

Exploring Food System Change through a Mixed Methods Analysis of Cooperative Extension's
Role in the Farm to School Movement

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ABSTRACT

Farm to School is a program that connects local and regional foods and other farm products to school meals, develops school gardens, and develops other types of Farm to School experiential learning programs for K-12 students. Since Farm to School began in the mid-1990's, Farm to School programs have been developed in all 50 states and Washington D.C. The National Farm to School Network has estimated that almost 12,500 schools are involved with Farm to School, and that during the 2011-2012 school year, 5.7 million students were reached through Farm to School programs and activities. Research to date investigating Farm to School has primarily focused on food system and school system stakeholders including school nutrition directors, food distributors, farmers, school teachers, students, and principals. Not as much research has explored Cooperative Extension's role in Farm to School. Farm to School programs are one method for Extension professionals to support community food system development while addressing pressing social concerns related to agricultural viability and public health. Drawing on reasoned action theory and social movement theory, the purpose of this study was to explore food system change through an analysis of Cooperative Extension's role in the Farm to School movement. In this two-phase explanatory sequential mixed methods research study, the behavioral intentions/behaviors of Cooperative Extension professionals were analyzed. Additionally, the goals, strategies, and knowledge production of Cooperative Extension professionals participating in the Farm to School movement were explored. Data were collected through an online survey distributed to Extension professionals in eight states. A total of 931 Extension professionals completed the questionnaire resulting in a 48 percent response rate. Data were also collected through a state-based case study that explored Ohio State University (OSU) Extension involvement and leadership in the Ohio Farm to School Program. The case study included 21 interviews with OSU Extension professionals and Farm to School program partners. Regression models were developed to explore which behavioral intentions are statistically significant in explaining Extension participation in the Farm to School movement. Results show that past participation in a Farm to School training program, knowledge about Farm to School, attitude towards Farm to School, perceived social norms towards Farm to School, and perceived behavioral control towards Farm to School are positively associated with participation in the Farm to School movement. Drawing on Stevenson, Ruhf, Lezberg, and Clancy (2007), qualitative analysis found that OSU Extension professional's goals for the Farm to School movement were primarily related to food system *transformation* and *inclusion*, and their strategies were primarily related to *connection*. Drawing on Eyerman and Jamison (1991), qualitative analysis also found that OSU Extension professionals were producing primarily *organizational knowledge* through participation in the Farm to School movement. Additionally, qualitative analysis found that Cooperative Extension Systems are home to several Farm to School *movement intellectuals*. This study concludes with a discussion of recommendations for Cooperative Extension participation in the Farm to School movement, recommendations for Farm to School program partners, and recommendations for future research in Farm to School.

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“Everything is right about Farm to School: healthy fresh food, enhanced economic opportunity for farmers, and education for children about where food comes from. That’s a trifecta!”

–Dr. Kathleen Merrigan, Former Deputy Secretary (2009-2013), United States Department of Agriculture (USDA, 2011a, p. 2)

CHAPTER 1: INTRODUCTION

Across the United States (U.S.), growing concerns related to agricultural viability and public health have sparked numerous individuals and organizations to examine and question today’s global agrifood system (Allen, 2004; Allen, 2012; Berry, 1996; Berry 2009; Ikerd, 2008; Lyson, 2004; Kirschenmann, 2010; Nestle, 2007; Pollan, 2006a; Winne, 2008). In large part because of these concerns, new interdisciplinary approaches are being developed that promote increased sustainability within the U.S. food system. Many of the concerns regarding today’s global agrifood system are related to community-based goals such as farmland preservation, economic development opportunities, and access to affordable and healthy food for all members of society. These concerns have also grown, in part, because of the increasing awareness of the global agrifood system. The Cooperative Extension Service is one organization addressing these concerns through the rebuilding of local and regional food systems (Colasanti, Wright, & Reau, 2009; Conner, Cocciarelli, Mutch, & Hamm, 2008; Dunning, Creamer, Lelekacs, O’Sullivan, Thraves, & Wymore, 2012; Thomson, Radhakrishna, Maretzki, Inciong, 2006).

