of 5-25 (SD= 3.78), which translates to agree. Each mean represents the combination of items within each construct, whereas the calculated percentages for each item below gives a more specific picture of the impact or influence that the gardens have had on participants.

The percentage of respondents who selected agree or strongly agree for each item was calculated and is presented in Table 4. These percentages indicate the level of agreement, among participants, with each item individually. For several of the items, this level was particularly high. Under the *Sense of Community* construct, 84.2% of participants felt that the garden had improved their local community. In the *Growing Food* construct, 83.3% of participants can identify more fruits/ vegetables than they could before. Also, 92.1% indicated that they were more likely to consume produce when they knew where and how it was grown. Finally, under the *Health and Nutrition* construct, 77.5% of participants said they eat more fresh fruit and/ or vegetables than they did before and 88.1% reported that they know more about the health benefits of eating fresh produce. The only construct where the percentages were significantly lower was *Food Security*. This construct asked about the level of food security of the participants, so lower levels are actually optimal, although because the reliability of this construct was shown to be below the acceptable limit, the values in this group may not be accurate or relevant. However, there was a significant difference ($t= 2.847$, $p= 0.009$) between the lowest and the highest income groups within the population when it came to the *Food Security* construct. The lowest income group had a significantly higher mean in this construct

than the highest income group. That difference in means may indicate that the construct was at least reliably measuring for food insecurity in relation to income level. This difference was discovered through the use of an Independent Sample T-Test.

Table 4

Percentage of Participants Who Agreed or Strongly Agreed with Individual Questionnaire Items.

Questionnaire Statement	Percentage
(1) Sense of Community Construct	
I feel a stronger connection to my local community at the garden.	79.4%
I feel that important topics are brought up when we are together at the garden.	80.5%
I feel that the garden has improved my local community.	84.2%
(2) Food Security	
I have NOT always been able to afford to buy healthy food.	56.1%
I am NOT always able to find the right items to prepare the food I like.	42.1%
I worry about running out of food before I can afford to buy more.	29.3%
(3) Growing Food	
I am more confident in my gardening skills.	69.7%
I can identify more fruits/ vegetables than I could before.	83.8%
I feel a sense of pride in growing my own food.	80%
I am more likely to consume produce when I know where and how it was grown.	92.1%
(4) Health and Nutrition	
I eat more fresh fruit / vegetables than I did before.	77.5%
I eat less packaged/ processed food than I used to.	70.7%
I get more physical activity than I used to.	75%
I enjoy spending time outdoors more than I used to.	75%
I know more about the health benefits of eating fresh produce.	88.1%

Significant Differences Between Groups

Statistical tests were run using SPSS on the quantitative data to look for any significant differences between groups of participants. Independent Sample T-Tests and One-Way ANOVAs were used to see if there were any significant differences in the way different groups of participants were affected by the community gardens. Demographic items that were tested

included volunteer status, gender, ethnicity, income level, education level, motivation for volunteering, and where the majority of their produce came from.

There were no significant differences between any demographic groups for any of the constructs (all p-values were above 0.05). The volunteer group and the recipient group were especially tested for differences because it was recognized that they could differ greatly in their responses as they had different experiences. The only significant difference occurred between the volunteer group and recipient group on the first item in the third construct, which asked about confidence in gardening skills. The volunteer group responded significantly higher than the recipient group when asked whether they were more confident in their gardening skills. ($t= 3.712$, $p= 0.003$). This is to be expected, but is still a good measure of the reliability of the instrument and impacts of gardening on the volunteers.

Research Objective #3

To understand why a person participates in a community garden and what barriers would prevent a person from participating.

Open-ended Questions

A domain analysis was conducted on the responses to the open ended questions. The responses were compiled into a list and the most common topics were grouped together into themes. For the first question, "In your opinion, what is the best part of your community garden?" the top three most common themes were "The fresh produce", "The aesthetic appeal" and "Working together" (Table, 5). Some other themes that did not appear as often were "Location", "Working outdoors", and "Learning new skills". The second question, "If there was one thing you could change about your garden, what would that be?" produced the single most

common theme of “Nothing”. The next two most common were “Grow fruit” and “Get more volunteers” (Table, 6). A few other themes that were not as prevalent included “More connections/ resources”, “Work more”, “Larger garden” and “Not waste the food grown”.

