

# **A Case Study of a Beginner Gardening Program in North Carolina**

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# A Case Study of a Beginner Gardening Program

in North Carolina

Amy Vu

## **Abstract**

Food insecurity refers to the lack of reliable access to nutritious and affordable foods for people of all backgrounds (Meenar & Hoover, 2012) and is a problem faced by approximately 50 million Americans (Smith, 2011) and thirteen percent of North Carolina households. Food security and poverty have been directly linked and North Carolina's poverty rate (14.3%) is above the national level (13%) (Curtis, 2010). Community gardens have been recognized globally by many experts including health professionals, community organizers, environmental activists, and policymakers, as "an important contributor to economic development, food security, and environmental management" (Baker, 2004). Together, these professionals use gardens as a means to educate the public about food production and nutrition. Empirical research has documented many community garden benefits, however, the examination of educational programs associated with these gardens is limited.

The purpose of this case study was to examine the development and implementation of a beginner gardening program and its influence on program participants in an area known to be food insecure within North Carolina. The researcher utilized multiple means of qualitative methods including: 1) semi-structured pre- and post- interviews with program coordinators and participants, 2) content analysis, 3) a reflection journal used to observe the program, and the facilitation of a 4) focus group with program participants. The findings revealed the challenges program coordinators encountered throughout the development and implementation, as well as the effects of the beginner gardening program on program participants.

## **Dedication**

I dedicate my thesis to my mother and father, for all the guidance, love, and support they have provided me. Thank you for teaching me to always work as hard as I can, but also to remember to take life one step at a time.

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## **Chapter 1: INTRODUCTION**

### **Introduction**

Approximately fifty million people in the United States are considered food insecure (Smith, 2011). Food insecurity refers to the lack of reliable access to nutritious and affordable foods for people of all backgrounds (Meenar & Hoover, 2012). By contrast, food security was adopted at the 1996 World Food Summit as “all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (EC-FAO Food Security Programme, 2008, p. 1). Since 1994, community food security (CFS) has been utilized in the U.S. as one major strategy for addressing food insecurity (Corrigan, 2011; Lyson, 2004).

Community gardens and collaboration among stakeholders have been known as a potentially important strategy for increasing food security in the 21<sup>st</sup> century (McCullum et al., 2005). More than one million U.S. households are involved in community gardens (Teig, Amulya, Bardwell, Buchenau, Marshall, & Litt, 2009; Hynes, 1996). Gardens are one component of an urban food system that can cater to a variety of populations as an alternative local food movement (Meenar & Hoover, 2012). Community gardens have been recognized globally by many experts such as health professionals, community organizers, environmental activists, and policymakers, as “an important contributor to economic development, food security, and environmental management” (Baker, 2004). Together, these professionals use gardens as a means to educate the public about food production and nutrition.

Although literature on community gardens and their benefits in the United States are abundant, the examination of educational programs associated with these gardens is limited. In a school garden literature review, Blair (2009) suggests that researchers and educators must focus

on how gardens are designed and the learning experience they provide. Identifying a program's purpose, who they cater to, and their stakeholders are crucial to the sustainability for future program implementation. Many community gardens involve education programs implemented by various organizations including schools, non-profits, co-ops, and Cooperative Extension agents. For example, in 2011, the Land O' Lakes Foundation started six community gardens around the United States and within five years, had increased the number of sponsored gardens to 17 (2012). As a result, the garden program enhanced relationships between schools and the agricultural industry.

Not only have these garden programs helped individuals achieve self-sufficiency by growing their own fresh fruits and vegetables, they are a source for improved nutritional intake and a context for participants to learn advanced practical skills. Such skills are obtained through building raised bed gardens, learning how to sell vegetables at local markets, and working without constant supervision. Ultimately, the training and work opportunities provided by a gardening program may increase employability and independence (Fulford & Thompson, 2013). Understanding the process of developing and implementing gardening programs and reasons for participation or lack of participation are crucial for the success of these programs.

This case study examines the development and implementation of a beginner gardening program located within a low-income area of North Carolina. Poverty and food security have been directly linked and North Carolina's poverty rate (14.3%) is above the national average (13%) (Curtis, 2010). The researcher examined the program using the lens of program planning theory (Cervero & Wilson, 2006), and the reasoned action approach to predict and describe behavior change (Fishbein & Ajzen, 2010). The research team worked with program coordinators to identify key factors in implementing an existing beginner gardening education

program in a new location, and the influence of the educational program on participants. A qualitative study was conducted involving interviews with planners and participants, content analysis of program materials, observations of meetings, and a concluding focus group of participants. The research team asked program coordinators about the process of developing and implementing an existing program in a new location, along with the challenges and benefits they encountered. Participants were asked what motivating factors kept them enthused about continuing in the program, and how the program addressed their specific needs.

### **Purpose of the Study**

As community gardens have become locations to potentially introduce fresh food in food insecure areas, it is important to examine the educational programming provided as a part of the garden operation. The purpose of this research project is to conduct a case study evaluation of a beginner gardening program located in an area known to be food insecure in North Carolina. This evaluation includes the process the organization used to adopt an existing beginner gardening program, as well as its influence on participants. This study was guided by three major questions:

1. What is the process of planning and implementing an existing beginner gardening education program design in a new location?
2. How does the gardening education program address the needs of the participants involved in the program?
3. How does this beginner gardening program act as an entry point for participants to start growing their own food?

## **Importance of the Study**

Garden education programs can be used to address food insecurity, not only in the state of North Carolina, but throughout the nation. It is crucial to understand that hunger-relief organizations can be one approach to potentially help alleviate food insecurity. Gardening programs have the potential to offer many benefits, including increased knowledge and skills in gardening, increased social factors such as a higher self-esteem, appreciation for fresh foods, and sense of community. The beneficial factors that participants obtain during a gardening program may help them become more self-sufficient in growing their own fresh foods.

There has been little empirical research on the development and implementation of educational gardening programs and their impacts on program participants. Many organizations aim to use garden educational programs as a means to educate individuals living in areas known to be food insecure. Exploring the development process of educational programs, their successes, challenges, and opportunities for coordinators and participants can help inform the field of gardening education programs. Examining the planning and implementation process of this beginner gardening program can potentially help hunger-relief organizations and other organizations start a garden educational program as well. Understanding implications of the process, and the necessary factors for success in implementing a program can be useful to other organizations, including programs outside of the agriculture field.

## **Chapter 2: MANUSCRIPT #1**

### **Review and Analysis of Garden Programs in the United States**

#### **Abstract**

Garden programs are one means to alleviate food insecurity in the United States (Aftandilian & Dart, 2013). Community gardens have been studied extensively by many experts, such as health professionals, community organizers, environmental activists, and policymakers and have been recognized as one method that can work towards food security. These professionals use gardens as a means to educate the public about food production and nutrition. This literature review focuses on documentation of garden programs in the United States. Discussion includes an examination of who is responsible for the development and implementation of these programs, motivation for community members, as well as reasons found for lack of participation in these gardens are recognized. The article describes both school and community garden programs, and examines the collaboration between stakeholders who are responsible for the implementation of these programs. Identifying stakeholders involved in gardening programs and understanding participant motivation or lack of motivation, can provide a significant means to implementing a gardening education program.

#### **Keywords**

Community garden program(s), community gardening, adult gardening programs, youth garden programs, food security, garden-based learning, program implementation, program development, program evaluation

#### **Introduction**

Food insecurity refers to the lack of reliable access to nutritious and affordable foods for people of all backgrounds (Meenar & Hoover, 2012) and is a problem faced by approximately 50

million Americans (Smith, 2011). In the past decade, stakeholders, including health professionals, community organizers, environmental activists, and policymakers, have introduced a number of food systems approaches, specifically in urban areas, to build community food security (Allen, 1999; McCullum, Desjardins, Kraak, Ladipo, & Costello, 2005). Because of their ability to provide a range of benefits, including increased access to healthy, nutritious foods, community gardens have been one of the initiatives implemented to address food insecurity. Many community garden programs have been primarily focused in densely populated, lower-income areas (Draper & Freedman, 2010; Guitart et al., 2012).

### *Purpose of Review*

Although literature on community gardens and their benefits in the United States is abundant, the examination of educational programs associated with these gardens is limited. An education program's purpose, the audience they cater to, and their stakeholders are crucial elements to identify for program sustainability and future program implementation. In a school garden literature review, Blair (2009) suggests that researchers and educators must focus on how gardens are designed and the learning experience they provide. Many community gardens involve education programs implemented by schools, non-profit organizations, co-ops, and Cooperative Extension agents. For example, in 2011, the Land O' Lakes Foundation started six community gardens around the United States and within five years, had increased the number of sponsored gardens to 17 (2012). As a result, the garden program enhanced relationships between schools and the agricultural industry. Not only have these garden programs helped individuals achieve self-sufficiency by growing their own fresh fruits and vegetables, they have been a source for improved nutritional intake and provided opportunities for participants to learn advanced practical skills and training. These skills may include how to start a garden, how to

maintain a garden, and understanding the growth needs of the food crops. Understanding who is developing and implementing these programs, as well as reasons for participation or lack of participation are crucial for the success of these programs and the development of others.

### *Food Insecurity in the United States*

Approximately fifty million people in the United States are considered food insecure (Smith, 2011). Food insecurity refers to the lack of reliable access to nutritious and affordable foods for people of all backgrounds (Meenar & Hoover, 2012). Stakeholders with diverse interests in food insecurity have struggled to reach a consensus on a common definition for food insecurity (McCullum, Pelletier, Barr, & Wilkins, 2002). Since 1994, community food security (CFS) has been utilized in the U.S. as a major strategy for addressing food insecurity (Corrigan, 2011; Lyson, 2004). For the purpose of this review, community food security will be defined as “a situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes self-reliance and social justice from local, non-emergency sources” (Allen, 1999; Gottlieb and Fisher, 1996; Reeder, 2000; USDA, 2012a; Grauel & Chambers, 2014; McCullum et al., 2002; McCullum et al., 2005; Hamm & Bellows, 2003; Winne, Joseph, & Fisher, 1996).

It is important to differentiate between individuals who are considered food insecure and those who experience hunger. Hunger is defined as “a reduced or inadequate intake of food” (Grauel & Chambers, 2014 p. 228), while food insecurity is associated with a lack of access to quality and sufficient nutrition (Grauel & Chambers, 2014). There is a need for an array of food initiatives in areas where healthy and affordable food is difficult to obtain (Corrigan, 2011). Community food security is directly and indirectly related to a number of food system issues, such as environmental concerns, specifically in regards to agriculture and food production,

disappearing farmland, food safety, poverty, and diet-related health problems (McCullum, Pelletier, Barr, & Wilkins, 2002).

Food insecurity is also associated with increasing obesity rates, a growing concern in the United States (Corrigan, 2011). Obesity and food insecurity both affect similar populations and regions (Corrigan, 2011). Many individuals affected by food insecurity come from low-income, minority, homeless, and rural areas (Grauel & Chambers, 2014; Morton & Blanchard, 2007; Richards & Smith, 2006; Schafft et al., 2009; Sharkey et al., 2011; Slocum, 2006). Studies have shown that migrant and seasonal farmworkers also experience extremely low rates of food security (Grauel & Chambers, 2014). Income is a primary barrier for these individuals, but many other barriers, including transportation, physical location of grocery stores, and language, also contribute to their food insecurity (Grauel & Chambers, 2014).

#### *Community Gardens and Food Insecurity*

Community gardens and collaboration among stakeholders are an important strategy for increasing food security in the 21<sup>st</sup> century (McCullum et al., 2005). Gardens are one type of urban food system that can cater to a variety of populations as an alternative local food movement (Meenar & Hoover, 2012). Community gardens have been recognized globally by many experts such as health professionals, community organizers, environmental activists, and policymakers, as “an important contributor to economic development, food security, and environmental management” (Baker, 2004). Together, these professionals use gardens as a means to educate the public about food production and nutrition. More than one million U.S. households are involved in community gardens (Teig, Amulya, Bardwell, Buchenau, Marshall, & Litt, 2009; Hynes, 1996).

One example of successful community gardens is Toronto's community food-security movement (Baker, 2004). This initiative uses gardens as one approach to improve the local food system and provide access to healthy, affordable food. This local approach encourages individuals to take a step back from the global food system (Baker, 2004; CFSC, 2004; Wekerle, 2004). Their gardening activities challenge the corporate food system by creating hands-on, experiential learning opportunities for individuals to produce their own food and collaborate with other community members around them (Baker, 2004, p. 35). By partnering with the local municipality and providing services to gardeners, Toronto's food-security movement has aided networking among its supporters to organize garden events, publicize gardens, and advocate on behalf of gardeners, which has increased food security and the number of gardens within the city (Baker, 2004).

Gardens come in a variety of shapes and sizes and involve multiple individuals who join together in diverse areas, such as schools, neighborhoods, prisons, and hospitals (Draper & Freedman, 2010). Growing community food has gained popularity and become a norm in many communities across the United States (Corrigan, 2011). Almost half of empirical research evaluating community gardens have been considered intervention studies, where the gardens are used to manipulate a variable within a population, such as healthy food consumption, food insecurity, and community relationships (Baker, Motton, Seiler, Duggan, & Brownson, 2013; Barnidge, Hipp, Estlund, Duggan, Barnhart, & Brownson, 2013; Draper & Freedman, 2010). Very little research has been conducted on community garden design (Bradley, Lelekacs, Asher, & Sherk, 2014).

### *Evaluating a Program and the Implementation Process*

How a garden program is developed and implemented can influence the effectiveness and success of a program; however, many evaluations focus solely on program outcomes (Duerden & Witt, 2012). While these outcomes are important for evaluators to consider, it is crucial to understand the initial phases of a program and how programs are being implemented (Duerden & Witt, 2012). “Implementation refers to what a program consists of when it is delivered in a particular setting” (Durlak & DuPre, 2008, p. 329). Understanding how a program is implemented can aid in recognizing processes that result in program outcomes (Duerden & Witt, 2012). There is some literature that studies the outcomes of evaluation, but limited research that documents and recognizes the implementation process (Durlak & DuPre, 2008).

Evaluating program implementation may include an explanation of a program’s success or failure. Duerden & Witt (2012) believe in program integrity, which they consider “understanding the degree to which a program was implemented as originally planned, as it becomes difficult to suggest linkages between outcomes and programs” (p. 2). Program integrity aids in program replication, but a program that seeks to model a past successful program may fail due to lack of a clear understanding about the population it serves. Practitioners need to understand how to best implement the program and how much integrity is needed to produce a desirable outcome. If they do not consider a program’s internal and external factors, such as characteristics of participants, interorganizational relationships, and broader societal factors, the same program in a new location may not result in the same success (Duerden & Witt, 2012; Durlak & DuPre, 2008). “Transferring effective programs into real world settings and maintaining them there is a complicated, long-term process that requires dealing effectively with the successive, complex phases of program diffusion” (Durlak & DuPre, 2008, p. 327).

A program's implementation process is not static; rather, the process can change over time, and the program will continue to be revised and modified. For practitioners to become successful in evaluation practices, they must understand the program's goals and visions, as well as how it should be implemented (Duerden & Witt, 2012). "Together, program outcome and implementation data allow Extension educators to understand both what happened during their program (implementation) and the results effects (outcomes)" (Duerden & Witt, 2012, p. 6). Duerden & Witt (2012) believe that implementation is one of the most important, and most neglected, aspects of research in evaluation

It is important to identify a clear picture of a program's desired goal before planning begins. Having a clear goal and vision is very beneficial to everyone involved in the program, including the participants, coordinators, and funders. Collaboration among stakeholders such as agents in horticulture, agriculture, community development, and 4-H is also crucial for a program's success (Jayaratney, Bradley, & Driscoll, 2009) and Campbell (2004) suggests that practitioners can contribute to food systems planning by engaging in activities that build a common table among all stakeholders.

## **Methods**

Scholarly and peer-reviewed journal articles were initially found using multiple online databases. Many articles appeared frequently in the primary search and were most cited in many of the databases. Because of this, articles in the reference lists of the initial articles were used to find additional papers. Keywords associated with these articles varied greatly and included: food security, food insecurity, food literacy, sustainable education, sustainable leadership, learning garden, experiential learning, low income, poverty, garden-based learning, community

engagement, interdisciplinary collaboration, local food systems, school gardens, community gardening, and urban farming.

During review, the following were recorded from each journal article: author(s), year of publication, journal name, keywords, location of the program studied, population (e.g. adults, children, students, families), purpose of the program (e.g. educating migrant workers, students in a gardening program), organization responsible for program (e.g. non-profit, universities, health agencies), and other findings associated with community gardening programs.

This review expands on previous literature reviews based on community gardens (Blair, 2009; McCormack, Laska, Larson, & Story, 2010; Ozer, 2007; Robinson-O'Brien, Story, & Heim, 2009; Draper & Freedman, 2010). The majority of these reviews focus on the benefits associated with gardening, specifically with themes related to benefits, motivation, and populations of community gardens (Draper & Freedman, 2010). This literature review specifically seeks to identify themes within the development and evaluation of programs associated with community gardens, examining who is responsible for the implementation of the programs, and the populations these programs serve.