Between 2002 and 2007, the U.S. lost 16.2 million acres of farmland primarily because of suburban expansion (National Agricultural Statistics Service, 2009). Today, farm operators in the U.S. are only receiving approximately sixteen cents of every dollar spent on food, and only approximately five cents of every dollar spent on food away from home (United States Department of Agriculture, 2011b). Additionally, according to the 2007 U.S. Census of

Agriculture, the largest farms in the U.S. (*i.e.*, those grossing more than \$250,000 per year) account for only 9.5 percent of all U.S. farms, but are capturing 85 percent of the total gross U.S. farm income. In contrast, small and medium farms (*i.e.*, those grossing less than \$250,000 per year) account for 90.5 percent of all farms, only capture 15 percent of the market, and only earn an average \$22,715 per year in sales (National Agricultural Statistics Service, 2009).

One in every three U.S. children (31.7%) ages 2-19 is overweight or obese; and one third of all U.S. children born in the year 2000 are expected to develop diabetes during their lifetimes (Centers for Disease Control and Prevention, National Center for Health Statistics, 2007; Ogden, Carroll, Curtin, Lamb, & Flegal, 2010). Additionally, more than one quarter of all Americans ages 17 to 24 are unqualified for military service because these Americans are too overweight to serve (Mission: Readiness – Military Leaders for Kids, 2010). The school cafeteria is a place where more children go to receive a healthy meal with almost 34 million participants per year and nearly 5.3 billion lunches served annually (United States Department of Agriculture, 2012c). Approximately 60 percent of American children ages 5 to 18 participate in the National School Lunch Program at least once per week (Ralston, Newman, Clauson, Guthrie, & Buzby, 2008). Furthermore, almost half of all lunches served are provided free to students, with an additional 10 percent provided at reduced prices (Ralston, Newman, Clauson, Guthrie, & Buzby, 2008).

In 2006, researchers at the United States Department of Agriculture (USDA) Economic Research Service found that for Americans to meet the national fruit, vegetable, and whole-grain daily dietary recommendations, domestic crop acreage would need to increase by an estimated 7.4 million harvested acres. Additionally, Americans would need to increase daily fruit consumption by 132 percent, increase daily vegetable consumption by 31 percent, and increase daily milk consumption by 66 percent. The mix of vegetables consumed would also need to

change. Furthermore, to meet the dietary recommendations, Americans would need to increase their daily consumption of whole grains by an estimated 248 percent and reduce their consumption of total grains by approximately 27 percent (Buzby, Wells, & Vocke, 2006). These statistics illustrate the need for a comprehensive approach to tackle the growing issues within the global agrifood system that does more than simply address the specific issue but addresses the underlying and interconnected problems associated with agricultural viability and public health.

According to Green and Robinson, Jr. (2011), the field of community development is undergoing a fundamental transformation in both theory and practice. These authors point to technology, culture, and economics as key factors creating this change (Green & Robinson, Jr., 2011). Green and Robinson, Jr., (2011) identify local food systems as one of the important emerging topic areas for the field of community development.¹ Green and Robinson, Jr. (2011) acknowledge that local food systems are in part a reaction, and critique of the global food system (Shuman, 2000), and economic restructuring in agriculture (Henderickson, Heffernan, Howard, & Heffernan, 2001; Howard, 2009; Kirschenmann, Stevenson, Buttel, Lyson, & Duffy, 2008).

Local food systems are commonly described in terms of distance or geography, production methods, type of farm, and supply-chain characteristics (Martinez et al., 2010). Garrett and Feenstra (1999) describe local food systems as “community food systems” and define them as a food system “in which sustainable food production, processing, distribution and consumption are integrated to enhance the environmental, economic, social, and nutritional health of a particular place” (Garrett & Feenstra, 1999, p. 2). Community food systems can also be differentiated from the global agrifood system in terms of food security, proximity, self-

¹ The terms such as local food or local food systems are often interchangeably used with a variety of other terms such as agrifood systems, regional food systems, sustainable food systems, and community food systems to describe food produced near its point of consumption in relation to the global food system (Peters, Bills, Wilkins, & Fick, 2008). Following this convention, throughout this dissertation I use these terms interchangeably as well.

reliance, and sustainability (Wilkins & Eames-Sheavly, 2003). As described by Kloppenburg, Lezberg, DeMaster, Stevenson, and Henderickson (2000), local food systems potentially provide new economic opportunities for small and medium-sized farms, improved access to healthy foods, and a lower ecological footprint. According to Green and Robinson, Jr. (2011), Farm to School programs are one approach to developing local and regional food systems.