Table 5

Domain Analysis: Common Themes for Open-ended Question 1

Common Themes for Question #1: *In your opinion, what is the best part of your community garden?*
Fresh Produce
“Fresh deliveries – love the variety & greens”, “Veggies”, “Fresh veggies”, “I like all the produce in the garden”, “To get fresh vegetables from the produce stand”, “The produce”, “Having [food] available”, “Free, healthy food”, “Being able to gather fresh vegetables”, “Receiving fresh vegetables and spices”
Aesthetic Appeal
“The convenience, the area & location”, “The garden itself”, “Watching it grow”, “Working & seeing the garden grow”, “I like to water the garden & making it beautiful”, “Seeing it grow before our eyes”
Working Together
“Working in it”, “Community interaction”, “Bringing everybody together”, “Working together to do something healthy, connected to the earth, forming friendships with that ‘glue’”, “Companionship”

Table 6

Domain Analysis: Common Themes for Open-ended Question 2

Common Themes for Question #2: *If there was one thing you could change about your garden, what would that be?*
Nothing
“Nothing”(x9), “I wouldn’t change anything”(x2), “I don’t know if I change anything because the garden is a useful tool for ones that can’t buy the vegetables that are needed for health & strength and nutrition”
Grow Fruit
“I would like to plant fruits”, “I would like to have fruits grown in our garden”, “Add fruit”
More Volunteers
“Getting more people involved would be great”, “more gardeners”, “Get more people involved”

Focus Group Results

The focus group was utilized to obtain more in depth information to address the third objective. There were four garden volunteers who participated in the focus group. They were asked questions about their motivation to start working in the garden, important resources to maintaining the garden, barriers to participating, benefits to participating and the population in general. These areas of conversation became the themes used to analyze the data. The questions were as follows (also see Appendix E):

1. How did you first get involved with your community garden and what inspired you become involved?
2. What is the biggest barrier to maintaining and/ or improving your garden?
3. What resources were you given that you found to be most helpful?
4. What is the biggest impact that your garden has had on your life?
5. What impact has your garden had on your local community (i.e. church, neighborhood, organization, etc.)? Please provide some specific examples.
6. In your opinion, do you believe the volunteer population is a diverse group (education level, socio-economic status, gender, ethnicity, etc.)?
7. What do you believe can be done to encourage more volunteers, especially from diverse backgrounds, to participate in these gardens?

The focus group was recorded and then transcribed verbatim. A domain analysis was conducted on the transcript to isolate the most common themes that were presented by the participants. Within each focus area, a few top themes were identified. These themes are presented in the Table 7 along with a few direct quotes, which support each theme.

Table 7

Domain Analysis: Common Themes for Each Focus Area Identified in Focus Group

Motivation *Top Themes: Athens Land Trust Recruitment, Word of Mouth, Desire to Garden*
"I've always wanted to garden", "Athens Land Trust… called me", "word of mouth"
Resources *Top Themes: Student Volunteers, Available Land, Knowledge/ Expertise*
"student volunteers", "geography class… 15 students", "available land", "we had space", "monthly garden meetings provided a wealth of information", "knowledge"
Barriers *Top Themes: Wildlife, Recruiting/ Retaining Volunteers, Language Barriers*
"wildlife", "consistently having volunteers come out and work the garden", "keeping the interest", "volunteers in general", "language barriers", "… we can't communicate"
Benefits *Top Themes: Sharing Knowledge, Forming Relationships, Confidence in Skills, Growing Produce*
"…passing along those skills…", "You got to interact with the other gardeners…", "learning", "I now feel confident to go into this next summer", "relationships", "kids love picking the strawberries", "we had more than the volunteers could eat", "… it was so delicious!"
Population Diversity *No Top Themes identified for this focus area*
"I think it takes each of our gardens to reach that diversity, but together it seems to me that it is pretty diverse, although mono-lingual", "We are basically limited to the residents that are in the community, but we're fair housing, so we get an array of different cultures there, which have all participated in the gardening"

CHAPTER 5

DISCUSSIONS AND RECOMMENDATIONS

Purpose and Objectives

The purpose of this study was to determine and understand the different impacts that the community garden network has on the communities of Athens, Georgia. This includes impacts on the food security, food purchasing behavior, sense of community and nutritional aspects of the population. A questionnaire was used to measure the impact on volunteers working in eight different gardens in Athens. The objectives of this study were (1) To identify and describe the demographics of participants in community gardens in Athens, Georgia. (2) To determine if participating in community gardens has a measurable impact on a person's a) Sense of community, b) Food security, c) Ability to grow food, and d) Overall health and nutrition. (3) To understand why a person participates in a community garden and what barriers would prevent a person from participating.