## **Results**

### *Types of Garden Programs*

Most U.S. gardening programs focus on at-risk and inner-city populations. Over one-third of the garden literature focuses on youth gardening programs in a formal and non-formal settings (Draper & Freedman, 2010). Fulford and Thompson (2013) examined a community gardening program for at-risk youth and found that the youth who participated in the program built gardening skills, had an increased knowledge of food security and environmental awareness, improved self-esteem, and fostered new social networks outside of the attraction to gangs in the

neighborhood (Fulford & Thompson, 2013). Klemmer, Waliczek, and Zajicek (2005), found that a garden program increased students' third, fourth, and fifth grade science achievement scores. The Master Gardener Classroom Garden Project in San Antonio evaluated benefits on second and third grade students and noted an increase of child-parent interaction through an experiential horticulture and gardening program. The program helped students recognize their frustration when something negative occurred to something they valued (Alexander, North, & Hendren, 1995). One study focused on the difference between the effects of gardening programs on high school students compared to elementary school students and found the gardening program had a greater impact on elementary school students (Nolan, G., McFarland, A., Zajicek, J., & Waliczek, T., 2012). Most research specifically targets nutrition education and preferences toward healthy fruits and vegetables in an elementary or middle school setting (Block, Gibbs, Staiger, Gold, Johnson, Macfarland, Long, Townsend, 2012; Canaris, I., 1995; Lineberger, S. & Zajicek, J.; Morgan, P., Warren, J., Lubans, D., Saunders, K., Quick, G., & Collins, C., 2010). With many known benefits of gardening programs for youth, it is important to recognize that these programs also involve individuals who significantly influence youth. Youth role models, such as parents, teachers, education administrators, must be considered as they have a significant impact on the success or failure of gardening programs.

Although the majority of studies examine youth, there has been limited research on adult gardening programs. Many of these programs cater to low-income adults and their families. These studies typically utilize mixed method research, pre-post interviews, focus groups, and questionnaires. Garden project success relies on the simplicity and focus of the mission (Pudup, 2008). The benefits of adult gardening programs include increased health and well-being and greater nutrition knowledge. This results in participants providing their children with healthier

foods. A study by Armstrong (2000) in upstate New York indicated that gardens were known to address more issues in low-income areas, when compared to communities that were not considered low-income. It is important to understand that sharing knowledge and cooperation, dialogue, and a commitment to co-learning is necessary for the success of future urban agriculture (Reynolds, K., 2011). It is also crucial to understand why individuals become involved in community garden programs.

Many studies of garden programs have examined individuals outside of the primary target population. School gardening programs increase student engagement and confidence by providing opportunities for experiential and integrated learning and well as development of teamwork, social skills, and connections (Block, Gibbs, Staiger, Gold, Johnson, Macfarland, Long, Townsend, 2012). Youth programs located in Michigan communities were part of a qualitative study involving in-depth interviews with adult gardeners, neighbors, youth, and community police officers regarding their perception on the program. The study found that the program provided positive opportunities for youth, while improving access to and consumption of healthy foods for the entire community (Allen, Alaimo, Elam, Perry, 2008). Another study examining inner-city youth (ages 8-13) used focus groups and theory of planned behavior, to determine if garden programs positively impact youth garden habits, food choice, social skills, nutrition knowledge, and cooking skills (Lautenschlager & Smith, 2007).

Teachers have a huge influence on garden programs in the United States. One study found that teachers were supportive of garden programs, but recognized many challenges of starting a school garden and farm-based program (Weitkamp, E., Jones, M., Salmon, D., Kimberlee, R., & Orme, J., 2013). Challenges include issues such as difficulty finding land, lack of teacher experience and guidance, and lack of support from teachers not directly working with

the garden program (Konoshima, H., 1995). A survey conducted in California collected information from 1,662 California public school principals about access to garden resources and whether the schools would participate in an instructional school garden program. In other studies, principals note that they wished all students would be involved in the programs (Alexander, North, & Hendren, 1995). Others perceived problems with school gardening programs including time commitment to gardening and vandalism (Alexander, North, & Hendren, 1995). Blair (2009) concludes that school gardens require much support for school teachers to address the responsibility of caring for a garden.

*Who is responsible for the development and implementation of these programs?*

Aftandilian and Dart (2013) believe developing authentic relationships between volunteers, the community, and community partners is significant to a program's success. It is important for all stakeholders to achieve both long- and short-term goals for each organization, while maintaining positive rapport with each other to plan future projects. Developing good communication with partners before, during, and after programs is essential for collaboration efforts to be as effective as possible. Sustainable agriculture and food systems education in partnership with farmers, Extension agents, non-governmental organization, and professional academics have helped the implementation many garden programs throughout the U.S. A federal government program called Women, Infants, and Children (WIC) was developed to provide food and nutrition education to low-income pregnant and breastfeeding women in New Mexico and across the United States (McCormack, Laska, Larson, & Story, 2010). Many programs identified in literature were implemented in public elementary schools and non-profit organizations. Some programs were developed through collaborative efforts among many universities. These programs cater to a variety of stakeholders, including the target population and their educators.

### *Formal Education*

A partnership between Portland State University and Oregon State University was established to start garden-based education programs at the Learning Gardens Laboratory in Portland, Oregon. The learning garden was founded in 2005 by faculty members and graduate students from Portland State University's Leadership for Sustainability Education program, who partnered with Portland Public Schools, the city of Portland's Parks and Recreation, and Oregon State University Extension service. Two successful programs that were part of the study included the Beginning Urban Farming Apprenticeship program and the Lane Middle School Garden-Based Education program (Burns & Miller, 2012). Another university study focused on students and faculty from Texas Christian University who partnered with several local nonprofit organizations to work toward food justice, and increasing community food security through gardening initiatives through service-learning projects in Fort Worth, Texas (Aftandilian and Dart, 2013).

In primary education settings, public schools in the Rio Grande Valley of Texas were recruited to participate through the Junior Master Gardener program and teachers volunteered their classes to participate in the program. Students attended a 6-day workshop presented by Extension agents during the summer months. The teachers attended seminars, observed demonstrations, went on field trips, and were given curriculum to take back to their classrooms (Nolan, McFarland, Zajicek, & Waliczek, 2012). Another study of a school gardening program examined environmental attitudes of elementary school children. The gardening curriculum used for class was the Junior Master Gardener Handbook developed by Texas Cooperative Extension Service. The program was conducted with the cooperation of elementary schools from the Temple Independent School District in Temple, TX (Aguilar, Waliczek, & Zajicek, 2008).

### *Cooperative Extension Educators*

Cooperative Extension Service educators offer the potential for collaboration among stakeholders to implement community gardening programs within the United States. With their broad array of services, Extension agents and specialists are able to visit many communities throughout the United States and encourage collaboration. A grant-based program worked with the Extension framework to examine local food systems (Dunning, Creamer, Lelekacs, O'Sullivan, Thraves, Wymore, 2012). The study involved North Carolina Cooperative Extension Service and the Center for Environmental Farming Systems joining together with North Carolina State University, North Carolina Agriculture and Technical State University, and the North Carolina Department of Agriculture and Consumer Services to lead a "train-the-trainer" project with the goal of spreading local food system information throughout the state of North Carolina (Dunning, Creamer, Lelekacs, O'Sullivan, Thraves, Wymore, 2012). In another study Cooperative Extension offices, city mayors, village clerks, and community garden coordinators were contacted to identify community garden programs in upstate New York (2000). Community garden coordinators organized and attended many cooperative activities and worked with town administrations who donated services, such as trash removal and installation of water, while neighborhood organizations such as schools and churches aided with legitimizing the community garden so that participants would feel more comfortable. Garden coordinators were the most involved with local communities and understood the various community events and activities were within the area. It is important to recognize the collaboration between various stakeholders is critical for successful programs to develop.

### *Non-profit Organizations*

As community gardens became more popular in predominantly low-income, ethnic-minority neighborhoods in big cities throughout the United States, non-profit organizations were established to support these gardens (Eizenberg, 2012). Many nonprofits work in conjunction with Extension offices to start community gardens and their affiliated programs. For example, a community garden program based in Baltimore, Maryland, the Community Greening Resource Network, was established by a local nonprofit organization, the Parks and People Foundation, and the Baltimore office of the University of Maryland Extension, which now partners with more than 25 other organizations (Krones and Edelson, 2011). Another example is Jones Valley Urban Farm, a non-profit organization that manages several community gardens and education programs for school children and adults. They provided all of the materials needed to maintain a garden and organized regularly meetings for community gardeners to teach them gardening methods to food preservation techniques. They catered to participants over the age of 19. A gardening program in Phoenix, Arizona exists within a larger local food initiative organized by a nonprofit community development organization (Bleasdale, Crouch, & Harlan, 2011). The goal of the program is to provide residents with education, extra income, and socializing. The study focused on increasing retention rates for local gardeners to establish successful a gardening program.

A study by Krones and Edelson (2011) found that as the Community Greening Resource Network expands, employees, members, and collaborators continue to seek opportunities for developing partnerships with new organizations. Partnerships with community resource centers can provide information for developing an effective gardening program that addresses the needs of the community. Not only does the program aim to increase the effectiveness of their program,

they also hope to contribute to gardening programs in other cities (Krones & Edelson, 2011). Researchers must understand what stakeholders are involved in the development and succession of community gardens. Educators, both formal and non-formal, must also understand reasons for participants' involvement and lack of involvement to be useful in meeting a community's needs for a successful program.

### *Motivations for Participant Involvement*

Draper & Freedman (2010) conducted a literature review of community garden motivations and identified 11 themes associated with motivations for participating in a community garden: health benefits, food security, economic development, youth education and development, use and preservation of open space, crime prevention, neighborhood beautification, leisure and outdoor recreation, cultural preservation and expression, social interactions, and community organizing and empowerment (Draper & Freedman, 2010). They also identified personal incentives such as access to better tasting food, time to enjoy nature, and ways to socialize and give back to the community (Draper & Freedman, 2010). Northrop, Wingo, & Ard (2013) conducted a study in Alabama on why gardeners partake in a gardening program as a dietary intervention and whether or not they were similar to other gardening program participants. Many factors for participation such as health benefits were identified. However, most gardeners had previous experience, and the program was a way to continue their interest (Northrop, Wingo, & Ard, 2013). Meadow (2013) found that individuals continually garden for many reasons, such as enjoyment, better food quality, and self-sufficiency.

In addition to providing nutritious food, gardens located in low-income neighborhoods are four times more likely to address other issues such as reduction in crime and poverty, (Armstrong, 2000). They also contribute to increasing property values and increased stability

within neighborhoods. Engagement in community gardens gives individuals a feeling of self-worth and respect (Moulin-Doos, 2013). Gardening programs provide educational experiences, both formally and informally, and can support local food systems. Educational community gardens consist of place-based, experiential, hands-on learning environments (Portland State University, 2015). Guitart et al. (2012) suggested that it must be understood who is gardening, why and how. It is equally important to identify who is not gardening and why these individuals choose not to participate. Some constraints preventing individuals from becoming involved include lack of gardening knowledge, limited time, land availability, and summer heat (Bleasdale, Crouch, & Harlan, 2011).

#### *Lack of Participation in Gardens*

Many challenges and burdens are associated with community gardening. Many gardens are at risk of losing their land. More often, garden programs struggle with low levels of community participation and interest (Bleasdale et al., 2011). Loopstra and Tarasuk (2013) found a significant amount of nonparticipation in community gardens and their affiliated programs. The primary reasons were inaccessibility and the program's failure to meet the needs of the participants. This lack of interest and participation may have resulted from lack of awareness. Even residents who know of the garden's existence, may not know how to get involved. Others may not know how to garden or may not have time (Bleasdale et al., 2011). It is crucial to identify potential challenges as well as effective strategies for addressing these challenges. For some community gardens, the primary reason for failure is abandonment as a result of "gardener drop-out" (Bleasdale et al., 2011). Abandonment frequently results in repeated acts of vandalism, which makes the location more undesirable for the community (Bleasdale et al., 2011).

McCullum et al. (2005) state that it is crucial to shift food distribution activities from privatized food distribution, such as food banks, to public spaces by linking emergency food programs with community agricultural projects. These public spaces could consist of community gardens or community-supported areas. Decreasing barriers to healthy and fresh food availability through garden programs and providing infrastructure, such as a garden, building, and transportation availability to the community, could help decrease food insecurity and aid in longer health outcomes for individuals in densely populated and food desert areas (Smith & Morton, 2009). Evaluation of these food programs has provided important information about how they benefit participants who live in the community (Loopstra & Tarasuk, 2013). There is high demand for programs designed to match the needs and interests of low-income food insecure populations. It is crucial to capture perspectives on programs that cater to individuals who experience food insecurity. Understanding why individuals have initial interest and motivation to become involved in a garden program may play a significant role in the sustainability of a garden education program.

## **Discussion**

Evaluating gardening programs and their effects on participants may be beneficial when planning and developing a new program. Collaboration among stakeholders may increase the use of gardens and their affiliated programs, and it may be crucial for recruitment and outreach within a community. As one type of urban food system, Baker (2004) states that community gardens have been recognized as a means to educate the public about food production and access to healthy, nutritious foods. Understanding motivations for community involvement, along with the stakeholders who are involved in implementing programs, may aid in success of community gardens and the associated educational programs throughout the United States.

Many garden programs are implemented in both formal and non-formal settings. The majority of gardening programs target at-risk youth, and there have been significant benefits for these individuals. These benefits include, but are not limited to, an increased knowledge of food security, environmental awareness, improved self-esteem, and new social networks (Fulford & Thompson, 2013). Programs have been implemented throughout the United States for youth in various settings, such as community programs, in-school curriculum, and after-school programs. Examining not only the effects on youth, but the perception of their role models, can play a significant role in understanding how gardening programs can affect all participants. Adult gardening programs have also been implemented, including adult and family programs; however, there are far fewer examples when compared to youth programs. Many nonprofits and community programs initiate these adult and family programs. Working with local Extension offices have made it possible for these programs to continue throughout the United States.

This literature review revealed that garden programs are developed and implemented by many organizations such as universities, non-profit organization, and County Extension offices. The majority of these programs are developed through collaborative efforts among various groups. Many groups work together and divide responsibilities, such as a nonprofit organization providing a curriculum that is developed and originated by a university or more formal setting. Cooperation between formal and non-formal settings is crucial to the success of local gardening programs in the United States. While individuals and groups can work together to start a program, it is important to understand and recognize the challenges and successes that occur during the development and implementation of the program.

Program planners must be able to identify what motivates their local community to become involved in growing their own food and participating in available programs. They must

also be able to identify the various challenges that prevent people from joining or completing a program. Program planners must be open to differing target audiences and identify leaders within a community who may be able to influence others in their community to become involved. This may lead to increased outreach to individuals who typically would not be interested in growing their own food.

### **Recommendation for Research**

There are many factors that an individual must consider when deciding how to develop and implement a gardening program. First, researchers must examine the process of developing and implementing a program by identifying the strengths and challenges that stakeholders encounter. Stakeholders, such as program coordinators, teachers, and other individuals involved in the development process, such as funders and organizations, play a fundamental role in understanding the process of a gardening program. They may be able to identify what is necessary for the success of a gardening program, different challenges that may occur, and ways of motivating others to become enthusiastic about growing their own food. The communication and connection between individuals and organizations that implement the programs are also crucial to examine.

Second, researchers must examine the outreach of these programs and be able to identify their target audiences. The recruitment and retention rate of program participants is only a portion of a successful program. By identifying the challenges and barriers that program participants may face, researchers and program planners may be able to mitigate these challenges by catering their program toward the individuals in the program. Program planners must reach out to the community in various ways, specifically to those who may be unaware of these programs available to them.

Last, researchers should examine the influence of gardening programs on their participants. Determining what motivates participants may be useful in developing future programs in the area. Gardening programs are not possible without participants who are engaged and will continue to utilize what they have learned. With the help of enthusiastic participants for potential future recruitment of a program, gardening programs may have a higher retention and participation rate, leading to a greater success of gardening programs. Educating individuals to grow and maintain their own food, specifically those who experience food insecurity, can benefit many communities in the United States.

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## **Chapter 3: MANUSCRIPT #2**

### **A Case Study of a Beginner Gardening Program in North Carolina**

#### **Abstract**

This study examined a beginner gardening program located in a low-income area of North Carolina. The program originated from a partnership between a university and nonprofit organization located on the West Coast and was adapted by a nonprofit organization in North Carolina. To understand the development of this program in a new location, this study was designed to identify the process and challenges of implementing the program, as well as the influence of the program on its participants. Using Cervero and Wilson's (2006) program planning theory and Fishbein and Ajzen's (2010) reasoned action approach, a qualitative study was conducted involving interviews with planners and participants, content analysis of program materials, observations of meetings, and a concluding focus group of participants. The findings include the strengths and challenges that program coordinators encountered, and identify what must be taken into consideration when adopting an existing program in a new area. Communication and collaboration between members of the planning team is crucial. Also, this specific beginner gardening program provided resources to its participants, which led to confidence, an increased sense of community, and the desire to teach others how to start their own gardens.

#### **Keywords**

Gardening program, garden-based education, program evaluation, Program Planning Theory, Reasoned Action Approach, community food initiative, community food systems, local food systems, food security, North Carolina, Extension Master Gardener

## Introduction

Food insecurity refers to the lack of reliable access to nutritious and affordable foods for people of all backgrounds (Meenar & Hoover, 2012). Specifically, individuals who are considered food insecure come from low-income, minority, homeless, and rural areas (Grauel & Chambers, 2014; Morton & Blanchard, 2007; Richards & Smith, 2006; Schafft et al., 2009; Sharkey et al., 2011; Slocum, 2006). As an official movement in 1994, community food security (CFS) has been utilized in the U.S. as a major strategy for addressing food insecurity (Corrigan, 2011; Lyson, 2004). Community food security is now practiced by hundreds of organizations and communities in the United States (Winne, Joseph, and Fisher, 1996). Although there is not mutual agreement on the definition of community food security, it is a concept known as an extension of food security and has also been used to represent an analytical tool and methodology, as well as being a goal for meeting people's food needs (Winne, Joseph, & Fisher, 1996). Community food security is directly and indirectly related to a number of food system issues, such as environmental concerns in regards to agriculture and food production, disappearing farmland, food safety, poverty, and diet-related health problems (McCullum, Pelletier, Barr, & Wilkins, 2002).