Farm to School is typically defined as “a program that connects schools (K-12) and local farms with the objectives of serving healthy meals in school cafeterias, improving student nutrition, providing agriculture, health and nutrition education opportunities, and supporting local and regional farmers” (National Farm to School Network, 2012a). The USDA defines Farm to School similarly (United States Department of Agriculture, 2012a), and as part of the *Know Your Farmer, Know Your Food* initiative, the USDA has made Farm to School a key priority area (United States Department of Agriculture, 2012b). The National Farm to School Network has estimated that almost 12,500 schools are involved with Farm to School, and that during the 2011-2012 school year, 5.7 million students were reached through Farm to School programs and activities (National Farm to School Network, 2012a). Farm to School programs are frequently thought of as a ‘win-win’ solution for children and farmers, and this ‘win-win’ approach was the impetus for development and passage of the National School Lunch Act passed by Congress in 1946 (Feenstra & Ohmart, 2012; Kloppenburg, Wubben, & Grunes, 2008). Putnam County West Virginia Extension Agent Chuck Talbott acknowledges this ‘win-win’ solution as one of the main reasons for his desire for more schools to adopt Farm to School in their district. According to Talbott, “students will have the chance to learn about farming, and it's a chance for farmers to make a living” (Charleston Gazette, 2012). McCullum, Desjardins, Kraak, Ladipo, and Costello (2005) position Farm to School programs as medium-term solutions to problems posed in

transitional food systems. These authors believe that Farm to School programs have the potential to encourage broader participation in food system activities through multi-sector partnerships while promoting economic renewal and job creation.

Farm to School programs have the potential to create many positive changes to individuals and communities. Farm to School programs have the ability to change a community's and individual's knowledge (Morris & Zidenberg-Cherr, 2002; Triplett, 2011), attitudes (Ratcliffe, Merrigan, Rogers, & Goldberg, 2011), skills (Alexander, North, & Hendren, 1995), academic performance and achievement (Jyoti, Frongillo, & Jones, 2005; Rampersaud, Pereira, Girard, Adams, & Metz, 2005), health and wellness (Ratcliffe, Merrigan, Rogers, & Goldberg, 2011; Triplett, 2011), environment (Pirog & Benjamin, 2003), and economic status (Tuck, Haynes, King, & Pesch, 2010). These changes can potentially happen to students, school teachers, school administrators and staff, parents and caregivers, and community members (Joshi & Ratcliffe, 2012). Specific Farm to School activities can take the form of including "local products in school meals-breakfast, lunch, afterschool snacks-and in taste tests, educational tools, and classrooms snacks" or introducing "food-related curriculum development and experiential learning opportunities through school gardens, farm tours, farmer in the classroom sessions, chefs in the classroom, culinary education, educational sessions for parents and community members and visits to farmers' markets" (National Farm to School Network, 2012a). One particular form of Farm to School is developing school gardens. School garden growth has recently expanded in large part because of two initiatives during the early 1990's. These initiatives included the 1993 American Horticultural Society meeting that held its first symposium on youth gardening and the 1995 mandate by the California State School Superintendent to have a garden in every school. Both of these initiatives were guided by the

vision to connect student learning opportunities to school gardens (Sealy, 2001; Subramaniam, 2002). Two of the three types of school gardens proposed in the school garden typology developed by Skelly and Bradley (2007) directly relate to Farm to School including vegetable school gardens and combination flower/vegetable school gardens. Research has shown that teachers use school gardens as a form of experiential learning to teach a variety of life skills and topic areas (Demarco, 1999; Skelly & Bradley, 2000).

With its increasing popularity and growth, Farm to School is continually being referred to in terms of a social movement (Conner, King, Koliba, Kolodinsky, & Trubek, 2011; Feenstra & Ohmart, 2012; Vallianatos, Gottlieb, & Haase, 2004). Stevenson, Ruhf, Lezberg, and Clancy (2007) describe social movements as “consciously formed associations with the goal of bringing about change in social, economic, or political sectors through collaborative action and the mobilization of large numbers of people” (p. 35). Farm to school can also be connected to the larger alternative agrifood movement seeking to support sustainable agriculture and community food security (Allen, 2004). Farm to School growth is often connected to concerns about the global agrifood system (Feenstra & Ohmart, 2012), and can be seen in the number of Farm to School programs and the number of Farm to School policies implemented at state and national levels.