Review of Methods

This study was conducted using a mix of quantitative and qualitative research methods in order to obtain a complete picture of the community gardens in Athens, GA. A questionnaire that was developed by the researcher was used as the quantitative method and was given to volunteers and food recipients in eight gardens in town. A pilot study was conducted to test the instrument (n= 5) prior to the study. All of the constructs were determined to be reliable, using

Cronbach's alpha (a= 0.70 or above), except for the third, *Fresh Produce,* which was later modified (Table, 1). Originally, the researcher decided on a paper version of the questionnaire because the intention was to give them out in the garden. This was also to ensure that all of the participants were able to complete it. It was thought that some of the low- income participants might not have access to a computer. This assumption turned out to be mostly incorrect. Many of the participants would have preferred to complete the questionnaire online and the sample size may have been higher if an online version was used instead. This preference might have also been related to the time of year that the questionnaire was given out. Since it was administered in November, after some of the gardens were done for the season, the volunteers were not visiting the gardens as often as they had been earlier in the season.

The questionnaire asked the participants about their sense of community, food security, ability to grow food and overall health and nutrition. The responses were then analyzed, using SPSS, to find the means, standard deviations and the percentage that responded agree to each statement. The qualitative portion was a focus group that was conducted on four volunteers who were recruited from the original group of participants. These participants were asked more in depth questions about the benefits and barriers of the gardens as well as the motivations for working in them and the resources that were particularly valuable to them as volunteers. The volunteers who participated in the focus group were all very active in their particular community garden. In fact most them were the "unofficial" managers of their garden. This provided a great source of information about the creation, maintenance and retention of these gardens and their volunteers. Again, the numbers may have been low because of the time of year it was conducted.

Discussion of Population

The demographic information that was gathered in the questionnaire paints the picture for who is being served by the community gardens, but it should be compared to the current picture of the entire Athens community. With a population right around 119,000 residents, Athens is predominately Caucasian (61%), relatively well- educated (84% of the population has at least a high school diploma, 40% have a at least a bachelors degree), and young (the average age is 25.8), which is not surprising considering it is home to The University of Georgia (United States Census Bureau, 2013). Table 8 shows the comparison between the overall Athens population to the sample of community garden volunteers and recipients in this study.

Table 8

Demographics as Compared Between Sample Population and Population of Athens, GA

Demographic	Athens Population	Sample Population
Average Age	25.8	62.8
Gender	52.6 % Female	64.9% Female
	57.4 % Male	35.1% Male
Ethnicity	61.8% Caucasian	44.4% Caucasian
	26.6% African American	52.8% African American
	4.2% Asian	2.8% Asian
Education Level	84.8% HS Diploma+	80.5% HS Diploma+
	41.0% B.S. Degree+	27.7% B.S. Degree+

The older generations are much more highly represented in this sample than the younger or middle age generations. The city of Athens has one of the highest rates of poverty in the nation at 35%, which is almost twice the rate of the rest of the state at 17% (United States Census Bureau, 2013). This is represented in the range of income levels of the participants (Table, 3). The majority of the participants had a household income of less than $29,000 (78.8%), while the median household income in Athens is $33, 596 (United States Census Bureau, 2013). This means that the gardens are serving at least a portion of the low income population, although this may have to do with the skew in age caused by the high number of respondents from Athens Community Council on Aging and Athena Gardens (both retirement communities). Because of the higher age range, many of the participants are living on retirement money or social security benefits. With 51.6% of the respondents over 65 years of age, this is not consistent with the Athens population, where the percentage over 65 is only 8.4%. The gender percentage of the sample population (35.1% male, 64.9% female) is also very different than the gender percentage of Athens as a whole (57.4% male, 52.6% female). This may indicate a preference of females to garden more than males or it may be connected to the skewed age and the fact that women tend to live longer than men on average.