Community gardens and collaboration among stakeholders in a local food system are important strategies for increasing food security in the 21<sup>st</sup> century (McCullum et al., 2005). Gardens are one type of urban food system that can cater to a variety of populations as an alternative local food movement (Meenar & Hoover, 2012). Community gardens have been recognized globally by many experts such as health professionals, community organizers, environmental activists, and policymakers, as “an important contributor to economic

development, food security, and environmental management” (Baker, 2004). Together, these professionals use gardens as a means to educate the public about food production and nutrition.

Growing community food has gained popularity and become a norm in many communities across the United States (Corrigan, 2011). There has been much evaluation and research on the benefits and disadvantages of these community gardens. However, educational programs associated with community gardens are limited. Understanding how a garden educational program is developed and implemented can influence the effectiveness and success of a program (Duerden & Witt, 2012). It is crucial to understand the initial phases of a program and how the program is being implemented (Duerden & Witt, 2012).

This case study examines the development and implementation of a beginner gardening program located within a low-income part of North Carolina. The theoretical framework that informs the study is Cervero and Wilson’s (2006), Program Planning Theory in which planning is defined as “a social activity whereby people construct educational programs by negotiating personal, organizational, and social interests in contexts marked by socially structured relations of power” (2006, p. 24), and Fishbein & Ajzen’s (2010) Theory of Predicting and Changing Behavior, which describes why people decide to perform certain behaviors, based on intention stating “the stronger the intention, the more likely it is that the behavior will be carried out” (Fishbein & Ajzen, 2010, p. 21). To conduct the study, researchers collaborated with program coordinators to identify key factors in implementing an existing beginner gardening program in a new location, and the influence of the program on program participants. A qualitative study was conducted involving pre- and post- interviews with one program coordinator, a teaching team which consist of three Extension Master Gardener volunteers, and program participants. Program participants were also involved in a focus group at the completion of the program. Program

coordinators were asked about the process of developing and implementing an existing program in a new location, along with the challenges and benefits they encountered as they implemented the program. Participants were asked what motivating factors kept them interested in continuing to return to the program, and how the program addressed their specific needs. This article provides findings and suggestions for implementing an existing beginner gardening program in a location.

### *Food insecurity in North Carolina*

According to a 2010 report prepared for the Food Bank of Central & Eastern North Carolina, thirteen percent of North Carolina households are considered food insecure (Curtis, 2010; Food Bank of Central & Eastern North Carolina, 2010). The report defines food insecurity as individuals and/or families lacking consistent access to foods that contribute to a healthy life (Curtis, 2010). There is a correlation between poverty and food security, and North Carolina's poverty rate of 14.3 percent is above the national level of 13 percent (Curtis, 2010). Many individuals who live in poverty have restricted access to healthy, nutritious foods because their home is located far from a grocery store and transportation is very limited. Local food banks have acknowledged that food insecurity in the state is increasing, and food banks in Central and East North Carolina have nearly doubled since 2007 (Curtis, 2010). The Food Bank of Central and Eastern North Carolina is one of the nation's largest domestic hunger-relief organizations (Food Bank of Central & Eastern North Carolina, 2010). It supports many programs, including 26 Kids Cafés, where afterschool care provides healthy meals to children of low-income families (Smith, 2011). In addition, the food bank supports Backpack Buddies and Summer Food Service Program to provide healthy meals to children on weekends and during the summer (Smith,

2011). However, because of deep budget cuts, these food bank programs are not growing (Smith, 2011).

Individuals who live in low-income neighborhoods may have a difficult time accessing fresh and local foods, making them more reliant on emergency food programs (Morland, Wing, Diez Roux, & Poole, 2002) resulting in low nutritional intake and poor health (Hendrickson et al., 2006; McCullum et al., 2005; Smith & Morton, 2009). Both qualitative and quantitative studies have been conducted on food accessibility in low-income areas (Zenk, Dallas, Hoskin-Wroten, 2011). Results have revealed that low-income neighborhoods are limited by the number of area supermarkets, and there are major environmental barriers to quality foods (Zenk et al., 2011). These neighborhoods tend to have more fast food restaurants and corner stores (Hendrickson, Smith, & Eikenberry, 2006). Individuals are forced to both “settle” for what is available and pay higher prices for food that is not healthy (Zenk et al., 2011). In particular, senior citizens and families who live in rural areas experience uneven food distribution (Smith & Morton, 2009).

There are major opportunities for delivering fresh, local food to hungry individuals in North Carolina. Providing access to more nutritious foods for individuals who live in poverty can be accomplished through a number of programs, including community gardens. Increasing consumer education and community outreach is a major priority for addressing North Carolina’s food insecurity, and many efforts have been implemented in North Carolina to offer education and more nutritious foods. Promoting these initiatives is key to making a change in the North Carolina food system. As these initiatives begin throughout the state, it is important to understand and evaluate how the programs are implemented, how they affect the participants, and how they cater to the actual needs of the community. One major question within the issue of

food insecurity is how to help individuals become self-sufficient in growing their own fruits and vegetables.

### *Program Planning Theory*

To examine a program's outcomes, it is crucial to identify the initial phases and implementation process of a new program. Adult program planning has been studied for the past 65 years. Community-based adult literacy programs have adapted models in an attempt to improve the lives of individuals they work with and the communities where they live (Cervero & Wilson, 2006). Understanding how a program is implemented can aid in recognizing procedures within the planning process that result in program outcomes (Duerden & Witt, 2012). Identifying factors in program planning can essentially lead to understanding of how a program fails or succeeds.

Sork and Buskey's (1986) literature review points out that Tyler's Basic Principles of Curriculum and Instruction (1949) provided a classic planning model that is found universally as a foundational component in program planning work. The theory provided a linear five-step model necessary for program planning and includes: assessing needs, constructing objectives, developing content, choosing instructional methods, and evaluating learning (Cervero & Wilson, 2006). However, the Tyler model only focus on the processes used to develop educational outcomes without consideration of the social and political outcomes of an educational program (Cervero & Wilson, 2006). In an effort to examine the real world contexts of educational program planning, researchers developed more "context-specific" theories regarding program planning that recognized the nonlinear process of program development (Caffarella, 1988; Houle, 1972; Boyle, 1981). Cervero and Wilson (1996) recognized that planners develop programs in complex organizations and brought attention to two significant issues that must be

addressed during the program planning process. First, all planners must recognize the differing power dynamics in an organizational context, and second, planners must take into consideration who they are accountable to when they implement a program (Cervero & Wilson, 1996).

Program planners must be able to identify whose interests take priority when the goal is to produce educational and political outcomes for individuals in a program (Wilson & Cervero, 2001).

Cervero & Wilson (2006) define planning as “a social activity whereby people construct educational programs by negotiating personal, organization, and social interests in contexts marked by socially structured relations of power” (p. 24). They provide a real and metaphorical planning table that refers to how and where planners work with groups to develop programs by negotiating power relations, interests, and ethical commitments. (Cervero & Wilson, 1996; Cervero & Wilson, 2006). This theory acknowledges power at the center of a planner’s agenda that makes decisions and actions possible. Although the planning table can be a physical table where individuals come together for decision making, the term planning table is more often used metaphorically (Cervero & Wilson, 2006). Metaphorically speaking, the planning table relies on the idea that people make judgments with others in various contexts that determine specific features such as purpose, content, audience, and format in educational programs (Cervero & Wilson, 1996; 2006). These judgments can be made throughout any organization, and an individual may find themselves working at multiple planning tables at one time. The timing of the judgment is crucial. Cervero and Wilson (2006) state that researchers must acknowledge when judgments are made that determine the features of a program. “For example, instructors often make judgments about the content during the program, ad hoc decisions are made about changing the design due to suggestions from the learners, mistakes are made by the facilitator in

carrying out the design, and unexpected opportunities become available to the group in organizing the curriculum” (Cervero & Wilson, 2006, p. 82). Finally, the metaphor brings together three important aspects of planning: technical, political, and ethical. Most theories separate the technical process of educational planning from the other processes. However, it is significant to note that they all coexist. Without acknowledging technical, political, and ethical aspects, planners fail to plan responsibly in a real-life context (Cervero & Wilson, 2006).

“As planners negotiate interests in relations of power, they produce educational outcomes and, simultaneously, social and political outcomes by reproducing or changing the social and political relationships that make planning possible” (Cervero & Wilson, 2006, p.24). More importantly, Cervero and Wilson (2006) find it mandatory that program planners recognize other individuals who are part of the planning process and who have the power to influence the direction of the program. In their theory, four major concepts provide the structure: power, interests, negotiation, and responsibility to address a more practical aspect of program planning.

#### *The Reasoned Action Approach to Predict and Describe Behavior Change*

To understand factors that influence individuals’ intention to become involved in gardening, it is helpful to use certain constructs that may contribute to change in behavior after the completion of a gardening program. Fishbein and Ajzen’s (2010) reasoned action approach provides a detailed theoretical framework to describe and predict change in human social behavior. This theory may be helpful to understand how a gardening program can develop a participant’s future intention toward gardening. The reasoned action approach may also be helpful in identifying factors that may prevent individuals from gardening after graduating from a beginner gardening education program. For Fishbein and Ajzen (2010), human social behavior

is guided by attitudes, perceived norms, and perceived behavior control, which ultimately contribute to the intention to act.

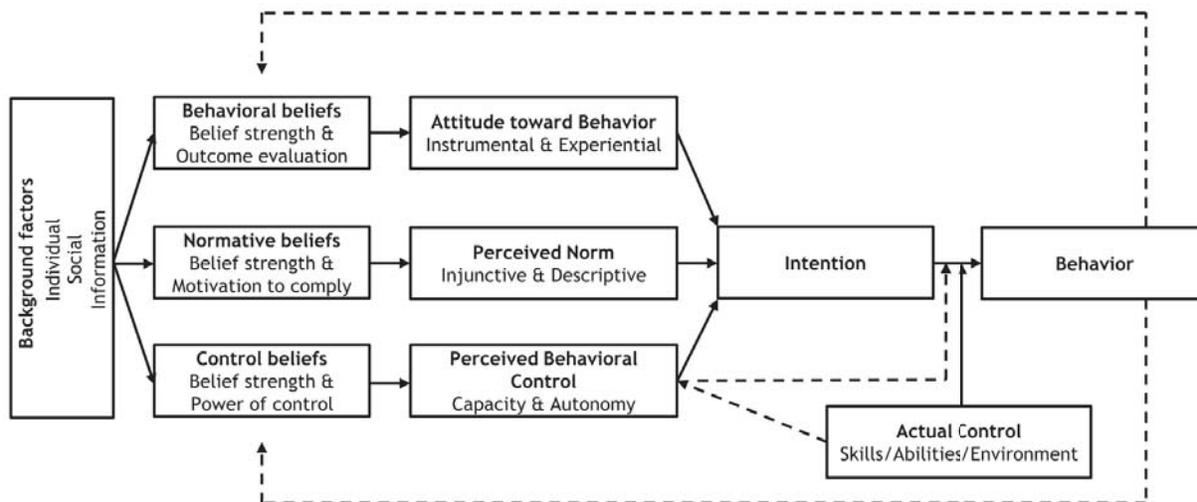
According to Fishbein and Ajzen (2010) intention is the primary predictor that guides a behavior. They define intention as “readiness to engage in a behavior, a construct that incorporates such concepts as willingness, behavioral expectation, and trying” (Fishbein & Ajzen, 2010, p. 43). A behavior is more likely to be carried out if the intention is strong. For example, if an individual has high intention to garden after completing a gardening program, it is more likely that the individual will change their behavior to participate in gardening in the future. Intention is also seen as a “subjective probability of performing a behavior” (p. 40).

To follow the reasoned action approach, all three factors that lead to an intention - attitude, perceived norms, and perceived behavioral control - must adhere to the idea of compatibility to lead to behavior change. The principle of compatibility refers to “whether an intention is compatible with a behavior if both are measured at the same level of generality” (Fishbein & Ajzen, 2010, p. 44). Fishbein and Ajzen (2010) state that a behavior’s four elements, action, target, context, and time, can be defined at various levels of generality. “It is therefore useful to think of a behavior as composed of four elements: the *action* performed, the *target* at which the action is directed, the *context* in which it is performed, and the *time* at which it is performed” (Fishbein & Ajzen, 2010, p. 29). These elements may range from specific levels of generality to high levels of generality. Only after considering compatibility and generality can a behavior be measured.

Fishbein and Ajzen’s (2010) theory was formed and validated through their own observations and empirical evidence from other researchers. Many studies have incorporated the theory of planned behavior to assess the effects of gardening programs and curricula on dietary

behaviors and gardening knowledge on youth (Beckman & Smith, 2008; Lake, Milfont, & Gavin, 2011; Lautenschlager & Smith, 2007; Pierce, 2012). Researchers believe that the reasoned action approach framework can be unified and applied to any social behavior as long as the investigator clearly identifies behavior of interest before beginning any kind of inquiry (Fishbein & Ajzen, 2010).

Figure 1 illustrates the reasoned action model and the connection among the various factors that ultimately lead to behavior change. Fishbein and Ajzen (2010) state, “at the lowest level of explanation, people are said to perform a behavior because they intend to do so” (p. 21). In 1991, theorists determined at the model’s next level (Fishbein & Ajzen, 2010), that many key variables needed to be true for a person to perform a certain behavior. The top three variables that contribute to their model are: “1) the person has formed a strong positive intention to perform the behavior, 2) there are no environmental constraints that make it impossible for the behavior to occur, and 3) the person has the skills necessary to perform the behavior” (Fishbein & Ajzen, 2010, p. 19). Fishbein and Ajzen consider attitude toward a behavior, perceived norms, and perceived behavioral control the major three determinants of intention. However, they also acknowledge that actual controls, such as skills/abilities, and environmental factors are crucial for identifying behavior changes and should also be taken into account for predicting behavior.



**Figure 1. Reason Action Model (Fishbein & Ajzen, 2010)**

Examining the three main factors that ultimately form an intention may explain why individuals who share similar behavioral, normative, and control beliefs behave in different ways. First, attitude refers to an individual’s favorability, whether negative or positive, toward a certain behavior. Attitude is a primary factor in explaining intention to perform a social behavior. Fishbein and Ajzen (2010) define attitude as “a latent disposition or tendency to respond with some degree of favorableness or unfavorableness to a psychological object” (p. 76). Attitude stems from behavioral beliefs, which are beliefs about the potential effects, rewards, and results of a behavior (Fishbein & Ajzen, 2010).

Measuring attitude involves the semantic differential (Osgood, Suci, & Tannenbaum, 1957; Fishbein & Ajzen, 2010). Some studies have used semantic differential questions as direct measures of attitudes toward gardening (Lake, Milfont, & Gavin, 2011) and knowledge of healthy eating (Grønhøj, Bech-Larsen, Chan, & Tsang, 2013). The semantic differential is used to ask participants to rate an object based on opposite adjective scales (i.e. like/dislike, bad/good, positive/negative, useless/useful), where the scale is typically scored from -3 on the negative side of the scale to +3 on the positive side. The sum of the scale is taken as a measure of the

participants' attitude, that is, the higher the score, the more positive the attitude (Fishbein & Ajzen, 2010). Evaluating interest using the semantic differential provides an individual the opportunity to share personal attitude toward a particular behavior or object. These attitudes are the highest predictors of behavior change (Fishbein & Ajzen, 2010).

Second, perceived norms refer to an individual's perception of whether or not society would be accepting of their actions. Perceived norms are based on normative beliefs, which are the extent to which other people who are important to an individual think they should or should not engage in particular behaviors (Fishbein & Ajzen, 2010). Individuals may place limits on their own behavior if they deem a behavior abnormal within their larger societal framework. This determines the types of behaviors an individual considers appropriate or inappropriate and helps them decide what they should or should not do. However, in the reasoned action approach, there are two types of perceived normative pressures that individuals experience: injunctive and descriptive. For Fishbein and Ajzen (2010), "injunctive norms refer to perceptions concerning what should or ought to be done with respect to performing a given behavior, whereas descriptive norms refer to perceptions that others are or are not performing the behavior in question" (p. 131). This also must adhere to the idea of compatibility for the intention to be predictive of behavior change (Fishbein & Ajzen, 2010).

Perceived norms are elaborated more concretely through constructs of injunctive and descriptive normative beliefs. Instead of generalizing a specific behavior, normative beliefs acknowledge a more specific group of individuals, such as individuals the participant respects and admires (Fishbein & Ajzen, 2010). Questions to determine an individual's injunctive normative beliefs typically involve asking for the opinions of others about the behavior (i.e. most people who are important to me think: I should/should not) in a more open-ended, free-response

format (Fishbein & Ajzen, 2010). Descriptive norms refer to the perceptions of what other people are doing and assume that peer pressure is a major factor in determining behavior (Fishbein & Ajzen, 2010). Questions to measure descriptive norms are more generalized, compared to injunctive norms. There has been little research conducted on descriptive norms and their involvement in the reason action approach. Identifying whether or not a person believes a behavior is socially acceptable is a major factor in whether or not the behavior takes place.

Third, perceived behavioral control is the final major determinant for predicting intention in the reasoned action approach. Although Fishbein and Ajzen (2010) state that attitudes are known to be the highest predictor of intention, other studies have found that perceived behavioral control is the most important factor for predicting behavioral intention (Lake, Milfont, & Gaven, 2011; Grønhøj, Bech-Larsen, Chan, & Tsang, 2013). Behavior control acknowledges what individuals expect they can do, and the extent they believe they can overcome challenges they encounter. This perception is centered on control beliefs. Control beliefs are an important predictor of changing behavior. If an individual thinks they have obstacles such as limited resources and opportunities, they are less likely to perform a certain behavior. Even if an individual has a positive attitude toward a behavior that is perceived to be socially acceptable, these two factors may not be a strong enough intention to perform a behavior (Fishbein & Ajzen, 2010). What an individual perceives he/she can do largely determines whether or not the action will occur. If an individual intends to perform a behavior where they feel they have the ability to accomplish the task, they will more likely attempt the task. Whereas, if an individual feels there are many limitations and obstacles outside their control that may prevent them from accomplishing a task, they will less likely attempt to try.