Farm to School programs have been occurring at a small scale in some form for decades; however, the concept first began to emerge in the 1990’s from the work of two different individuals and programs (Vallianatos, Gottlieb, & Haase, 2004). The first was an initiative, started by a USDA consultant in Florida, designed to support underserved minority farmers by establishing school districts as a potential market for certain crops. Through this initiative, developed by the New North Florida Cooperative, low-income farmers began selling collard

greens and sweet potatoes to a low-income school district in Florida in 1995. Today, the programs consists of 60 to 100 farmers based in Florida, Georgia, Alabama, Mississippi, and Arkansas serving more than a million students in 72 school districts (National Farm to School Network, Community Food Security Coalition, & School Food FOCUS, 2009). The second initiative, launched as a pilot project at a low-income school in the Santa Monica-Malibu Unified School District in California, focused on connecting a local/area farmers' market to school cafeterias through a fresh fruit and vegetable salad bar. This option, offered in place of the standard hot meal during school lunch, was enormously successful, and was expanded to every school in the district by the third year of operation (Gottlieb, 1999; Mascarenhas & Gottlieb, 2000). The Santa Monica program received a number of awards and emerged as the standard for the Farm to School movement. In 2001, there were six Farm to School programs documented (Martinez et al., 2010). By 2004 this number had grown to 400, and today there are more than 2,500 documented programs (Martinez et al., 2010; National Farm to School Network, 2012a). The first state Farm to School legislation was established in 2001, and today, 38 jurisdictions (37 states plus Washington, D.C.) have passed a total of at least 80 pieces of legislation supporting Farm to School (Benson, 2012). In October of 2011, the first National Farm to School Month occurred as a result of House Resolution 1655 introduced by Representative Rush Holt (New Jersey) during the 111th Congress (National Farm to School Network, 2011b).

Farm to School has become an interest to a wide variety of food system stakeholders operating at varying levels of geographic scale, social sectors, and network functions (Conner, King, Koliba, Kolodinsky, & Trubek, 2011). Farm to School has relied on a broad base of support from many different groups including farmers, sustainable agriculture and environmental advocates, community and school garden supporters, waste and recycling promoters, school

administrators and teachers, parents, agrifood businesses, community development practitioners, farmland preservation advocates, government agencies, universities and Cooperative Extension, and school food service (Conner, King, Koliba, Kolodinsky, & Trubek, 2011; Feenstra & Ohmart, 2012). Research has shown that this broad-base of support from concerned citizens, groups, and organizations has helped allow Farm to School initiatives to be successful (Hazzard, Moreno, Beall, & Zidenberg-Cherr, 2011; Hermann, Parker, Brown, Siewe, Denney, & Walker, 2006; Feenstra, 2000). Conner, King, Koliba, Kolodinsky, and Trubek (2011) map out Farm to School stakeholders, classify these stakeholders by the level in which they primarily work (local, state, national *etc.*), and draw relationships between each stakeholder group. Through a case study of a Farm to School network in Vermont, Conner, King, Koliba, Kolodinsky, and Trubek (2011) show Farm to School programs are predicated on the flow of financial resources, whole and processed foods, information, and regulatory authority. These authors also illustrate the leverage points that may drive social change within and across the food system. Research continues to show that cooperation and partnerships are not just preferred, but required to have successful Farm to School programs (Feenstra & Ohmart, 2012). Table one (below) lists and describes well known national organizations instrumental to the Farm to School movement.

Table 1

National Organizations Supporting the Farm to School Movement

Organization	Description of Organization
Community Food Security Coalition http://foodsecurity.org	Formerly, the Community Food Security Coalition was a non-profit organization which was dedicated to catalyzing “food systems that are healthy, sustainable, just, and democratic by building community voice and capacity for change” (Community Food Security Coalition, 2012). Staff of the Community Food Security Coalition co-led the development of National Farm to School Network (National Farm to School Network, 2012a).
FoodCorps https://foodcorps.org	FoodCorps is a nationwide team of leaders that connects kids to real food and helps them grow up healthy (FoodCorps, 2012). Since August 2011, FoodCorps has reached over 50,000 children through 531 garden projects, growing almost 15,000 pounds of fresh produce and training over 1,850 community volunteers (FoodCorps, 2012).
National Farm to School Network www.farmtoschool.org	The National Farm to School Network is a non-profit organization that “envisions a nation in which Farm to School programs are an essential component of strong and just local and regional food systems, ensuring the health of all school children, farms, the environment, economy and communities” (National Farm to School Network, 2012a). The National Farm to School Network is coordinated by four national staff and individuals at eight different regional lead agencies (National Farm to School Network, 2012).
School Food FOCUS www.schoolfoodfocus.org	Launched in late 2008, School Food FOCUS is “a national collaborative that leverages the knowledge and procurement power of large school districts to make school meals nationwide more healthful, regionally sourced, and sustainably produced” (School Food FOCUS, 2012).
United States Department of Agriculture www.fns.usda.gov/cnd/f2s	The USDA first supported Farm to School in 2000 through the Initiative for Future Agriculture and Food Systems (National Farm to School Network, 2012a), and continues to support the movement through its Farm to School Team and implementation of the USDA Farm to School Grant Program (United States Department of Agriculture, 2012a). Today, the USDA “recognizes the growing interest among school districts and communities to incorporate regionally and locally produced farm foods into the school nutrition programs” (United States Department of Agriculture, 2012a).
Urban and Environmental Policy Institute www.uepi.oxy.edu	The Urban and Environmental Policy Institute is “is a social change organization at Occidental College that connects ideas and actions to create a more just, livable and green society” (Urban and Environmental Policy Institute, 2012). Staff of the Urban and Environmental Policy Institute co-led the development of National Farm to School Network (National Farm to School Network, 2012a).
W.K. Kellogg Foundation www.wkkf.org	The W.K. Kellogg Foundation “supports children, families and communities as they strengthen and create conditions that propel vulnerable children to achieve success as individuals and as contributors to the larger community and society” (W.K. Kellogg Foundation, 2012). Supporting the Farm to School movement has been one of their interests and the foundation has been instrumental in assisting organizations primarily through grant funds (W.K. Kellogg Foundation, 2012)