Another demographic to note is where the participants get the majority of their fresh produce. Seventy percent of respondents still get the majority from a grocery store, so the gardens are not a significant source of fresh produce except for 5.9% of the participants. This statistic may contribute to the lack of retention of volunteers. If they still have to get most of their produce from the grocery store then they might not be motivated to continue volunteering at a community garden. Another demographic that might contribute to volunteers' lack of commitment is the fact that 62.2% have to drive to the garden, so it is not in their local

neighborhood. This is also mentioned in other studies as a barrier to community garden participation (Baker, 2004).

One more interesting characteristic of the participants of this study is that 78.8% do not have any children living in the home. This may indicate that residents with children do not have the time to participate or that communities need to focus more marketing efforts on the promoting the benefits to the sector of the population.

Summary of Findings

Overall, the results from the questionnaire completed by community garden volunteers and recipients of food indicated several encouraging trends. Participants seemed to agree that by working or being in the garden they felt a stronger sense of connection to others and the garden is an improvement to their local community. This is in accordance with previous research on the topic (Allen, 1999; Brown & Miller, 2008). "For the gardeners, as they articulated in interviews, the garden represents a place where they can grow food and connect with their friends" (Baker, 2004, 316). They also had more confidence in their gardening skills, can better identify fruits and vegetables and felt a sense of pride in growing their own food. There was an increase in healthy behaviors after volunteering or even just receiving food from the garden. Participants agreed that they eat more fresh produce, less packaged food, got more physical activity, enjoyed spending more time outdoors and even had a better understanding of the health benefits of eating fresh produce. This also matches conclusions from previous studies done with community gardens (Allen, 1999). The one area where volunteers did not seem to see a difference was their level of food security. This lack of impact could be due to the fact that the section of the instrument was not reliable, as mentioned earlier, and did not ask the right questions when it

came to food security. The negatives in the statements may have made them confusing and therefore not valid questions. It also may have to do with the fact that this section contained sensitive subjects, so participants may not have answered honestly or at all. This also might mean that the population that uses the community gardens just does not see a difference in their level of food security. The fact that 70% of the sample said that they still got the majority of their fresh produce from the grocery store supports the conclusion that the gardens are not being used to influence food security levels. The participants report many other impacts and benefits of the gardens, but food security is not one of the driving factors for participation. There did not seem to be any significant differences between the demographic groups of volunteers in relation to almost all of these categories. There was one significant difference in the means between the group that volunteered in the garden and the group that received food from the gardens when looking at gardening skills. This difference is to be expected because the recipients never actually practiced gardening.

The themes that were revealed in the open-ended questions correspond with the general trends seen in the questionnaire responses. Benefits such as fresh produce and working together are very much in line with the increase in areas of nutrition and sense of community. The barriers seen in the open-ended questions also corresponded with the barriers brought up in the focus group.

The information collected during the focus group supported the quantitative data collected through the questionnaire. Once again, community was heavily emphasized and cited as a motivation for participating as well as a benefit of the gardens. Food security was not necessarily addressed by all of the participants, although, according to the participant, the community garden located at Athena Gardens (which serves the residents of this retirement

community) provides fresh, healthy produce to those who might otherwise not be able to afford or obtain it. Learning to garden and gaining those skills was definitely cited as an important benefit to volunteering at a community garden.

Some of the resources that were cited as being important to the maintenance of the gardens included the support from Athens Land Trust as well as the network of community gardens. This included the monthly gardening workshops that were organized by Athens Land Trust when the network was being funded. These workshops as well as any other expertise given by staff members at Athens Land Trust was cited as being invaluable to the volunteers. This shows the importance of Social Learning Theory and the passing on of information to the survival of these gardens within a community (Rogers, 2003).

That leads into the barriers that were mentioned by participants. One of the barriers indicated was the lack of volunteer retention long enough to ensure that they would pass on their knowledge to others. In fact, volunteer recruitment and retention was consistently mentioned in the focus group as one of the biggest barriers to maintaining the gardens (Table, 7). Other barriers were more consistent with gardening in general, such as wildlife destroying crops and producing or obtaining enough soil and compost.

The lack of data, especially quantitative, makes it difficult to acquire funding and community support for these gardens (Twiss et al., 2003). This is why more research is needed in this area and the recommendations for this research will be addressed in the following section.

Recommendations for Future Research

As stated before, there is a definite need for of this type of research in order to continue to measure the impacts of community gardens, and other aspects of local food systems, on the

members of a community. This study was done in one city and had a relatively small sample size. Bigger samples in several different cities nationwide would be ideal, especially in some of the large cities that already have pretty expansive garden systems. This will provide a more complete evaluation of garden systems in different environments with unique populations.