Measures of perceived behavior control are similar to attitudes and perceived norm, as it asks direct questions about the ability to perform a behavior. Measuring self-efficacy is another way to predict perceived behavioral change (Bandura, 1991). Perceived self-efficacy is defined as “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (p. 155). Fishben & Azjen (2010) believe that perceived behavior control is operationalized as self-efficacy. The measurement for perceived self-efficacy involves participants’ rating what they believe, and how well they believe they can perform a behavior with certainty (Fishbein & Azjen, 2010). These ratings typically are based on a 10-point scale, where the mean response over all the items determines the perceived self-efficacy.

At the highest level of the model, behavioral, normative, and control beliefs are known to formulate through an individual’s background experience. Individual, social, and informational background factors play a crucial role in how a human expresses and understands a belief. According to Fishbein and Ajzen (2010), background factors must be taken into consideration when measuring behavior change. All of the constructs in the reasoned action approach - attitude, perceived norms, and perceived self-efficacy - must be assessed with the principle of compatibility to ensure that the intention to act will predict actual behavior change. Behavior change can only be measured if the target, action, context, and time, are the same. How a person associates certain beliefs to a given behavior (behavioral beliefs), how they perceive that important others around them would approve or disapprove of their actions (perceived norms), and whether they believe they can carry out the behavior (control beliefs) are all crucial elements that contribute to intention. The reasoned action framework has been explored and adapted from many other theories throughout the years, and can ultimately be used for any social behavior (Fishbein & Ajzen, 2010).

## **Program Description**

The organization examined in this case study is a hunger-relief non-profit serving seven counties in North Carolina. In its service area, more than 545,000 people are food insecure, receive emergency food each year, and are unsure of where their next meal will come from (Food Bank of Central & Eastern North Carolina, 2010). The organization is in charge of many aspects of community food education. In the search for a new program, the program coordinator encountered a nationally recognized beginner gardening program that originated in the West coast. The program coordinator wanted to adopt it in North Carolina to help the low-income individuals served by her organization. The beginner gardening program complemented other nutrition programs the organization had successfully implemented. This case study was conducted on the pilot program for the implementation of the program in a new location.

On a program handout, the organization describes the mission of the beginner gardening program to promote health, increase food literacy, self-reliance, build resilience, and cultivate community connectivity among adults gardening on a budget. The program's target audience was low-income residents in North Carolina who were interested in learning how to grow a portion of their own food. Specifically, the purpose of the program was to provide members of a community with a comprehensive, five-week beginning gardening course that gives novice, adult gardeners the tools they need to successfully grow a portion of their own food on a limited budget. The organization worked with various stakeholders such as the County Extension Center and the Extension Master Gardener program to find a teaching team for the class. Because they were in the middle of transitioning to a new community garden, the organization also worked with a partner agency that provided a location to hold the program activities. The program provided educational materials, resources, and support to program participants.

The program coordinator reached out to the researchers to help examine the influence of this beginner gardening program on the program participants. The researchers also wanted to examine the program planning aspect of introducing this program in a new location. After meeting with the program coordinator, the researchers established the following questions:

1. What is the process of planning and implementing an existing beginner gardening education program design in a new location?
2. How does the gardening education program address the needs of the participants involved in the program?
3. How does this beginner gardening program act as an entry point for participants to start growing their own food?

### **Methods**

Guided by the mutual interests of the program coordinator and members of the research team, qualitative research methods were utilized to study the process of adopting an existing garden education program to a new location and examine the influence of the program on participants. This case study was used to obtain a rich understanding of emerging themes through content analysis of program materials, interviews, observations, and a focus group. In order to develop interview and focus group questions, the researcher created a set of *a priori* propositions, aligning propositions with empirical research and research question (Appendix A). The *a priori* table was developed based on supporting literature, Fishbein and Ajzen's (2010) reasoned action approach, and Cervero and Wilson's (2006) program planning theory. Experts from the Department of Agricultural, Leadership, and Community Education reviewed the interview and focus group guides to establish validity, and changes were made based on their recommendations.

### *Content Analysis Methods*

The researcher collected documents from the organization to use for content analysis throughout the duration of the program. Items included recruitment materials, PDFs of the program's background and purpose, other public accounts of the organization and program's work, handouts provided throughout the program, the program booklet and PowerPoint presentations. Handouts were examined using the Fry Graph, which is a scientific tool used to determine the readability, or grade level score, at which a text is appropriate. The readability is based on a sample of 100 words, and the number of syllables and sentences in the content (DuBay, 2004).

### *Interview Methods*

After obtaining consent from the Institutional Review Board, all program participants were contacted via telephone due to time constraints and because the lead researcher was located out of state. One coordinator, two Extension Master Gardener volunteers, and thirteen participants were interviewed before the start of the program. After the completion of the program, one program coordinator, three master gardeners, eleven participants who completed the program, and one participant who dropped out of the program were interviewed. This gave the researcher a total of 32 interviews. Both pre- and post- interviews were semi structured and lasted from 20 minutes to one hour.

### *Observation Methods*

The researcher attended every class for five weeks and observed the program without participating. A reflection journal was utilized to document and record field notes throughout the program. Behaviors and activities related to the program, the communication between participants, teachers, and coordinators, what was being discussed, and the researchers' personal

reflection were all noted. By obtaining field notes, the researcher was able to write a detailed description of the setting and context of each session.

### *Focus Group Methods*

On the fifth week of the program, the researcher conducted a 45 minute focus group session involving twelve program participants. Of these twelve participants, one participant had not completed the program, however, was still willing to partake in the focus group. All of the interviews and the focus group were recorded using two audio recorders. Observational field notes were kept in a reflection journal. The recordings and field notes were then transcribed electronically using Microsoft Word. After transcribing, the researcher coded and managed the data using the Atlas.ti program. The data was stored electronically on a secure computer, and backed up on two separate secure external hard drives. Data was examined for coding and finding thematic analysis. For the purpose of anonymity of the individuals and the organization, pseudonyms were used during data analysis and to present findings.

**Kaelyn:** Program coordinator for the organization in North Carolina

**Olivia:** Teaching Team leader

## **Findings**

Nine major themes emerged from an analysis of the content analysis, interviews, a focus group, and observations.

***Theme: Implementing an existing program in a new location with new partners resulted in multiple unforeseen obstacles for program coordinator and instructors***

Many of the obstacles encountered during the planning process of the program occurred before the start of the program. Although Kaelyn initially obtained permission from the previous

coordinator of the original program site to conduct the program in North Carolina, she stated: “the thing they didn’t give me at first was the master files”. Kaelyn contacted the new coordinator three weeks before the start of the program to obtain materials for the program and described her experience:

*I went to get the original files of the PowerPoint for the participant booklet, cause we knew that, you know, [the West Coast] growing season is very different from the North Carolina one, so we knew that we were going to have to make changes...I contacted her [the new coordinator] and we spoke on the phone and she dropped this bomb on me, she was like ‘I don’t know why the previous coordinator told you that you’re allowed to do this program, but... you know, we co-wrote that book with a University, and we need to speak with them, and they need to give the OK, and then you’re going to have to sign an MOU before I can give you any of those materials’ (Kaelyn)*

She then continued by sharing her concerns before the first week of the program:

*That’s [the master files] what I really needed and that’s why I got in such a pinch a week ago because it was like ‘they might not give them to me’... ‘how am I going to run this class’. (Kaelyn)*

This supports Cervero and Wilson’s idea that power relationships and dynamics can be found during any phase of a planning process. Kaelyn was not sure what she would do if she did not obtain the materials she needed.

Another obstacle Kaelyn encountered before the beginning of the program was when she was working with a partner organization. The partner organization provided the program with infrastructure, which included a classroom and a vegetable garden. The existing program on the West Coast conducted the entire program in the classroom, which made a classroom crucial for implementing this program. The partner organization also agreed to recruit participants for the program. However, Kaelyn explained that she was concerned about completely relying on the partner organization and made her own recruitment list:

*I made a list, a directory of any people who were interested in having a garden, in taking a gardening class. I called all 30 people and got, you know... like 8 people who wanted to do it...I decided to not just have [the partner organization] do recruitment... I am*

*concerned that we wouldn't be able to recruit enough people just by relying on our partner to do the recruiting.... (Kaelyn)*

Kaelyn stated that recruitment of participants “wasn't totally a picnic”. Kaelyn described a challenge she encountered with recruiting participants with the partner organization:

*I don't even know if they're [recruited participants] from [the area in North Carolina]...part of getting this grant money is that I'm suppose to be working in [the area in North Carolina] specifically we do have to be a little careful with that but you know... so sometimes it works out perfectly, and sometimes there are little hiccups.... (Kaelyn)*

Not only was the recruitment process challenging, there were also concerns that both the lead organization and the partner organization receive appropriate credit , as Kaelyn described:

*Another thing is credit... you have to think about branding...like I said the whole ego thing, it's not just them [partner organization], it's us too... making sure that we get credit for the fact that we found this program, we brought the program, the entire program...so like.. how does the branding look, how do we put the logos in... and all that stuff. (Kaelyn)*

Kaelyn had to ensure that her organization's branding and logo were included in the supporting materials given to participants. Many of these issues and challenges were not foreseen during program development, but they were obstacles she needed to address to implement the beginner gardening program.

***Theme: The primary coordinator of the organization found it crucial to collaborate with other organizations and groups of individuals, such as funders and Extension Master Gardener volunteers, to implement this program***

Kaelyn recognized that the program would not have been possible without the resources, location, and knowledge the other collaborators offered. She noted:

*We can benefit from the expertise and the resources in the community, like the master gardeners... and also working with partners for the first class...I mean why not work together? (Kaelyn)*

For the implementation of the program, Kaelyn recognized that finding funding was crucial for the program. She discussed the process of funding, and how supportive the funders were:

*I have my proposal and someone on the board also runs the foundation and they granted us a \$5,000 mini grant, which is what's funding this program...it really turned out to be the perfect fit, a great marriage... so I didn't have to worry about our funders, I had to worry about eventually my boss, but she loved the idea, so that was an easy sell...I had to worry about the old executive director, she loved it, and the new executive director, and the board. I mean at any point, anybody could have shut it down, but they were looking for somebody to be the 'savior' you know? (Kaelyn)*

Kaelyn continued to speak about funders and their support for the program:

*They [funders] were like 'we trust you'... this is in line with our mission and values, go for it. (Kaelyn)*

Kaelyn described that the funders and organization were very supportive of her proposal, which made implementing the program possible.

When asked what major decisions were made during the planning of the program, Kaelyn acknowledged that collaborating with the County Extension Center and the Extension Master Gardener program were crucial decisions. She stated:

*I made the decision that we needed assistance from extension and master gardeners so I sought that out, I found a great woman who's a very involved master gardener... I also had the help of the woman who runs the master gardener program through Extension... one of the lead master gardener volunteers, and then she found 2 other master gardeners, so the three of them are team teaching. so I made the choice...I didn't have to get their help, but I mean it seemed like the smart thing to do. (Kaelyn)*

Kaelyn discussed her appreciation of collaborating and spoke about her reasons for wanting to work with others. She explained:

*That's one of the things I've loved about this process, that I love collaborating and I love...I don't think I know everything, so I like to find people who know more than me to make something be the best that it can be... I really trusted the Master Gardeners...they brought a lot of really good suggestions to the table. (Kaelyn)*

Kaelyn felt collaboration was crucial with others during the planning process of the beginner gardening program.

Kaelyn recognized that she had a “tendency to take charge,” but also recognized that she needed to give the teaching team freedom to make their own edits and teach the course the way they wanted. Kaelyn noted how she wanted things to work through the program:

*During the info session I was in charge of it... but I also am very good at making sure that every person involved has the floor, does their thing, but I don't know how involved I want to be in the class, like I think I just want to take a back seat and just observe like you are, and observe my trainers to see how they're doing. (Kaelyn)*

Kaelyn acknowledged that everyone had a role at the planning table, and wanted to let the teaching team to have a say during the process. By trusting and collaborating with the Extension Master Gardener volunteers, she enabled them to make their own decisions about the class and enjoyed what suggestions they had to offer. According to Cervero and Wilson (2006), examining who ends up at the planning table is the first set of interests to be negotiated during the planning process. Once a program planning group is established, the educator then negotiates through each person's set of interests as to how the program should look. Kaelyn shared power by deciding to bring them to the planning table and letting them make their own decisions for the class. Through observations, the teaching team led the class every week, and the program coordinator sat in the back of the room only to help if there were logistic problems.

***Theme: The teaching team was able to collaborate effectively because they identified how to combine their individual strengths***

The teaching team was in charge of editing the existing program's curriculum to cater to North Carolina environments and organizing who would teach each of the sections of material.

When asked about the interaction between the teaching team, the teachers all agreed that they were able to collaborate effectively due to their individual strengths. The following excerpts were stated:

*We met...half a dozen or eight times beforehand and we worked on rewriting the booklet with permission, and then we kind of divided our time, what we thought our strengths were. (Teacher)*

*I think that we communicated pretty well between us. (Teacher)*

*You know, actually our personalities are different but they're similar... I think the three of us share a very strong interest in helping people help themselves and community gardens are just even... not even community gardens, but growing your own vegetable garden is just a wonderful way to do that, I think that for me, I know how to vegetable garden and I enjoy passing that knowledge along, and that is just fun for me... so it's fun for me, and it's... you know, very beneficial for them, and you get a lot of... positive self satisfaction in having success in a garden and I think that's important for these people too. (Teacher)*

*What we bring is experience and actually having done the gardening and I think that is a critical need, or a critical requirement. (Teacher)*

*I think you need to have at least one or two instructors that are actually experienced vegetable gardeners because that's where the questions really come up, and first hand experience is very very key to have credibility and answering the questions and even being able to answer all of them, so I think what the master gardeners brought was that hands-on, we've done it, and that experience level to be able to you know impart that on the class participants. (Teacher)*

The teachers were able to recognize that they all had differences, however, had the passion to share their knowledge and interests with others.

Kaelyn stated that organization and commitment were some of the biggest strengths of all the coordinators:

*I think that the master gardeners took it really really seriously, and I mean even now after the class, they're talking about totally revamping the curriculum, things they're going to do to improve it and... they were more dedicated than I could've hoped for. (Kaelyn)*

The teaching team agreed that biggest shared strength was their hands-on experience in the garden. The teaching team enjoyed sharing their knowledge and passing their knowledge. The teaching team also felt their strengths were what helped build a personal relationship with the participants.

*I mean obviously because they enjoyed the course and they felt like they were getting a lot of you know, resources from us, and a lot of information, but I also think that having a personal relationship, and focusing on those, you know... I think it made it a lot more successful than it would've been otherwise. (Teacher)*

Kaelyn recognized the teaching team's enthusiasm for sharing their knowledge and talked about how they used their strengths and connections with participants to keep them intrigued and excited:

*I think that they really care and they really wanted to make an impact on the participants, so they kind of went the extra mile. (Kaelyn)*

She noted that the teaching team brought an important factor to the planning table by contributing snacks to the program every week. Kaelyn noted:

*I think it makes people feel cared for, and I think when you feel cared for, you feel like you're a part of something. You know sometimes, there would be people in that class who were just coming because they felt like they were a part of something and they made friends. (Kaelyn)*

Together, the coordinators and teachers really cared about making a difference by their desires to share knowledge with participants.

During the focus group, the program participants said they noticed the teaching team's passion for gardening, which kept the participants enthusiastic about their own gardens:

*The teachers had the experience and shared their experience with us about their garden, so it was a lot of motivation for me to hear from them. (Participant)*

Another participant discussed how she was motivated through the teaching team's experience:

*All the knowledge that they [the teaching team] had... I mean, I got the impression that they really know what they are talking about and then they gave examples of their trial and errors and when they started out. Pretty much let you know that just because you didn't get something to work, you know, just try again, and there's probably little things you might need to do. (Participant)*

Both the planning table and the reasoned action approach emerged within this theme. The Extension Master Gardener volunteers were able to plan and collaborate effectively, which made participants feel cared for. As a result, the participants were provided with support and had a more positive attitude towards the program.

***Theme: Lack of established roles between the program coordinator and teaching team resulted in occasional miscommunication***

Although the teaching team was able to identify their strengths and Kaelyn recognized the importance of collaboration with partners, there was a lack of communication between the program coordinator and the teaching team. Olivia was the only master gardener who had been in contact with Kaelyn before the program started, which resulted in the other teachers stating they felt as if they were “living vicariously through Olivia.” Because only one teacher was in contact with Kaelyn, the other teachers felt unaware of what was going on. One teacher described what she wished had happened before the program started, as she noted:

*There was nothing before we started...I would've liked to have met Kaelyn prior to that first meeting... because you know.. you can kind of get a gauge on what they hope to accomplish, or... I had been to their garden before, so I knew about it, but I didn't know about why they do it.. or I didn't have any of that information and most of the preliminary work happened between Kaelyn and Olivia and then we would get information from Olivia, we would get information from Olivia, but already that's second hand...and after the meeting, we talked a little bit...but it seemed like people just were, needed to go, or ready to go.. it would've been good to talk about it... we did email back and forth sometimes you know, if we had a chance. or I would email Olivia and she would talk to Kaelyn, I would've liked to see it more everybody talking to everybody, not through people... I just don't think that works very well. (Teacher)*

The teaching team discussed the importance of identifying responsibilities and communicating that with everyone involved in the program's development. One example of miscommunication occurred as a teacher stated:

*I felt like at times I was surprised at what Kaelyn did... seemed like at the information session for the class, she told everybody that when they graduated... that she would build them a garden. (Teacher)*

The rest of the teaching team concurred, observing there was not much clarity on the logistics, timing, and communication with participants throughout the course. Misunderstandings led to many weeks when the teaching team did not finish its intended lecture. A teacher mentioned that it was difficult to teach everything when "other things keep getting thrown into it" and explained:

*We did not complete the curriculum every week and it was because of various reasons... sometimes it was due to things we really hadn't planned on taking so much time, took a lot of time, so during the first week, Kaelyn doing the pre-survey... ended up cutting into quite a bit of the education that we had planned to do, much more than we perceived... we had to give a lot of the teaching time. (Teacher)*

Because they had never met before the first week of the program, some of the teachers did not know what Kaelyn's initial interests were for the program. They had a very vague idea of what the logistics were for each class, which resulted in not finishing the planned content for each week. Through observations it was evidenced that much of the administrative information took a lot of time from the first and last class of teaching, and the primary coordinator would tell the teaching team what she needed to do 5 minutes before the class began. Also, through observations, the class started at least 10 minutes late every week.

Another misunderstanding involved decisions of what was to be given to participants. The participants were promised a backyard garden from Kaelyn at the informational session and

it was stated on one of the fliers handed out to the participants. One of the participants wondered about the backyard garden at the end of the program:

*The flyer said if we completed the class, then we would get \$150 worth of plants.*  
(Participant)

*My understanding was that that's what the class was about. is learning how to garden...they'll bring out a garden for you and you plant and do something with it during the course of your class, or maybe they'll start it at the end of the class.* (Participant)

The teaching team spoke to Kaelyn about not implementing a garden but rather teaching the participants how to start their own garden. Kaelyn agreed with this suggestion, but some of the participants were still under the impression a backyard garden would be built for them after the completion of the course. One teacher described her experience:

*It seemed like at the information session for the class, she [Kaelyn] told everybody that when they graduated that she would build them a garden and we kind of went 'no! these people need to learn how to build their own gardens, you can't just give everything away'.... so there were a number of things like that that came up that were surprises to me, so I'm not sure that all of us meeting ahead of time... maybe it would've cleared it up... (Teacher)*

A teacher discussed a time when the teaching team realized there was a participant in the course that was interested in container gardening:

*Well we weren't prepared for that. Container gardening is totally different from raised bed gardening... we're going to have to prepare an info sheet for those people... so it's interesting that you think 'ok, well this is an easy fix' but then like... 'wait a minute, like no.. throw a wrench in the plan' so. umm.. yeah, there's been a lot of stuff that's come up but it's... nothing that's too impossible.* (Teacher)

During the post interviews, the teaching team stated that there were a couple of misunderstandings on what to be provided to the participants and the logistics of the class, which threw their teaching off. The all agreed that having a time to debrief after the program would be better for the next class. The teaching team stated:

*The other thing that we didn't do that I think would've been good was to debrief. After each class, you know, kind of do a debrief of this class and an intro to the next class. [The teaching team] did that a little bit through e-mails and once in a while we'd get on the phone and have a quick discussion, but we weren't disciplined about it and I think in the future, that would be a good discipline to add. (Teacher)*

*I guess have a debrief between each meeting so we kind of capture right on the spot learning and that we also make sure we are in sync for the next class and any changes we want to make from the plan. (Teacher)*

The teaching team realized that there were miscommunications throughout the program, and that meeting between each week could have helped them plan better.

***Theme: The teaching team realized that they needed to be more flexible with their time and class content when implementing an existing program in a new location***

There were three key issues related to timing: too little time to prepare; too much information to present in the allotted time; and the class was offered at an inconvenient time. Teachers received the curriculum just before the course started and so did not have adequate time to prepare. In addition, teachers and participants alike were concerned that too much information was scheduled into too short a time period. Finally, the class was offered at a time that was inconvenient to both participants and instructors. With such a short amount of time given to edit the curriculum, the teaching team realized they needed to be more flexible with their time and teaching content when implementing the existing program. The teaching team agreed that administrative information and logistics took away much of their teaching time. One teacher stated:

*I felt like every class we were scrambling to make sure the projector and everything was set up... instead of having a smooth organized start... you know, that was a little frustrating because it threw everything off, we kind of sort of last minute trying to make sure we were ready.. but not having all the facilities necessarily ready was a little bit of a challenge... umm.. and then like I said before, like someone from the administrative aspect took more time than we expected. (Teacher)*

Not only did the lack of preparation take away from instruction, other factors also set the teaching team back each week. The teaching team stated that one of their biggest challenges was managing too much information in a short amount of time. Both Extension Master Gardener volunteers and participants agreed that the information assigned each week was too much to teach in two hours. After the second week of class, one of the teachers noticed that they were presenting too much information. She noticed that some of the participants did not comprehend the information being taught. The following excerpts were stated by both teachers and participants about the curriculum:

*It's a lot to try to teach in a short period of time, and you know, sometimes we do these seminars and teaching how to grow a vegetable garden in two hours or less is kind of a challenge... We really felt like we had just given them too much material, it was a lot to cover in that period of time and so that was kind of on the fly adjustment where we stepped back and we needed to step back and make sure everyone has their gardening plan and understand how they do it, so it was just... it was kind of obvious to me after we walked out the second day that I just felt like there was too much material too fast and that they were going to go home and look at that graph paper and go 'oh my gosh what am I suppose to do now?' (Teacher)*

*We already think it needs to be a little bit longer. I mean five weeks is not that much time... it sounds like a lot of time, but there's a LOT of material and you don't know who's at what level... so we're adjusting, adjusting, adjusting, every week we talk about it during the week, we have like a conference call and we try to say 'ok, this this didn't work, this needs to be recovered.' The whole thing last week with bringing the graph paper and the paper was 'that was too much information at one time' and we sat them down and have them do it with us so they feel like they can go with this piece of paper. (Teacher)*

*My only problem was I feel like we tried to cover too much territory in a short amount of time. (Participant)*

Teachers and participants felt a challenge with trying to obtain too much information in such little time.

On the third week, the researcher/observer took note of when the teachers spoke to Kaelyn before class started about taking a step back to review and ensure the participants

understood how to plot and plan their gardens. The teaching team agreed that they would have taught a much less complex curriculum and didn't see how the west coast state could cover all the material every week without confusing participants. Not only do Cervero and Wilson (2006) believe that it's fundamental for people to make judgments with others, but the timing of when judgments are made is crucial. During observations, it was noted when the teaching team made the decision to split the class into groups for more individualized attention for working on their garden plan. This helped participants really understand how to plan their own garden. The teachers recognized when the participants were overwhelmed by the content material and decided not to move forward with content, which supports Cervero and Wilson's (2006) idea that the learners are always at a planning table for any program.

The time of day for the program also created frustration for the teaching team and the participants. The program was held once a week on Mondays from 6-8 p.m. It was observed that many participants arrived late to the program every week. One participant who quit the program said she was not able to make the program because of the day and time. She described how the program coordinator could have made it possible for her to attend the class:

*If they did it on different days, and then multiple days. Nights don't always work for everybody... even if they don't work...they might have a family at night, so they have to go home and cook for them, you know? But then some nights might work for people that do work during the day. (Participant)*

She added that she was eager to participate in the next beginner gardening program if it fit into her schedule. Many participants mentioned they had to take off work or change their work schedule to attend the class.

Participants who were able to attend class every week said they were frustrated by the traffic while traveling to the program. The time of day also made everyone anxious to leave by the end of the night because they were tired and ready to go home. The teaching team wanted

free time after class each week to speak to the participants about their personal gardening experiences. This was difficult due to time constraints. One teacher commented:

*I think the first thing is the time of day... is a difficult time to be teaching a two hour class... the time of day was a challenge because you know people are tired from work, or they haven't eaten, you know... so... that was uh... difficult. It also made it difficult for being out in the garden, so we started the class a little later than we would have liked to for time of year. (Teacher)*

One of the participants who said she was not as involved in the class as much as she wanted, stated:

*I pretty much wasn't very sociable because of the time of day it was... by 7 o'clock, I'm pretty much done... especially driving from where I live to the location...so if I sit down at that time of the day, I pretty much start dozing. The only thing that keeps me awake is moving around. I am very active during the day. (Participant)*

The teaching team recognized that presenting less material every week and changing the day and time of the program could bring them closer to the participants. Time was their biggest limiting factor.

***Theme: The teaching team desired a different recruitment process for identifying program participants***

The teaching team was not part of the development of the program planning and the recruitment of the participants, which resulted in their lack of knowledge about the participants' background in gardening. This revealed a challenge that the teaching team did not foresee. It was agreed before the program that Kaelyn would be in charge of the recruitment process. During a meeting before the program started, one of the teachers stated who they wanted to recruit to the program:

*We had had a discussion saying that we had wanted to target you know, the community that was low-income, wanted to learn vegetable gardening, and wanted to have a garden and... but it wasn't anything more than that and retrospect, we probably should've been a little bit more specific or more rigid about the recruitment process. (Teacher)*

Kaelyn recruited participants through mobile markets, which required individuals to be low-income to attend. However, during the post-interviews, the teaching team stated that everyone probably should've been a little bit more specific about the individuals who were part of the program. Because the beginner gardening program was a pilot, Kaelyn wanted as many participants as possible. She described an experience from a previous program she had coordinated, and explained why she wanted to recruit more individuals:

*I've run a class before. We started with like 13 and ended up with 5 graduates. So I felt like I need this to be a success to prove that I know what I'm doing and I can help direct... I can help shape the direction of our programming in this area, and that I can show the funders that this is worth investing in again. (Kaelyn)*

Because Kaelyn tried to recruit as many participants as possible, the class ended up being larger than the teaching team had expected. One teacher explained:

*I think where we struggled a little bit is that one: the class ended up larger than we had hoped and we had really wanted to keep it small so that we could do a lot of one on one kind of work and also really be able to... learn what changes to make in the next course, so the class size was a little bigger... I also think that the screening of the participants didn't necessarily get us a group of people that were all committed to raising vegetables, I think I felt like a couple of the folks there attended because they got talked into it... and we had some different levels, or different requirements... most notably, one of the participants had no ability to have a vegetable garden, she [the participant] really wanted to do a very minimal amount of container gardening and so the class was really kind of overkill for her and we really didn't, weren't able to really focus on her specific needs, so I think there was inconsistency in the students that had been recruited which I would've liked to have a little bit more of a uniformed group. (Teacher)*

Since many participants had different levels of experience for the types of gardening they wanted to do, it was difficult for the teaching team to teach one curriculum. Through observations it was noted that there were some participants who had very little experience before the course and they were very intrigued by the content. Other participants who were more experienced with gardening, would stand up and start walking around during the classroom. This was very prominent on the third week, when the teachers decided to take a step back to work with

individual participants. The more experienced gardeners were already finished with their gardening plan, and did not need help from the Extension Master Gardener volunteers, which resulted in wandering around the room waiting for others to catch up. The teaching team agreed that they would have liked a more uniform group in to instruct. Although they realized having a uniform group was almost impossible, a teacher suggested:

*Just really know your participants... I think it really requires knowing your participants beforehand. I don't mean you have to be best friends with them, I just mean know what their education level is, what their ability to comprehend is...and then meet them where they are. (Teacher)*

Some of the participants noticed that there was differing levels of experience in the course participants. When asked what suggestions they had for the future of the program, one participant stated:

*Have a class for people who have some experience and maybe have an interview so that who has had experience and who don't. That way, maybe they can have one class who are very new and have never done it before that want to do it and those people who already have a garden and they were ready to see how to be able to move on and catch up you know? I think that might be very helpful. (Participant)*

Teachers and participants noticed the difference of experience between all program participants.

On the first day of the program, Kaelyn gave a survey to the program participants. The survey asked a broad array of 46 questions on a 5-point Likert scale ranging from “strongly disagree” to “strong agree”. Statements such as “I know how to grow my own food”, “I know the difference between crops and invasive weeds”, and “I feel like I have enough space to create a garden at my home” were just a few examples on the survey. However, the survey results were never shown to the teaching team. The teaching team stated during the post-interviews they had never been informed of the survey results and wished they had. The teaching team did not know where the participants had been recruited from, their gardening experience, and their intent for involvement in the program.

*I would've liked to have known the survey information and I would've liked to know right away... because maybe there was something in there that we could've used... that might've helped us with something, you know? Who knows... but there's a reason for them taking that [the survey], I think... I mean, like I said,[for example] those 6 questions and now we know... 10 of the 14 of them have never gardened before. (Teacher)*

Another reason the teaching team would have liked to know information about the participants was because they were unsure for what motivated these individuals to come to the class. One teacher discussed:

*This is my impression, and it's from what Kaelyn told me is that some of the recruits came from the [other program] classes, or previous education that [the organization] has offered, and that they were kind of like "oh well what else do they have" and they just came because it was another class, and I don't know. I don't know what their motivation is, if they get credit for that or if there's something going on in the background, but it just didn't seem like they were as engaged on the topic. (Teacher)*

During the post-interview, Kaelyn realized that she had never shared this information with the teaching team. Kaelyn stated:

*That was a huge mistake, like I should've shown the master gardeners so they would know what the information they would give, in terms of knowledge. I would've done an interview or survey here, like before the first class, and I would have shared that information and would've had a meeting with the master gardeners before the first class, so we could talk over the participants' knowledge level. (Kaelyn)*

The information from the survey was not shown to the teaching team, which limited their knowledge about the program participants.

***Theme: The participants were provided with multiple resources, which they found to be useful in the success of their future gardening practice***

Although the teaching team agreed that there was too much information presented every week, the program provided resources that helped participants continue to learn about gardening. These resources included the Extension Master Gardener hotline phone number, posters, hand-outs, plant starts, seedlings, compost, and a booklet for participants. The booklet consisted of 5 chapters: Chapter 1: Getting started with healthy soil, Chapter 2: Planning your garden, Chapter

3: Planting your garden, Chapter 4: Caring for your growing garden, and Chapter 5: Harvesting and using your bounty. Based on the content analysis, the Fry Graph revealed that the grade level of the booklet was between 4<sup>th</sup> and 5<sup>th</sup> grade reading levels. The highest level of reading material given to the participants was a hand-out on pest control and did not exceed an 11<sup>th</sup> grade reading level. The participants found these resources very useful during the class and outside of class. Participants stated that they would refresh themselves with the material in the book after class, during lunch, and while they were in the garden. One participant noted:

*It's great. I was looking through my book today at lunch, you know..? I just loved it.*  
(Participant)

During the post-interview, a participant spoke about a time she was in her garden and used her book as a resource to ensure she was doing the right thing:

*Reading and listening [in the class]: to me it was kind of, 'I don't know how I'm gonna do this' I said... You know, especially with the measurements and all that...when I got to my garden and took my book out there, and I remember how she said to block it off and all that, everything started coming to me, you know, it started coming back and it wasn't hard. In fact, when I was in the class, but when I got over here, I just went crazy... like everything that was taught started manifesting itself. You know, because I didn't let it linger, I just started on my garden right away... so although sometimes you study something and you read it, but when you really put it to work, the practice part, it was ok. you know, 'cause like I said, I couldn't get that measurement stuff you know... and the lady put something up on the board... I didn't have a clue what she was saying and I wasn't gonna hold up the class. (Participant)*

Another resource participants appreciated was access to the Extension Master Gardener hotline.

Participants felt very comfortable with gardening and knew if they had any questions, they could call the hotline for help or advice. One person stated:

*Any concerns that I had, you know, whenever I asked a question, even a phone call, they always answered my phone call and asked them my question so I didn't get to have so many challenges because you know, the teachers were out there, and they were very helpful. (Participant)*

In addition to supplemental material, the program also provided access to a community garden plot. Specifically, three participants who were not affiliated with the organization before the program, were able to access a new gardening plot through the program. Without access to the community garden plot, participants would not have known where to start their own gardens.

One of the participants discussed the problems she had at her home garden, where she explained that her vegetables were stolen. She stated:

*I was able to do tomatoes at my house before, but I wanted to put other things there because it was so close to the street...because I grew the tomatoes, and I started the tomatoes... even when I came home, tomatoes were gone... I didn't have a fence, which I don't think it mattered if I had a fence. If nobody's home, a fence won't stop them, so it was just too close to the street. (Participant)*

The participant said that because they were too close to the sidewalk, all of her vegetables were stolen. Through the program, she found a community garden plot where her plants were safe.

According to Fishbein and Ajzen (2010), control beliefs are an important predictor of changing behavior. Even if an individual has a positive attitude toward a behavior that is perceived to be socially acceptable, these two factors may not be a strong enough intention to perform a behavior. In this situation, although the participant had a positive attitude towards gardening and had support, she may not have continued to garden without access to the community plot through the program.

Another participant who also benefitted from finding a plot through the program was living in a home without a yard. She explained her situation before coming into the program and what she gained from it.

*Coming into the program, I was expecting to actually go into the garden and get some tools and seeds and everything, which we all received. It actually worked out better than I thought because I wasn't sure where I would be having a garden, and so it worked out that because I was originally going to work with the church that already had a garden, but then when I saw the area that Kaelyn had, and saw that there would be lots of help and the church would be involved, I got my granddaughter involved and she helped plant*

*a lot so.. just the area, and just... you know, being able to find the place helps a lot.*  
(Participant)

As the participants planted their own seeds and transplants in their gardens, they started to recognize the importance of the materials the program provided. With the resources available to the participants, they gained more confidence gardening independently. Not only did the participants start a garden through the program, but encouraged other participants to start a garden in the space available as well. During the focus group, a participant shared with the rest of the group information on the community garden plot she obtained through the program:

*That garden is starting basically starting from scratch, but Kaelyn is there to help and I think she has more plots over there if anyone is interested. you can contact her...they meet like a couple times a month or week or whatever and we can just go over there if you have time to do that and go there and the kids in the community also work in the garden, so everyone's out there working on the garden and you're getting step by step instructions on how to do things out there.* (Participant)

The participants were more confident starting a garden on their own because they knew they had resources to refer to.