In future studies, it is advised to provide the questionnaire in both a paper and online version in order to reduce coverage error. The section on food security should be modified to better measure whether the gardens are actually making an impact. The wording of the items in that section also need to be reworded and pilot tested to try to get a higher reliability for that construct. Modifications to this section could be influenced by some of the qualitative data that was collected.

Another suggestion for future research would be to utilize a retrospective survey. This would allow the researcher to ascertain the growth of the participant in focused areas instead of just the level of agreement on each item. This might provide a clearer connection between the community garden and the improvements in a participant's life.

Studies should also be conducted all year round, since the time of year may of influenced the response rate as well as some of the feelings toward the garden. Making sure to sample a population during peak as well as low gardening times is important.

Relevance Statement

This research is vital to continuing the spread of community gardens because borrowed money is usually required to create and maintain them. Often nonprofit organizations or neighborhoods are the ones who organize and set up these gardens and they apply for grants to fund them. Because grants require data, this kind of research will ensure that funding will

continue to be available. Without data that proves the effectiveness of these gardens, funders will not see them as a good investment. There is also a snowball effect in the support for these gardens. When more gardens that are created in a community, they become more visible to the public. Becoming more visible can lead to more funding, volunteers and support from the community. It is important to lay down the infrastructure for community gardening in order to remove some of the barriers to participating. Building a sustainable, local food system has to start with building and strengthening the community, which is exactly what community gardens have been shown to do.

REFERENCES

Allen, P. (2010). Realizing justice in local food systems. *Cambridge Journal of Regions, Economy & Society, 3*(2), 295-308. doi:10.1093/cjres/rsq015

Anonymous. (2012). Promoting health and development in Detroit through gardens and urban agriculture. *Health Affairs, 31*(12), 2787-2788. doi:10.1377/hlthaff.2012.1106

Athens Land Trust. About Athens Land Trust. Retrieved 03/14, 2014, from http://www.athenslandtrust.org

Baker, L. E. (2004). Tending cultural landscapes and food citizenship in Toronto's community gardens. *Geographical Review, 94*(3), 305-325.

Bloor, M., Frankland, J., Thomas, M., & Robson, K. (2001). *Focus groups in social research: Introducing qualitative methods*. Thousand Oaks, CA: SAGE Publications Ltd.

Brown, C., & Miller, S. (2008). The impacts of local markets: A review of research on farmers markets and community supported agriculture (CSA). *American Journal of Agricultural Economics, 90*(5), 1296-1302. doi:10.1111/j.1467-8276.2008.01220.x

Byker, C., Shanks, J., Misyak, S., & Serrano, E. (2012). Characterizing farmers' market shoppers: A literature review. *Journal of Hunger & Environmental Nutrition, 7*(1), 38-52. doi:10.1080/19320248.2012.650074

Certified Naturally Grown. (2014). Certified naturally grown. Retrieved 03/14, 2014, from http://www.naturallygrown.org

Coleman- Jensen, A., & Nord, M. (2013). USDA economic research service: Food security in the US. Retrieved 04/18, 2013, from http://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/measurement.aspx

Davis, J. A. (1971). *Elementary survey analysis*. Englewood Cliffs, NJ: Prentice Hall.

Dillman, D. A., Smyth, J. D., Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method (3rd ed.).* Hoboken, NJ: John Wiley & Sons, Inc.

Dillman, D. A. (2002). Presidential address. *Public Opinion Quarterly, 66*(3), 473-494.

Dillman, D. A., Sinclair, M. D., & Clark, J. R. (1993). Effects of questionnaire length, respondent-friendly design and a difficult question on response rates for occupant-addressed census mail surveys. *Public Opinion Quarterly, 57*(3), 289-304.

Ferris, J., Norman, C., & Sempik, J. (2001). People, land and sustainability: Community gardens and the social dimension of sustainable development. *Social Policy & Administration, 35*(5), 559-568.

Gold, M. V. (2007). *Sustainable agriculture: Definitions and terms*. Retrieved from http://www.nal.usda.gov/afsic/pubs/terms/srb9902.shtml#toc1.

Gottlieb, R., & Fisher, A. (1996). First feed the face: Environmental justice and community food security. *Antipode, 28*(2), 193-203.

Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology, 91*(3), 481-510.