***Theme: This beginner gardening program provided a sense of community for program participants***

While many participants had support from their family and friends, relationships between both participants and the teaching team formed during the program increased participants' confidence in gardening. Kaelyn noticed the strong sense of community building from the information session. She described before the program started:

*I want to see that happen with these participants and I think I felt like I already do see a lot of bonding. Even just at the information session, it was a very warm atmosphere.*  
(Kaelyn)

With the support of neighbors, family, friends, other participants in the class and the Extension Master Gardener volunteers, many participants were more confident they would be able to start

and sustain their own garden. Many commented that before the course, they did not have much experience. A lot of the objectives they didn't think possible at first, they felt could be accomplished after the program. The support of others gave participants a greater desire to encourage others to join them in the garden as well.

The connections and friendships between participants significantly influence their desire to continue gardening. During the focus group, the participants discussed their motivations for coming back to class. One participant noted:

*One of my motivations was to meet other gardeners, you know, a lot of people who have the same interests, and even meeting the super gardeners, who have been doing this for years. (Participant)*

The following excerpts are from participants who described their favorite part of the class stating:

*[My favorite part was] seeing how many people are interesting in gardening, and socializing and you know, just getting other people's opinions on their garden. (Participant)*

*Getting in a class and you learn from other people from the things, some of the people there did have their gardens and stuff like that...so the classroom setting was pretty cool. (Participant)*

The teaching team wanted to provide as much knowledge as they could when they saw the enthusiasm of many individuals in the course. The participants really appreciated it, as one noted:

*It helped me and it encouraged me during the 5 weeks that we were taught. It encouraged me much more and when I learned a lot from the ones who were teaching us...and the experience they had... the ladies [teaching team] that were teaching us had lots of experience gardening so it was very much encouraging. (Participant)*

Through observations, the teaching team shared their own pictures and noticed as time went by that the participants were doing the same. One participant came before class to show everyone gardening tools, and plastic mulch they had purchased from the local Dollar Tree store. Another

participant brought in her vegetables and plants she had obtained from the farmers market the weekend before.

Participants enjoyed hearing experiences from the teaching team as well as other class participants. They enjoyed spending time with others who shared a similar passion. One participant stated:

*Just getting to know more people and knowing people that like to garden so that makes it easier, you know it's like having someone to be able to work out with... it gives you an opportunity to follow and work with someone that has the same interest as I do in gardening and I'm sure I can learn a lot more just by being around people, being able to reach out to the other individuals in my class. (Participant)*

Participants with less experience shared how they felt comfortable around other individuals who had more gardening experience than they. A participant with less experience shared their time in the program with more experience gardeners:

*Even the people that were there that knew more than myself, they didn't pretend that they know more, they didn't try to out talk the teacher, or try to tell me, but they were humble and they were just learning and they didn't do anything, you know, that was good. (Participants)*

At the end of the program, observations stated that many participants exchanged phone numbers to keep in touch. Kaelyn was very happy as she described the relationship building among participants:

*I felt like a lot of friendships might've been deepened or formed to the class and now some of them are in [another class] together, which is really cool... they learn about nutrition and they really like that.. umm... I think that, I didn't really see any issues... if anything, I felt like there was a sense of community that was built over the 5 weeks and I was expecting that and I was happy to see that that happened. (Kaelyn)*

Not only did the participants have supportive friends, families, and neighbors before the program, they also gained support from the friendships and connections created with the other participants and master gardeners in the program. This supports Fishbein and Ajzen's (2010)

idea of perceived norms. All of the teachers, the coordinator, and participants all agreed that there was a great sense of community through the class.

***Theme: The program participants had an increased desire to reach out to their own communities and gained confidence to teach others how to start their own garden to grow their own food***

When asked about the support from friends and family, many participants said their friends and family were waiting for them to finish the class so they could help build other gardens. Participants discussed what they learned from the course. They gained confidence in many areas such as crop rotations, watering plants, where to plant seeds and transplants, and when to plant crops during the year. As participants explained:

*It was an awesome experience for me, you know, I was able to start from the bottom up, from the ground and learn how to start a garden. Whereas before, everything was there for me more or less, you know, they built it themselves at the other community garden and I didn't really get to see how it was built, but in the classroom, we had the book and they showed us from the beginning, how to learn how to do things, so that was a great experience. (Participant)*

*I am more informed, I wanna say it seems like the things that I thought I couldn't do, I can. (Participant)*

After the completion of the course, many participants said they wanted to share and teach other individuals around them how to grow food. Specifically, participants wanted to encourage their neighbors, children, grandchildren, and friends to start their own gardens. Participants wanted to share their knowledge and help with the implementation of new gardens in churches, at hospitals, in other neighborhoods, and on mission trips. One participant discussed how she could use the content she learned in the class on mission trips:

*I can take that [program information] and help with my organization when I go on mission trips and help people in the community that I work in to build gardens...if I can teach them how to go through the proper steps, it might not be full details because of the*

*experience that I have, but it'll be enough to where they can get things planted.*  
(Participant)

She continued to discuss a program she was planning to start with the children at her church:

*I wanted them to pair at least two children together and maybe have them take care of one item like if it's going to be tomatoes, if it's going to be cucumbers, if it's going to be peppers, and those 2 people will be responsible of taking care of that and I wanted them to actually have the children select which product they wanted to grow so that they would have interest and they can work on the food and take care of the food and harvesting their food.* (Participant)

She spoke about how everyone at her church was waiting for her to finish the course, so she could take care of the garden on the church property. She explained that she was going to be in charge of the church garden.

Many participants wanted to help their neighbors start a raised garden in their yards.

Participants not only wanted to learn how to grow their own food, but to provide others with fresh fruits and vegetables. As participants explained:

*You know what? Growing not just for me, I want to be able to share it with somebody else... in fact, my next door neighbor, I want them to see them put something in the back of their yard, you know? that's exactly what I want, you know? In the old state I lived at, they didn't want us to do that, to grow their own vegetables, but in [North Carolina], you can grow anything you want in your own backyard, you know?...and so that's I want to show them, you can have a plot in your backyard of fresh vegetables, that's what I want to see though.* (Participant)

With the knowledge they gained during the program, participants wanted to share as much as possible with others around them. They gained the confidence to start a garden, and wanted to share the fresh fruits and vegetables they grew, as well as help others start gardens at their own homes.

## **Discussion**

The purpose of the program was to provide members of a community in North Carolina with a comprehensive, five-week, beginner gardening course that gives novice, adult gardeners the tools

they need to successfully grow a portion of their own food on a limited budget. The researcher was interested in examining the process of the program planning and implementation, as well as the program's influence on its participants. The researcher used Cervero and Wilson's (1996) theory of program planning, and Fishbein and Ajzen's (2010) Theory of Predicting and Changing Behavior to account for the realities of working with others to plan an educational program.

**Question 1: What is the process of planning and implementing an existing beginner gardening education program design in a new location?**

Through observations and during the interviews with the program coordinator and teaching team, the researchers were able to identify situations where decisions and actions had taken place and also by whom during the program implementation. The program coordinator and the teaching team discussed miscommunications within the planning process and what each planner and teacher wanted to change for the program in the future.

In their theory, Cervero and Wilson acknowledge that power at the center of a planner's agenda is what makes decisions and actions possible. Kaelyn made the decision to adopt an existing program and collaborate with agency partners. She also found a teaching team to make the program as successful as possible. Although there were some obstacles in the initial development process, she obtained funding and had support from her boss and co-workers, which made implementing the program possible. She acknowledged the importance of collaborating with others and recognized that it was important for the teaching team to revise the curriculum and make decisions based on what they felt was most important to the participants.

Decisions were made by the teaching team after the second week to take a step back and return to the previous week's curriculum when they realized program participants may not have

understood the previous class content. By taking a step back, participants were able to really understand the curriculum and felt like the teachers really cared for them. These findings support the *a priori* propositions that organizers should align their programs with the needs and desires of the community and instructors and program coordinators should make edits to the curriculum when they recognize that their students may not understand (Cervero & Wilson, 2006; Draper & Freedman, 2010; Loopstra & Tarasuk, 2013). The teaching team understood when they needed to slow the pace of the program for participants to really understand the curriculum. The program participants were able to see that the teaching team really cared for them and provided them support, which led to a greater desire to start their own gardens.

**Question 2: How does the gardening education program address the needs of the participants involved in the program?**

The research team also sought out to identify the program's influence on program participants. The researchers used Fishbein and Ajzen's (2010) reasoned action approach as a theoretical framework to describe and predict change in the behavior of the program participants. As Fishbein and Ajzen (2010) state, human social behavior is guided by attitudes, perceived norms, and perceived behavior control, which ultimately contribute to the intention to act. Intention is the primary predictor that guides a behavior (Fishbein & Ajzen, 2010). Specifically, the researchers wanted to determine whether the program participants had high intentions of gardening and growing their own food after completing the program.

Participants were asked about perceived norms. This included asking about support from close friends, relatives, and other individuals in their life. Many participants stated close individuals were waiting on them to complete the course, so they could share the information they learned. Not only did the majority of the participants have supportive friends, families, and

neighbors before the program, they also gained support from the friendships and connections created with the other participants and master gardeners in the program. Sharing stories and experiences every week with one another increased a sense of community. Many participants exchanged contact information after the completion of the program to continue to discuss their personal concerns and experiences in the garden.

Lastly, participants were asked questions pertaining to perceived behavioral control. According to Fishbein and Ajzen (2010), control beliefs are an important predictor of changing behavior. If an individual thinks they have obstacles such as limited resources and opportunities, they are less likely to perform a certain behavior. Even if an individual has a positive attitude toward a behavior that is perceived to be socially acceptable, these two factors may not be a strong enough intention to perform a behavior (Fishbein & Ajzen, 2010). The participants stated that they gained knowledge from the teaching team and other participants in the program, which increased their confidence to start a garden on their own. This also resulted in the desire to teach others how to start and maintain their own gardens as well.

**Question 3: How does this beginner gardening program act as an entry point for participants to start growing their own food?**

Observations stated that program provided the participants with many resources throughout the program, such as booklets and handouts to refer back to, along with fertilizer, compost, seeds, and seedling starts. The participants were provided with the master gardener hotline, which they could contact when they had a question. Also, through the organization that implemented the beginner gardening program, participants who did not have any space to start their own garden were introduced to a community garden plot available to them with resources they would need for the success of a garden. By providing support and resources to the

participants, the program was able to decrease challenges and barriers that participants may have encountered to starting their own garden. Although this study was not long enough to measure behavior change, these findings support the *a priori* proposition that participants who intend to garden given support and resources after the program are more likely to continue gardening after the completion of the program (Fishbein & Ajzen, 2010; Grønhøj, Bech-Larsen, Chan, & Tsang, 2012; Kerckhove, Genuens, Vermeir, 2008; Lake, Milfont, Gavin, 2011; Lautenschlager & Smith, 2007; Lautenschlager & Smith, 2008).

### **Limitations**

The data collected for this study focuses specifically on one beginner gardening program. The study's findings may be generalizable to a degree, but it may only pertain to a limited amount of programs in the United States. Also, due to time and personal limitations of the participants, the researcher was not able to conduct interviews in person. Many participants did not have transportation or simply did not have the time to meet with the researcher in person before or after the program.

The researcher struggled with identifying challenges and barriers for individuals who did not complete the program due to the participants declining to participate in the study. This may be due to the recruitment of the participants through the program coordinator and the participants may have felt ashamed for not completing the program. It is unknown as to why participants did not want to take part in interviews, but continued to become involved in the focus group.

### **Recommendations for Future Research**

The organization plans to further develop this beginner gardening program and will continue to revise the content by the recommendations of the Extension Master Gardener volunteers. The program coordinator and teaching team have already come together to discuss

the future of the upcoming program. Because this was a pilot study for the program, further research is recommended to investigate the future of this beginner gardening program. Also, recommendations for practitioners who are interested in adopting existing programs will be discussed.

Due to the specificity of this study, researchers should consider examining the development and implementation process of other beginner gardening programs, in both youth and adult program settings. Understanding the process of implementing a program, specifically the strengths and challenges, can help overcome barriers and mitigate challenges that are not previously foreseen. Not only should researchers examine the implementation process of the program they are evaluating, but also consider an in-depth study on the existing program.

Second, this beginner gardening program was held over a five week period, however, follow-up research should continue to evaluate the effects of the program on previous participants. Additional plans for research should focus on whether the participants have continued to garden after the completion of the program. Examining how the beginner gardening program continues to provide support and resources to its participants may have a significant influence on how participants perceive the program, and how they can aid with the recruitment of future participants. Not only should research continue with the previous program participants, but examining outcomes of the individual's support groups should be evaluated. The participants in the program obtained the confidence and desire to teach others around them. Examining how these participants make an impact on their communities is crucial to understand the broader influence of the program in a low-income area and can serve as a means to alleviate food insecurity in the United States.

Lastly, researchers should consider examining challenges and reasons why individuals do not complete these programs. The researcher was able to interview one participant who dropped out of the program, and another participant who was not part of the interview process that wanted to be part of the focus group, however, an in-depth understanding of what challenges prevented them from finishing the program was limited. Researchers must find a way to reach out to the participants who are not able to complete programs to determine what an organization can do to minimize dropout rates.

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## **Chapter 4: CONCLUSION**

### **Study Summary**

Approximately fifty million people in the United States are considered food insecure (Smith, 2011). Food insecurity refers to the lack of reliable access to nutritious and affordable foods for people of all backgrounds (Meenar & Hoover, 2012). Specifically, a 2010 report prepared for the Food Bank of Central & Eastern North Carolina stated that thirteen percent of North Carolina households are considered food insecure (Curtis, 2010; Food Bank of Central & Eastern North Carolina, 2010). There is a correlation between poverty and food security, and North Carolina's poverty rate of 14.3 percent is above the national level of 13 percent (Curtis, 2010). Community gardens and collaboration among stakeholders are an important strategy for increasing food security in the 21<sup>st</sup> century (McCullum et al., 2005).

Gardens are one type of urban food system that may cater to a variety of populations as an alternative local food movement (Meenar & Hoover, 2012). Although literature on community gardens and their benefits in the United States is abundant, the examination of programs associated with these gardens is limited. Not only have these garden programs helped individuals achieve self-sufficiency by growing their own fresh fruits and vegetables, they have improved nutritional intake and provided opportunities for participants to learn advanced practical skills and training. These skills may include how to start a garden, how to maintain a garden, and understanding the growth needs of the food crops that are being grown. Understanding who is developing and implementing these programs and reasons for participation and lack of participation are crucial for the success of these programs and the development of others.

This case study examined the development and implementation of a beginner gardening program located within a low-income part of North Carolina. The theoretical framework that informs the study is Cervero and Wilson's (2006) program planning theory in which planning is defined as "a social activity whereby people construct educational programs by negotiating personal, organizational, and social interests in contexts marked by socially structured relations of power" (2006, p. 24), and Fishbein & Ajzen's (2010) Theory of Predicting and Changing Behavior, which discusses why people decide to perform certain behaviors, based on intention stating "the stronger the intention, the more likely it is that the behavior will be carried out" (Fishbein & Ajzen, 2010, p. 21).

The research team worked with program coordinators to identifying key factors in implementing an existing beginner gardening education program in a new location, and the influence of the educational program on participants. A qualitative study was conducted involving interviews with planners and participants, content analysis of program materials, observations of meetings, and a concluding focus group of participants. The research team asked program coordinators about the process of developing and implementing an existing program in a new location, along with the challenges and benefits they encountered. Participants were asked what motivating factors kept them enthused about continuing in the program, and how the program addressed their specific needs.

This study was guided by three major questions:

1. What is the process of planning and implementing an existing beginner gardening education program design in a new location?
2. How does the gardening education program address the needs of the participants involved in the program?

3. How does this beginner gardening program act as an entry point for participants to start growing their own food?

Findings from interviews, content analysis, observations, and focus group highlighted the strengths and challenges program coordinators encountered during the process of developing and implementing an existing program in a new location. The study also acknowledged how the program influenced its participants. Nine themes emerged from data analysis:

**Theme:** Implementing an existing program in a new location resulted in multiple unforeseen obstacles for the program coordinator and instructors

**Theme:** The primary coordinator of the organization found it crucial to collaborate with other organizations and groups of individuals, such as funders and Extension Master Gardener volunteers, to implement this program

**Theme:** The teaching team was able to collaborate effectively because they identified how to combine their individual strengths

**Theme:** Lack of established roles between the program coordinator and teaching team resulted in miscommunication

**Theme:** The teaching team realized that they needed to be more flexible with their time and class content when implementing an existing program in a new location

**Theme:** The teaching team desired a different recruitment process for identifying motivated program participants

**Theme:** The participants were provided with multiple resources, which they found to be useful in the success of their future gardening practice

**Theme:** This beginner gardening program provided a sense of community for program participants

**Theme:** The program participants had an increased desire to reach out to their own communities and gained confidence to teach others how to start their own garden to grow their own food. Although program participants came into the program with various levels of gardening knowledge and experience, and program coordinators described some of their challenges with implementing the program, everyone that was involved in the program felt the program was very valuable and worth continuing in the future.

### **Discussion**

The mission of the beginner gardening program was to promote health, increase food literacy, and self-reliance, build resilience, and cultivate community connectivity among adults gardening on a budget. The program's target audience was low-income residents in a community within North Carolina who were interested in learning how to grow a portion of their own food and wanted to establish a backyard garden or participate in a community garden offered by the organization. Specifically, the purpose of the program was to provide members of a community with a comprehensive, five-week, beginning gardening course that gives novice, adult gardeners the tools they need to successfully grow a portion of their own food on a limited budget. The researcher was interested in examining the process of the program planning and implementation, as well as the program's influence on its participants.

First, the research team was interested in determining the process of planning and implementing an existing beginner gardening program design in a new location. Using Cervero and Wilson's (1996) theory of program planning, the researcher wanted to account for the realities of working with others to plan an educational program. During the interviews with the

program coordinator and teaching team, the researchers were able to identify situations where decisions and actions had taken place and also by whom during the program implementation. The program coordinator and the teaching team discussed miscommunications during planning and what each teacher wanted to change for the program in the future. In their theory, Cervero and Wilson (2006) acknowledge that power at the center of a planner's agenda is what makes decisions and actions possible. Kaelyn made the decision to adopt an existing program and collaborate with agency partners. She also found a teaching team to make the program as successful as possible. Although in the initial process of developing the program there were some obstacles, she obtained funding and had support from her boss and co-workers, which made implementing the program possible. She acknowledged the importance of collaborating with others and recognized that it was important for the teaching team to revise the curriculum and make decisions based on what they felt was most important to the participants.

Decisions were made by the teaching team after the second week to take a step back and return to the previous week's curriculum when they realized program participants may not have understood the previous class content. Cervero and Wilson (2006) state that researchers must acknowledge when judgments are made that determine the features of a program. "For example, instructors often make judgments about the content during the program, ad hoc decisions are made about changing the design due to suggestions from the learners, mistakes are made by the facilitator in carrying out the design, and unexpected opportunities become available to the group in organizing the curriculum" (Cervero & Wilson, 2006, p. 82). The teaching team understood when they needed to slow the pace of the program for participants to really understand the curriculum. The program participants were able to see that the teaching team really cared for them and provided them support, which led to a greater desire to start their own gardens.

Second, the research team wanted to identify the program's influence on program participants. This included how the beginner gardening program addressed the needs of the participants and how it acted as an entry point for participants to start growing their own food. The researchers used Fishbein and Ajzen's (2010) reasoned action approach as a theoretical framework to describe and predict change in the behavior of the program participants. As Fishbein and Ajzen (2010) state, human social behavior is guided by attitudes, perceived norms, and perceived behavior control, which ultimately contribute to the intention to act. Intention is the primary predictor that guides a behavior (Fishbein & Ajzen, 2010). Specifically, the researchers wanted to determine whether the program participants had high intentions of gardening and growing their own food after completing the program.

The top three variables that contribute to Fishbein and Ajzen's (2010) model are: "1) the person has formed a strong positive intention to perform the behavior, 2) there are no environmental constraints that make it impossible for the behavior to occur, and 3) the person has the skills necessary to perform the behavior" (Fishbein & Ajzen, 2010, p. 19). The interviews and focus group conducted with the participants gave a deeper understanding of their intent to garden, and what the program provided that may have heightened a desire to garden. When asked about their attitude toward gardening, everyone was very excited for the program. After the completion of the program, many participants were enthusiastic to reach out to their communities and wanted to teach and help others around them start their own garden and grow their own food. Even the individuals who were not able to complete the course were excited about the idea of gardening, and stated that the only reason they were not able to attend was because of the timing and logistics of the program.

Participants were also asked about perceived norms. This included asking about support from close friends, relatives, and other individuals in their life. Many participants stated people were waiting on them to complete the course, so they could share the information they learned. Not only did the majority of the participants have supportive friends, families, and neighbors before the program, they also gained support from the friendships and connections created with the other participants and master gardeners in the program. Sharing stories and experiences every week with one another created a bond between individuals, and the program planner, teaching team, and participants felt an increased sense of community. Many participants exchanged contact information after the completion of the program to continue to discuss their personal concerns and experiences in the garden.

Last, questions were asked pertaining to perceived behavioral control. According to Fishbein and Ajzen (2010), control beliefs are an important predictor of changing behavior. If an individual thinks they have obstacles such as limited resources and opportunities, they are less likely to perform a certain behavior. Even if an individual has a positive attitude toward a behavior that is perceived to be socially acceptable, these two factors may not be a strong enough intention to perform a behavior (Fishbein & Ajzen, 2010). The participants were able to gain knowledge from the teaching team, which increased their confidence to start a garden on their own. The program provided the participants with many resources, such as booklets, handouts, fertilizer, compost, seeds, and seedling starts to refer to. Specifically, the participants were provided with the Extension Master Gardener hotline, which they could contact when they had a question. Also, through the organization that implemented the beginner gardening program, participants who did not have any space to start their own garden were introduced to a community garden plot available to them with resources they would need for a successful garden

such as a booklet, handouts, fertilizer, compost, and seedling starts. By providing support and resources to the participants, they all gained confidence to grow their own food.

Although this study was not long enough to measure behavior change, the program provided materials, support, knowledge, and helped to remove as many obstacles as possible, which resulted in participants having high intent to continue gardening after the completion of the beginner gardening program, which is a strong indication of changed behavior.

### **Recommendations for Future Research**

The organization plans to further develop this beginner gardening program and will continue to revise the content by the recommendations of the Extension Master Gardener volunteers. The program coordinator and the Extension Master Gardener volunteers have already come together to discuss the future of the upcoming program. If they did not consider a program's internal and external factors, such as characteristics of participants, interorganizational relationships, and broader societal factors, the same program in a new location may not have resulted in the same success (Duerden & Witt, 2012; Durlak & DuPre, 2008). "Transferring effective programs into real world settings and maintaining them there is a complicated, long-term process that requires dealing effectively with the successive, complex phases of program diffusion" (Durlak & DuPre, 2008, p. 327). Because this was the first time the organization implemented this program, further research is recommended to investigate the future of this beginner gardening program. Also, recommendations for practitioners who are interested in adopting existing programs will be discussed.

Due to the specificity of this study, researchers should consider examining the development and implementation process of other beginner gardening programs as well, in both youth and adult program settings. Understanding the process of implementing a program,

specifically the strengths and challenges, can help overcome barriers and mitigate challenges that are not foreseen. Not only should researchers examine the implementation process of the new program they are evaluating, but also consider an in-depth study on the existing program.

Second, this beginner gardening program was held over a five week period. Follow-up research should continue to evaluate the effects of the program on previous participants. Additional plans for research should focus on whether the participants have continued to garden after the completion of the program. Examining how the beginner gardening program continues to provide support and resources to its participants may have a significant influence on how participants perceived the program, and how they can aid with future participants. Not only should research continue with the previous program participants, but examining outcomes of the individual's support groups should be evaluated. The participants in the program obtained the confidence and desire to teach others around them. Examining how these participants make an impact on their communities is crucial to understand the broader influence of the program in a low-income area and can serve as a means to alleviate food insecurity in the United States.

Lastly, researchers should highly consider looking into challenges and reasons why individuals do not complete these programs. In this study, researchers were able to interview one participant who dropped out of the program, and one other participant who was not part of the interview process that wanted to be part of the focus group, however, the researchers were not able to get an in-depth understanding of what challenges prevented them from finishing the program. Researchers must find a way to reach out to the participants who are not able to complete programs to determine what an organization can do to minimize dropout rates. A program's implementation process is not static; rather, the process can change over time, and the program will continue to be revised and modified. For practitioners to become successful in

evaluation practices, they must understand the program's goals and visions, as well as how it should be implemented (Duerden & Witt, 2012).

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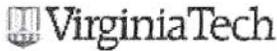
**APPENDIX A: *A priori* Table**

Proposition	Supporting Literature	Research Questions
The implementation process of a program highly influences program outcomes	Evaluations of community garden interventions may provide more evidence for developing and implementing a model of intervention in more communities across the U.S (Draper & Freedman, 2010). Negative results can occur if a program is not implemented sufficiently (Durlak & DuPre, 2008).	1. What is the process of planning and implementing an existing beginner gardening education program design in a new location?
Organizers should align their programs with the needs desires of the community	Major reasons for nonparticipation in gardening programs: programs were not accessible and did not meet the needs of the community. Practical implications for community gardens can be formed and manipulated based on the needs, abilities, and interests of a specific population (Draper & Freedman, 2010; Loopstra & Tarasuk, 2013)	<ol style="list-style-type: none"> <li>1. What is the process of planning and implementing an existing beginner gardening education program design in a new location?</li> <li>2. How does the gardening education program address the needs of the participants involved in the program?</li> <li>3. How does this beginner gardening program act as an entry point for participants to start growing their own food?</li> </ol>
Instructors and program coordinators should recognize when their students do not understand the curriculum	Researchers must acknowledge when judgments are made that determine the features of a program (Cervero & Wilson, 2006)	2. How does the gardening education program address the needs of the participants involved in the program?
Participants who intend to garden given support and resources after the program, are more likely to continue gardening after the completion of the program.	Human social behavior is guided by attitudes, perceived norms, and perceived behavior control, which ultimately contribute to the intention to act. (Fishbein & Ajzen, 2010). Fishbein & Ajzen’s (2010) Reasoned Action Approach can be used to determine behavior changes from education	<ol style="list-style-type: none"> <li>2. How does the gardening education program address the needs of the participants involved in the program?</li> <li>3. How does this beginner gardening program act as an entry point for</li> </ol>

	programs (Grønhøj, Bech-Larsen, Chan, & Tsang, 2012; Kerckhove, Genuens, Vermeir, 2008; Lake, Milfont, Gavin, 2011; Lautenschlager & Smith, 2007; Lautenschlager & Smith, 2008).	participants to start growing their own food?
There may be higher participation in gardening if participant barriers are overcome.	There are many perceived benefits and burdens of gardening (Bleasdale, Crouch, & Harlan, 2011; Loopstra & Tarasuk; Lake, Milfont, & Gavin, 2011). It is believed that perceived barriers cause nonparticipation in gardening (Loopstra and Tarasuk, 2013). What a participant believes he/she can do strongly determines whether or not an action takes place (Fishbein & Azjen, 2010)	<p>2. How does the gardening education program address the needs of the participants involved in the program?</p> <p>3. How does this beginner gardening program act as an entry point for participants to start growing their own food?</p>
Participating in a community garden has different limitations than gardening elsewhere, such as home	Many individuals have identified reasons for joining a community gardening program and have identified reasons for not implementing gardens at home (Meadow, 2013).	<p>2. How does the gardening education program address the needs of the participants involved in the program?</p> <p>3. How does this beginner gardening program act as an entry point for participants to start growing their own food?</p>
Community gardens struggle with low community participation and interests in gardening initiatives	There are many burdens on gardeners and nongardeners that result in declining participation and unsuccessful community gardens (Bleasdale, Crouch, & Harlan, 2011). It is necessary for gardens to be designed around the needs of a community.	<p>1. What is the process of planning and implementing an existing beginner gardening education program design in a new location?</p> <p>2. How does the gardening education program address the needs of the participants involved in the program?</p> <p>3. How does this beginner gardening program act as an entry point for</p>

		participants to start growing their own food?
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## APPENDIX B: IRB Approval Letter



Office of Research Compliance  
Institutional Review Board  
North End Center, Suite 4120, Virginia Tech  
300 Turner Street NW  
Blacksburg, Virginia 24061  
540/231-4606 Fax 540/231-0959  
email [irb@vt.edu](mailto:irb@vt.edu)  
website <http://www.irb.vt.edu>

### MEMORANDUM

**DATE:** March 11, 2015  
**TO:** Donna Westfall-Rudd, Amy Vu  
**FROM:** Virginia Tech Institutional Review Board (FWA00000572, expires April 25, 2018)  
**PROTOCOL TITLE:** Evaluating a Beginner Gardening Program in [REDACTED] A Case Study Approach  
**IRB NUMBER:** 15-281

Effective March 11, 2015, the Virginia Tech Institution Review Board (IRB) Chair, David M Moore, approved the New Application request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

<http://www.irb.vt.edu/pages/responsibilities.htm>

(Please review responsibilities before the commencement of your research.)

### PROTOCOL INFORMATION:

Approved As: **Expedited, under 45 CFR 46.110 category(ies) 5,6,7**  
Protocol Approval Date: **March 11, 2015**  
Protocol Expiration Date: **March 10, 2016**  
Continuing Review Due Date\*: **February 25, 2016**

\*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

### FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

*Invent the Future*

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY  
An equal opportunity, affirmative action institution

Date*	OSP Number	Sponsor	Grant Comparison Conducted?

\* Date this proposal number was compared, assessed as not requiring comparison, or comparison information was revised.

If this IRB protocol is to cover any other grant proposals, please contact the IRB office (irbadmin@vt.edu) immediately.

## APPENDIX C: Recruitment Script

### Verbal Consent Script

Hi [name],

My name is Amy Vu and I am working with [program coordinator name] in [redacted] Program. I was not able to be at the informational meeting, so I apologize for not being there to introduce myself, however, I will be at all of the program workshops for the entire five weeks. I'm sure you are aware, but they have asked someone to help them with the development of the [redacted] program for this session and the future sessions. Since this is the first time the program is taking place, I am working with the organization to make sure the program is able to cater to yours and the rest of the participants' needs. Do you mind if I continue to tell you about my study?

*[wait for yes/no response]- If no, end the conversation at the bottom*

*If yes:*

My study is about the development of the program and the influence it has on the participants that are registered for it. I would like to examine what kind of outcomes, such as attitude, knowledge, and skills you have towards gardening before and after the program. I think that by being registered for the program, you can contribute greatly by sharing your experiences with me.

Do you have any questions? Feel free to ask anything you would like.

I would like to ask if you would be willing to participate in my study. It would be two interviews with me. This would be once on the phone now, and once after the program ends. After I meet with everyone and find themes between the interviews, I would like to share them with the group. These will be themes between participants that I find through everyone's responses. All responses will be kept confidential. I would really like to meet once more all together as a focus group to discuss my findings. Throughout this process, I will be observing the program every week, and taking field notes. All of the information I collect will be used to cater the program so that it acknowledges your interests. Would this be something you would be willing to participate in?

*If yes:* Do you have any questions? Is there anything you would like me to revisit?

*If yes:* If you don't mind, I would like to discuss the consent form with you. Is that ok?

*If yes:* As I said before, my study is to evaluate the development and outcomes of this beginner gardening program. The study will use participants' experiences in the [redacted] program in [redacted]. You will be asked to describe your experiences before and after the program, contribute to a focus group, and be observed throughout the program. The results will be used as my thesis project for my masters and also used by the organization to help evaluate and continue planning of the program. The results will be submitted to a journal

publication so that other people interested in starting a garden program can understand what experiences the coordinators and participants have gone through.

Do you have any questions?

*If no:* The interview will involve you sharing with me your attitudes, knowledge, and skills before and after this program experience. The interviews you have with me will be one-on-one before and after the program, and I will audio recording them. At the end of the program, I am hoping to get a focus group together, which will also be audio recorded. This interview should only last between 45 minutes to an hour, and it really depends on your response. Also, while you are participating in the program, I will be taking notes and observations between participants that have provided consent during the program workshops.

Do you have any questions?

*If no:* There are no major risks to this study, you may come across some emotions discussing your experiences during the program, including obstacles and challenges that may have potentially prevented you from finishing the program, however, the benefits to this study will be helping the program improve current and future sessions of the program. Everything that you tell me will be completely confidential and I will be the only person that knows what information you've said and provided. I will not release identifiable results to anyone else. This conversation is only between us. I will type up our interview and once that has been read over, I will delete the audio recordings. All of my data collection will be store in a safe location, so no one outside myself will ever know who said what.

Do you have any questions on the interview process?

*If no:* I want to let you know that you do not have to participate in this study. Also, if you agree to participate in this study, and decide to change your mind, you are free to withdraw anytime you want. If you choose to not participate in the middle of the study, there will be no penalty and all of your files and information will be destroyed.

If you have any questions or concerns, you can always give me or [program coordinator] a call. Also, you may contact the Virginia Tech Institutional Review Board. If you would like their contact information I would be more than happy to provide you the phone number.

You will be getting a hard copy of this consent form when I come to the first program on March 23. Do you have any questions?

As for now, I would like to know if I have your verbal consent to conduct a phone interview with you today?

*If yes:* ----interview script----

After interview: I look forward to meeting you and for your program to start.

Do you have anymore questions? Feel free to contact me at anytime [REDACTED] or you can reach out to [program coordinator].

Thanks!

*If no:*

Ok, thank you for speaking with me. You can reach out to me with any questions/comments at anytime. You can also reach out to [program coordinator] with any questions or concerns you have. I will be attending the program in a few weeks, so I hope to see you then.

Thanks!

**APPENDIX D: Verbal Consent Script for Non-Participants**

VERBAL CONSENT SCRIPT FOR NON-PARTICIPANTS

Hello, my name is Amy Vu and I am a graduate student in the Department of Agricultural, Leadership, and Community Education at Virginia Tech. The purpose of my study is to evaluate the development and outcomes of the [redacted] program. I wish to examine the experiences of program coordinators and participants of the [redacted] Program. I will use this research for my thesis work as well as academic publications and presentations at conferences. As a part of this research, I would like to observe and take notes during the five week [redacted] program. I will not be recording anything during the workshops. You will be given a pseudonym in my notes if I refer to you. Also, your identity will be anonymous to anybody outside of the research team and will not be reported in any publications. Your participation is completely voluntary. If you decline, I will not use any of your participation in the program for data collection or reporting and all previous data collection will be discarded. There are no risks or benefits to your agreement. If you agree, you may change your mind at any point during the program. If you change your mind or decline to participate, the information that I have documented will not be used and also discarded.

Do you have any questions for me?

Is it okay for me to observe and take notes every week at the workshops during the five week program?

Participant must provide affirmative verbal consent to enable participant observation and note taking during this encounter. If participant has provided affirmative verbal consent, sign below.