Heckler, S. A. 1.,2. (2012). A right to farm in the city: Providing a legal framework for legitimizing urban farming in american cities. *Valparaiso University Law Review, 47*(1), 217-266.

Hittleman, D. R. & Simon, A. J. (2002). *Interpreting educational research: An introduction for consumers of research.* Upper Saddle River, NJ: Merrill Prentice Hall. (3rd ed.)

Hu, A., Acosta, A., McDaniel, A., & Gittelsohn, J. (2013). Community perspectives on barriers and strategies for promoting locally grown produce from an urban agriculture farm. *Health Promotion Practice, 14*(1), 69-74. doi:10.1177/1524839911405849

Izumi, B. T., Wright, D. W., & Hamm, M. W. (2010). Market diversification and social benefits: Motivations of farmers participating in farm to school programs. *Journal of Rural Studies, 26*(4), 374-382.

Janssen, B. (2010). Local food, local engagement: Community-supported agriculture in eastern iowa. *Culture & Agriculture, 32*(1), 4-16. doi:10.1111/j.1556-486X.2010.01031.x

Kloppenburg, J., Jr., Hendrickson, J., & Stevenson, G. W. (1996). Coming in to the foodshed. *Agriculture and Human Values, 13*(3), 33-42.

Krueger, R.A., Casey, M.A. (2009). *Focus groups: A practical guide for applied research (4th ed.)*. Thousand Oaks, California: SAGE Publications Inc.

Lawson, L. (2009). The precarious nature of semi-public space: Community garden appeal, complacency, and implications for sustaining user-initiated places. *Architecture -- Technology -- Culture, 3*, 199-217.

Peters, C. J., Bills, N. L., Wilkins, J. L., & Fick, G. W. (2009). Foodshed analysis and its relevance to sustainability. *Renewable Agriculture and Food Systems*, 24(1), 1-7.

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York, NY: Free Press.

Rose, N., Serrano, E., Hosig, K., Haas, C., Reaves, D., & Nickols-Richardson, S. (2008). The 100-mile diet: A community approach to promote sustainable food systems impacts dietary quality. *Journal of Hunger & Environmental Nutrition, 3*(2), 270-285. doi:10.1080/19320240802244082

Schmelzkopf, K. (1995). Urban community gardens as a contested space. *Geographical Review, 85*(3), 364.

Schneider, L., Chriqui, J., Nicholson, L., Turner, L., Gourdet, C., & Chaloupka, F. (2012). Are farm-to-school programs more common in states with farm-to-school-related laws? *Journal of School Health, 82*(5), 210-216.

Twiss, J., Dickinson, J., Duma, S., Kleinman, T., Paulsen, H., & Rilveria, L. (2003). Community gardens: Lessons learned from California healthy cities and communities. *American Journal of Pubic Health, 93*(9), 1435-1438.

United States Census Bureau. (2013). State and county quickfacts. Retrieved 1/5, 2014, from http://quickfacts.census.gov/qfd/states/13/1303440.html

United States Department of Agriculture. (2013). Farmers markets and local food marketing. Retrieved 01/28, 2014, from http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateS&navID=WholesaleandFarmersMarkets&leftNav=WholesaleandFarmersMarkets&page=WFMFarmersMarketGrowth&description=Farmers%20Market%20Growth&acct=frmrdirmkt

United States Department of Agriculture. (2014). Organic agriculture. Retrieved 03/20, 2014, from http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=organic-agriculture.html

QUESTIONNAIRE – PILOT VERSION (PAGE 1)

Community Gardens

The purpose of this questionnaire is to gather information about Community Gardens in Athens, GA. I want to know how your garden affects you and your life!

Please circle one number below for each statement. This should take you about 15 minutes!

Thinking about Community…	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Unsure
I started working at the garden because of a friend or a neighbor.	1	2	3	4	5	?
I feel an increased sense of community at the garden.	1	2	3	4	5	?
I feel that important topics are brought up at the garden.	1	2	3	4	5	?
I feel that the social aspect is a big part of my experience.	1	2	3	4	5	?
Thinking about Buying Food…						
I have always been able to afford to buy healthy food.	1	2	3	4	5	?
I am always able to find the right items to prepare the food I like.	1	2	3	4	5	?
I don't worry about running out of food before I can afford to buy more.	1	2	3	4	5	?
After starting at the garden…						
I now purchase more fresh produce at the grocery store.	1	2	3	4	5	?
I am more likely to consume produce when I know where and how it was grown.	1	2	3	4	5	?
I buy more produce from Farmer's Markets than I did before.	1	2	3	4	5	?
Thinking about Nutrition…						
After starting at the garden…						
I eat more fresh vegetables than I used to.	1	2	3	4	5	?
I eat less packaged/processed food than I used to.	1	2	3	4	5	?
I feel more energetic on a daily basis than I used to.	1	2	3	4	5	?
I can identify more fruits/vegetables than I could before.	1	2	3	4	5	?