\_\_\_\_\_  
Researcher Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Witness Signature

## APPENDIX E: Verbal Consent Handout for Non-Participants

### VERBAL CONSENT HANDOUT FOR NON-PARTICIPANTS

#### VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY Informed Consent for Participants in Research Projects Involving Human Subjects

**Title of Project: Evaluating a Beginner Gardening Program in [REDACTED]: A Case Study Approach**

**Investigator(s): Amy Vu**

**Donna Westfall-Rudd**

**Dr. Rick Rudd**

**avu@vt.edu**

**mooredm@vt.edu**

**rrudd@vt.edu**

The purpose of this study is to evaluate the development and outcomes of a beginner gardening program. I wish to examine the experiences of the program coordinators and participants of the [REDACTED] Program. I am here to conduct research with the program coordinators and participants on his/her experiences in the program. I will use this research for my thesis work as well as academic publications and presentations. As a part of this research, I would like to observe and take notes during the five week [REDACTED] program. I will not be recording anything during at the workshops. You will be given a pseudonym in my notes if I refer to you. Also, your identity will be anonymous to anybody outside of the research team and will not be reported in any publications. Your participation is completely voluntary. If you decline, I will not use any of your participation in the program for data collection or reporting and all previous data collection will be discarded. There are no risks or benefits to your agreement. If you agree, you may change your mind at any point during the program. By agreeing, you are allowing me to observe and take notes about any event and/or interaction between yourself and the program coordinators and participants. If you decline, I will not use any of your participation in the program for data collection or reporting and all previous data collection will be discarded. There are no risks or benefits to your agreement. If you agree, you may change your mind at any point during the program. If you change your mind or decline to participate, the information that I have documented will not be used and also discarded. If you have any future questions or concerns you may contact any of the following individuals:

David M. Moore  
Chair, Virginia Tech Institutional Review  
Board for the Protection of Human Subjects  
Office of Research Compliance  
540-231-4991  
moored@vt.edu

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Donna Westfall-Rudd  
Agricultural, Leadership, and Community Education  
Virginia Tech  
(540) 231-5717  
[mooredm@vt.edu](mailto:mooredm@vt.edu)

## APPENDIX F: Consent Form for Program Coordinators

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY  
Informed Consent for Participants  
in Research Projects Involving Human Subjects

Title of Project: Evaluating a Beginner Gardening Program in [REDACTED] A Case Study Approach

Investigator(s): Amy V [REDACTED] avu@vt.edu  
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### I. Purpose of this Research Project

The purpose of this study is to evaluate the development of a beginner gardening program. The study will examine program implementation in the [REDACTED] program located in [REDACTED]. For this study, program coordinator(s) will be asked to describe their experiences in regards to developing and implementing a beginner gardening program during two one-on-one interviews with the principal investigator, before and after the completion of the program. The program coordinator(s) will also be observed throughout the program. The results for this study may be used for evaluation and continued development of the [REDACTED] program. Results will also be used as a thesis project and submitted in a manuscript to a journal to inform others that may be developing a beginner gardening program.

### II. Procedures

Your participation in the above-mentioned interview will involve sharing with the interviewer your experience developing and implementing a beginner gardening program. Interviews will be one-on-one with the researcher and they will be audio recorded. Should you agree to participate, the time for each interview will vary between 45 minutes to an hour depending on the participant, and will take place at a safe and quiet mutually agreed upon location. Program coordinators will also be observed throughout the program, if they are involved in program workshops. Field notes will be used for observations. Each program coordinator will be interviewed twice (once before and once after the [REDACTED] program).

### III. Risks

You may run the risk of reflecting on many emotions that have arisen from your experiences during the program, specifically a disorienting dilemma while discussing challenges and obstacles you may have encountered with this beginner gardening program. The risks associated with participating in this study are considered to be minimal. No other risks are anticipated.

### IV. Benefits

No promise or guarantee of benefits has been made to encourage you to participate. The data collected from you during this study will be used to enhance and improve current and future sessions of the [REDACTED] program and will be used in a thesis project. The readers of this study's findings will gain valuable insight into the experiences of the development and implementation process of a beginner gardening program. You will have the opportunity to share your stories and help other program coordinators understand the process of starting a program.

**V. Extent of Anonymity and Confidentiality**

Your identity and the individuals that you mention will be kept confidential at all times and will be known only to the principal investigator. At no time will the researchers release identifiable results of the study to anyone other than individuals working on the project without your written consent. The one-on-one interview will be recorded through audio recording and will be later transcribed by the principal researcher. Pseudonyms (false names) will be given to all participants and other individuals mentioned during the transcription process. Any details in the audio recording that can potentially identify you or any other individual mentioned will be altered. After transcribing is complete, the audio recording will be stored in a secure location by the principal researcher. After the interviews are transcribed and proofed with accuracy, all audio files will be destroyed. The Virginia Tech (VT) Institutional Review Board (IRB) may view the study's data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research.

**VI. Compensation**

You will not receive any form of compensation for participating in this study.

**VII. Freedom to Withdraw**

Your participation in this study is voluntary and you may refuse to participate with no penalty. Similarly, you are free to withdraw from this study at anytime. If you choose to withdraw from this study, any information and data that has been collected will be destroyed. You are free to choose not to answer questions or complete activities, resulting in no penalty or loss of benefits to which otherwise you are entitled.

**VIII. Questions or Concerns**

Should you have any questions about this study, you may contact one of the research investigators whose contact information is included at the beginning of this document.

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the VT IRB Chair, Dr. David M. Moore at [moored@vt.edu](mailto:moored@vt.edu) or (540) 231-4991.

**IX. Subject's Consent**

I have read the consent form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent [please check all that apply]:

- I consent to participate in the pre and post interviews
- I consent to be observed during the [redacted] program

\_\_\_\_\_ Date \_\_\_\_\_  
Subject signature

\_\_\_\_\_  
Subject printed name

## APPENDIX G: Consent Form for Program Participants

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY  
Informed Consent for Participants  
in Research Projects Involving Human Subjects

Title of Project: Evaluating a Beginner Gardening Program in [REDACTED] A Case Study Approach

Investigator(s): Amy Vu [REDACTED] avu@vt.edu  
Dr. Donna Westfall-Rudd mooredm@vt.edu  
Dr. Rick Rudd rrudd@vt.edu

### I. Purpose of this Research Project

The purpose of this study is to evaluate the development and outcomes of a beginner gardening program. The study will primarily use participants' experiences in the [REDACTED] program located in [REDACTED]. For this study, volunteer participants will be asked to (1) describe their experiences before and after the [REDACTED] program, during two one-on-one interviews with the principal investigator, (2) contribute in a focus group with the rest of the program participants after the completion of the program, and (3) be observed throughout the program. The results for this study may be used for evaluation and continued development of [REDACTED]. Results will also be used as a thesis project and may be submitted in a manuscript to a journal to inform others practitioners that may be interested in developing a beginner gardening program.

### II. Procedures

Your participation in the above-mentioned set of interviews and focus group will involve sharing with the interviewer your expectations, attitude, knowledge, and skills of your participation in the course activities before and after your beginner gardening program experience. Interviews will be one-on-one with the researcher before and after the [REDACTED] program and they will be audio recorded. The focus group will be also be audio recorded. Should you agree to participate, the time for each interview will vary between 45 minutes to an hour depending on the participant, and will take place at a safe and quiet mutually agreed upon location. Participants will also be observed throughout the program. Field notes will be used for observations.

### III. Risks

You may run the risk of reflecting on many emotions that have arisen from your experiences during the program, specifically a disorienting dilemma while discussing challenges and obstacles you may encounter that prevent you from completing the program or potential future restrictions from starting your own garden. The risks associated with participating in this study are considered to be minimal. No other risks are anticipated.

### IV. Benefits

No promise or guarantee of benefits has been made to encourage you to participate. The data collected from you during this study will be used to enhance and improve current and future sessions of [REDACTED]. The readers of this study's findings will gain valuable insight into the experiences of participants in this program. You will have the opportunity to share your stories and help increase awareness of the opportunities this program may have to offer.

## V. Extent of Anonymity and Confidentiality

Your identity and the individuals that you mention will be kept confidential at all times and will be known only to the principal investigator. At no time will the researchers release identifiable results of the study to anyone other than individuals working on the project without your written consent. The one-on-one interviews and focus groups will be recorded through audio recording and will be later transcribed by the principal researcher. Pseudonyms (false names) will be given to all participants and other individuals mentioned during the transcription process. Any details in the audio recording that can potentially identify you or any other individual mentioned will be altered. After transcribing is complete, the audio recording will be stored in a secure location by the principal researcher. After the interviews are transcribed and proofed with accuracy, all audio files will be destroyed. The Virginia Tech (VT) Institutional Review Board (IRB) may view the study's data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research.

## VI. Compensation

You will not receive any form of compensation for participating in this study.

## VII. Freedom to Withdraw

Your participation in this study is voluntary and you may refuse to participate with no penalty. Similarly, you are free to withdraw from this study at anytime. If you choose to withdraw from this study, any information and data that has been collected will be destroyed. You are free to choose not to answer questions or complete activities, resulting in no penalty or loss of benefits to which otherwise you are entitled.

## VIII. Questions or Concerns

Should you have any questions about this study, you may contact one of the research investigators whose contact information is included at the beginning of this document.

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the VT IRB Chair, Dr. David M. Moore at [moored@vt.edu](mailto:moored@vt.edu) or (540) 231-4991.

## IX. Subject's Consent

I have read the consent form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent [please check all that apply]:

- I consent to participate in the pre and post interviews
- I consent to participate in the focus group
- I consent to be observed during the [REDACTED] program

\_\_\_\_\_ Date \_\_\_\_\_  
Subject signature

\_\_\_\_\_  
Subject printed name

## **APPENDIX H: Pre-Interview Questions with Program Participants**

### **Pre- Interview Questions with Program Participants**

1. Where do you currently purchase or obtain your fresh produce?
2. Why are you interested in gardening?
3. What gardening experiences have you had previous to this program?
4. Why were/are you interested in this gardening program in particular? How did you find out about it? What other incentives did you have to participating in this program?
5. What do you expect to gain from this garden program?
6. How do you feel you, yourself, can make this experience most beneficial?
7. What challenges do you think you will face during this program that may potentially prevent you from graduating the program? How are you going to attempt to overcome these challenges?
8. Are you growing fruits and vegetables currently? Why/why not? If so, where? Please explain.
  - 8a. What do you feel like you lack in regards to starting your own home garden?
  - 8b. Please state how you feel this program can help you with starting a home garden.
9. Do any of your friends/family/close individuals know that you are interested in gardening? How do they feel about it?
10. Where do you go/who do you speak with to get your current gardening questions answered?
11. Do you feel like you need more information or advice to grow a garden currently? If so, what would you like to know?
12. Have you taken any other gardening programs? If so, please explain.
13. Is there anything else you would like to share before the program starts?

## **APPENDIX I: Post-Interview Questions with Program Participants**

### **Post-Interview Questions with Program Participants**

1. Please describe your experience with [the program] regarding the past five weeks.
2. How has your attitude towards gardening changed after participating in this program?
3. What were your expectations coming into the program?
4. How did the program meet your expectations? Please describe.
5. Describe how you felt the program addressed your personal needs for the course. What did you come into the program wanting to learn?
6. As a result of the program, how do you feel like you can start or improve a home garden?
7. Where do you plan on purchasing or obtaining your produce as a result of the program? Has this changed from before taking the workshops?
8. What additional information would you have liked to learn about?
9. Please describe your workshop experiences.
  - 9a. What was your favorite part(s)?
  - 9b. What was your least favorite part?
10. Describe your most memorable experience in this course
11. Describe a time when you were the most comfortable interacting with others during the program?
12. Please share a story about your interactions with the other individuals in this program?
13. What challenges did you encounter that may have contributed to incompleteness of the program?
  - 4a. How did you overcome these challenges?
  - 4b. What was your biggest motivating factor to come to this class?
14. How do you feel the program can help you with starting your own home garden?
15. Did you speak to your family/close friends during the course of the program about the workshops? How did they respond? How do they feel about you continuing to garden outside of this program?
16. What would you recommend changing or adding to improve the program overall?

## **APPENDIX J: Post-Interview Questions for Non-Complete Participants**

### **Post-Interview Questions with Program Participants who did NOT complete course**

1. How has your attitude towards gardening changed after participating in this program?
2. As a result of attending the program, do you feel like you can start a garden on your own?
3. Where do you plan on purchasing or obtaining your produce as a result of the program?  
Has this changed from before taking the workshops?
4. Do you feel like you need more information or advice to grow a garden? If so, please describe.
5. Did the program meet your expectations? Please describe.
6. Please describe your workshop experiences. What were your favorite and least favorite parts?
7. What challenges did you encounter that may have contributed to incompleteness of the program?  
7a. If you could do anything to have prevent that from happening, what would you change? Was there anything the program could have helped you with to prevent these barriers?
8. How do you feel the program/organization now can help you with starting your own garden?
9. Is there anything at home that can prevent you from starting your own garden? What do you believe your major obstacles are?
10. Did you speak to your family/close friends during the course of the program about the workshops? How did they respond?
11. What would you recommend changing or adding to improve the program overall?
12. Would you like to add anything else about the program?

## APPENDIX K: Pre-Interview Questions with Program Coordinator and Instructors

### Pre-Interview with program coordinator

1. Please describe the [program] Organization
2. Please describe the program. What is the purpose of the program?
3. What is your role in the organization and this program?
4. Please share with me how you have been involved in the planning of the program
  - a. What influenced your decision to become involved in the planning of the program?
  - b. Were there other programs that you considered implementing? Why/why not?
  - c. What was your first experience with the program?
  - d. How did you come to use this program regarding the needs of the community that you work with?
5. The original program was planned by a group of people on the West Coast.
  - a. What was the process of contacting the previous program to start it in new location?
  - b. How did these individuals provide assistance and resources to help you implement the program in [REDACTED]?
  - c. What resources did they provide you with?
6. How are decisions made in the [name of the organization]?
  - a. How might these individuals limit the effectiveness of the program?
7. Who determines what gets done for this program?
8. Funding information
  - a. Who is this program funded by?
  - b. How did the funders influence the development and implementation of the program?
  - c. How might the funders limit the effectiveness of the program?
9. Who did you need to speak with in the organization for this program to become adopted and implemented?
10. What major decisions were made during the implementation process?
  - a. Who was involved?
11. What else had to happen for the program to be planned and implemented?
12. What are the specific interests relating to the outcomes of this program?
  - a. How do you expect this program will influence the participants?
13. How does this program cater to the participants?
  - a. What has the program done to prepare for the needs of the individuals?
  - b. How do the participants involved in the program partake in decision making for the workshops?
14. What challenges/obstacles, if any, do you believe the program will encounter in regards to meeting the needs and interest of the participants?
  - a. Who will make decisions on how to prepare for these challenges?
  - b. How will the coordinators acknowledge these challenges?
15. Is there anything else you would like to share with me regarding the planning of the program?

## **APPENDIX L: Post-Interview Questions with Program Coordinator and Instructors**

### **Post Interview with coordinator**

1. Please describe the program
  - a. Please describe your expectations before the program started
  - b. What assumptions were made about the participants and the program overall?
  - c. Describe whether this program met those expectations for you and/or for the participants
  - d. Please describe each session
  - e. Were you able to complete all the curriculum every week? Why/Why not?
2. Describe the interactions between individuals in the course
  - f. Between program coordinator and instructors: Were there group “debriefings” after or between weekly workshops? How did those go?
  - g. Between coordinators and participants
  - h. Between participants
2. What challenges did you encounter during the program?
  - a. How did you overcome these challenges
3. What strengths did the coordinator provide that made this program successful?
4. Please describe a time during the program where you felt the participants understood the curriculum?
5. Please describe a time during the program where you felt the participants did not understand the curriculum?
6. What would you have liked to have known before the program that may not have been provided to you?
7. What would you do differently next time?
8. What suggestions would you make for the future coordinators of this program?
9. What else do you think made this program successful?
10. How do you foresee the participants using the knowledge they gained?

## **APPENDIX M: Focus Group Script**

**Introduction: Thank you for taking your time to take part in the focus group. I really appreciate everyone coming together to share your experiences from the class, which will help the program with changes to keep making it a better experience for all.**

### **Focus Group Discussion**

What did you originally expect out of the program? How did the program address these expectations?

What were your biggest motivators for joining this program and coming to class?

How did you feel like the program met your personal needs?

How did the instructors specifically meet your personal gardening needs?

What was your favorite part of the program?

Least favorite part?

What did you learn during this program that you otherwise would not have learned?

Do you think this program should continue? Why/Why not?

What would you change about the program? What suggestions do you have for modifications to improve the program?

How should the program cater to differing levels of garden experience?

What did you think about the:

- time frame of the program (5 weeks)?
- 2 hours on Monday?
- If this was in the winter time, would you still take the course?
- How do you think it would be different than this course?

What do you wish you learned that was not addressed?

How did going outside to the garden help you?

What turned you away from the garden or lecture portion of the class? What can the program do to change that?

What did you think about the instruction? Would you rather have someone in the community teach the course, or external individuals (ex: the Extension Master Gardener volunteers)?

How has this course changed your perception on the growing of fresh fruits and vegetables? Easy to garden? Too complicated?

Do you plan to continue gardening after this program is over? What do you plan to plant?

How do you think growing your own food could help benefit you or others?

How has this class addressed how to eat/cook the produce from your garden?

What challenges do you potentially see that would prevent you from gardening after this program is over?

Have your experiences benefitted others around you outside of the program?

How do you see this program benefitting others in the community?

Are you proud to be part of this program? Would you suggest this to others?

What can the program do to make it more appealing towards others?

Anything you would like to add?

**APPENDIX N: Observational Protocol**

<p><b>Date:</b> <b>Length &amp; Location of workshop:</b></p>	
<p><b>Descriptive Notes</b></p>	<p><b>Reflective Notes (comments/thoughts)</b></p>
<p>Ex: What the main workshop is about, themes discussed, time it starts, summary of the entire day</p>	<p>Ex: any distractions, interactions between participants, any attitude, perceived norms, perceived control changes, power dynamics</p>
<p>Ex: physical setting, accounts of particular events, or activities (Creswell, 2007; Creswell, 2009).</p>	<p>Ex: researcher’s personal thoughts, “feelings, speculation, problems, ideas, hunches, impressions” (Creswell, 2007; Creswell, 2009)</p>
	<p><b>Workshop Layout Diagram</b> Ex: how the workshops are laid out, who is interacting with who</p>