Before starting at this community garden, did you have any previous gardening experience? Please explain your answer!

__ None __ Grown a few plants __ Had a garden before __ Grew up on a farm

In your opinion, what is the best part of your community garden?

Please tell us a little about yourself...
Please circle the correct answer choice below.

Do you live nearby?	Next door A few blocks I have to drive
How many people do you live with?	Just me 1 2 3 4 5 or more
How many of them are children?	None 1 2 3 4 All of them
What is your annual household income?	$0- 29,000 $30- 34,000 $35- 39,000 $40- 49,000 $50- 59,000 $60,000 +
What is your education level?	Some High School High School Diploma Some college College Degree MS/ PhD
What ethnicity do you identify with?	White/ Caucasian Black/ African- American Latino/ Latina Other
Are you male or female?	Male Female
What year were you born?	_____

Thank you so much for your time and participation!!
I really appreciate it!

QUESTIONNAIRE –FINAL VERSION (PAGE 1)

Community Gardens

The purpose of this questionnaire is to gather information about Community Gardens in Athens, GA. I want to know how your garden affects you and your life!

Please circle one number below for each statement. This should take you about 15 minutes!

Think about your community…	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Unsure
I feel a stronger connection to my local community at the garden.	1	2	3	4	5	?
I feel that important topics are brought up when we are together at the garden.	1	2	3	4	5	?
I feel that the garden has improved my local community.	1	2	3	4	5	?
Think about the food you buy…						
I have NOT always been able to afford to buy healthy food.	1	2	3	4	5	?
I am NOT always able to find the right items to prepare the food I like.	1	2	3	4	5	?
I worry about running out of food before I can afford to buy more.	1	2	3	4	5	?
Think about growing your own food…						
I am more confident in my gardening skills.	1	2	3	4	5	?
I can identify more fruits/ vegetables than I could before.	1	2	3	4	5	?
I feel a sense of pride in growing my own food.	1	2	3	4	5	?
I am more likely to consume produce when I know where and how it was grown.	1	2	3	4	5	?
Think about your health & nutrition…						
After I started working at the garden…						
I eat more fresh fruit/vegetables than I used to.	1	2	3	4	5	?
I eat less packaged/processed food than I used to.	1	2	3	4	5	?
I get more physical activity than I used to.	1	2	3	4	5	?
I enjoy spending time outdoors more than I used to.	1	2	3	4	5	?
I know more about the health benefits of eating fresh produce.	1	2	3	4	5	?

In your opinion, what is the best part of your community garden?

If there was one thing you could change about your garden, what would that be?

QUESTIONNAIRE – FINAL VERSION (PAGE 2)

Please tell us a little about yourself...
Please circle the ONE most correct answer choice for each question below.

Before Starting at this garden, did you have any previous gardening experience?	None Grew a few plants Had a garden Grew up on a farm
Why did you start working at the garden?	A friend/ neighbor Advertising Neighborhood meeting Other
Where do you get the ***majority*** of the produce for you and your family now?	Grocery Store Farmers Market Community Garden Other
Do you live nearby?	Next door A few blocks I have to drive
How many people do you live with?	Just me 1 2 3 4 5 or more
How many of them are children?	None 1 2 3 4 All of them
What is your annual household income?	$0- 29,000 $30- 34,000 $35- 39,000 $40- 49,000 $50- 59,000 $60,000 +
What is your education level?	Some High School High School Diploma Some college College Degree MS/ PhD
What ethnicity do you identify with?	White/ Caucasian African- American Asian Hispanic Native American Pacific Islander Other
Are you male or female?	Male Female
What year were you born?	_____

Thank you so much for your time and participation!!
I really appreciate it!

CONSENT LETTER (QUESTIONNAIRE)

October 1, 2013

Dear Fellow Community Garden Volunteers,

I am a graduate student under the direction of Dr. Dennis Duncan in the Department of Agricultural Leadership, Education, and Communication at The University of Georgia. I invite you to participate in a research study entitled "Impacts of Community Gardens on the communities that they serve" that is being conducted. The purpose of this study is to identify the effects that each community garden is having on the volunteers that dedicate their time and energy.

Your participation will involve you completing a survey instrument and should only take about 15 minutes. You must be at least 18 years of age and be a regular volunteer at this garden site to participate. Your involvement in this study is voluntary, and you can choose not to participate or to stop at any time without penalty of loss or benefits to which you are otherwise entitled.
The study is anonymous and data collected will not be linked to your name. The results of the research study may be published, but your name or any identifying information will not be used. In fact, the published results will be presented in summary form only.

The findings on this project may provide information on the impacts that Community Gardens have on the communities that are being affected. There are no known risks or discomforts associated with this research.

If you have any questions about this research project, please contact Laura (Bimson) Ingwers at lbimson@uga.edu . Questions or concerns about your rights as a research participant should be directed to The Chairperson, University of Georgia Institutional review Board, 629 Boyd GSRC, Athens, Georgia 30602; telephone (706)-542-3199; email address irb@uga.edu.
By completing and submitting the attached questionnaire you are confirming that you have read this entire consent form, have had all of your questions answered, and are agreeing to participate in the above described research project.

Thank you for your consideration!

Sincerely,

Laura (Bimson) Ingwers

CONSENT LETTER (FOCUS GROUP)

October 25th, 2013

Dear Fellow Community Garden Volunteers:

I am a graduate student under the supervision of Dr. Dennis Duncan in the Department of Agricultural Leadership, Education and Communication at The University of Georgia. I invite you to participate in a research study entitled "Impacts of Community Gardens on Local Volunteers in Athens, Georgia". The purpose of this study is to determine and understand the different impacts that the community garden network in Athens, GA has on the communities that are affected. This includes impacts on the food security, food purchasing behavior, sense of community and nutritional aspects of the population.

You must be at least 18 years old and a regular volunteer at one of the community gardens in Athens, GA.

Your participation will involve writing down your answers to five questions and then participating in a discussion surrounding those same questions. It should only take about an hour from start to finish. Your involvement in the study is voluntary, and you may choose not to participate or to stop at any time without penalty or loss of benefits to which you are otherwise entitled. If you decide to stop or withdraw from the study, the information/data collected from or about you up to the point of your withdrawal will be kept as part of the study and may continue to be analyzed.

Although there is always limited confidentiality in this type of situation because other participants in the focus group may share information outside of the session and the results of the research study may be published, your name or any identifying information will not be used. In fact, the published results will be presented in summary form only.

The findings from this project may provide information on the impacts of community gardens on volunteers and may improve the possibility of future funding for this type of community project. There are no known risks or discomforts associated with this research.

If you have any questions about this research project, please feel free to e-mail me at lbimson@uga.edu. Questions or concerns about your rights as a research participant should be directed to The Chairperson, University of Georgia Institutional Review Board, 629 Boyd GSRC, Athens, Georgia 30602; telephone (706) 542-3199; email address irb@uga.edu.

By reading this letter in full and continuing with the focus group session, you are agreeing to participate in the above described research project.

Thank you for your consideration! Please keep this letter for your records.

Sincerely, Laura (Bimson) Ingwers

GUIDING QUESTIONS – FOCUS GROUP

Focus Group Questions
Community Garden Impact Study
Time frame: 1 hour
Graduate Student: Laura Ingwers

Please think about the questions below and write down any ideas that come to mind.
This is just to get you thinking about the answers before our discussion.
Thank you so much for participating!

1. How did you first get involved with your community garden and what inspired you become involved?

2. What is the biggest barrier to maintaining and/ or improving your garden?

3. What resources were you given that you found to be most helpful?

4. What is the biggest impact that your garden has had on your life?

5. What impact has your garden had on your local community (i.e. church, neighborhood, organization, etc.)? Please provide some specific examples.

6. In your opinion, do you believe the volunteer population is a diverse group (education level, socio-economic status, gender, ethnicity, etc.)?

7. What do you believe can be done to encourage more volunteers, especially from diverse backgrounds, to participate in these gardens?

INTERNAL REVIEW BOARD APPROVAL