Problem Statement

Through passage of the Smith-Lever Act on May 8, 1914, the Cooperative Extension Service was initiated as a vehicle for human and community development through non-formal educational programs about subjects related to agriculture and home economics (Seevers, Graham, Gamon, & Conklin, 1997). Today, many Cooperative Extension Systems are starting to become engaged in community food system development (Colasanti, Wright, & Reau, 2009; Conner, Cocciarelli, Mutch, & Hamm, 2008; Dunning, Creamer, Lelekacs, O'Sullivan, Thraves, & Wymore, 2012; Thomson, Radhakrishna, Maretzki, Inciong, 2006). Through Cooperative Extension's organizational mission and structure, Extension professionals have the opportunity to play a leading role in addressing pressing social concerns related to agricultural viability and public health by engaging in community food system development (Conner & Levine, 2007). Farm to School programs are one method for Extension professionals to support community food system development while addressing these pressing social concerns. Currently, a need exists to examine the role of non-formal educators in the Farm to School movement, especially those working for Cooperative Extension because of Extension's historic mission and emerging involvement in supporting community food systems.

While there is a growing body of research about Farm to School that explores food system stakeholder participation or school system stakeholder participation in the K-12 school environment, few studies examine the role of non-formal educators or other agrifood service provider's in the Farm to School movement. Furthermore, no studies have been found that specifically explore the role of Cooperative Extension in the Farm to School movement. As described by Stevenson, Ruhf, Lezberg, and Clancy (2007), individuals working for the Cooperative Extension Service are important stakeholders for the local food and Farm to School movement because Extension professionals have the potential to act as a key constituent of social

change workers with the ability to create change. Additionally, drawing on Eyerman and Jamison (1991), these Extension professionals have the opportunity to act as movement intellectuals, generating new knowledge, helping to give the local foods and Farm to School movement its identity.

Dimitri, Hanson, and Oberholtzer (2012) assert that there is a clear role for Maryland Cooperative Extension in the Farm to School movement. However, these authors provide no empirical evidence to support this assertion and limited conceptual ideas about the types of roles Extension professionals can play in the Farm to School movement. This study can provide empirical examples about the role Maryland Cooperative Extension professionals and other Extension professionals can play in the Farm to School movement. Dunning, Creamer, Lelekacs, O'Sullivan, Thraves, and Wymore (2012) proclaim that Extension involvement in community food system development creates a space for conversations about community food systems inside and outside of Extension and fosters interdisciplinary programming across Extension program areas. This study can explore these ideas by showing how Extension involvement in the Farm to School movement supports community food system development. This study can also explore if Extension involvement in Farm to School is a vehicle for interdisciplinary collaboration among different Extension program areas.

Research that investigates farmer participation, food distributor participation, or school nutrition director participation primarily focuses on the procurement of local and regional food by school divisions. When exploring how farmers are participating in the Farm to School movement, research focuses on four primary issues including 1) examining farmer income and current or potential economic impacts from Farm to School procurement (Berkenkamp, 2011; Campbell, Park, Silva, & Nayga, 2008; Carpio, Zapata, & Boonsaeng, 2010; Tuck, Haynes,

King, & Pesch, 2010), 2) attitudes and perspectives of farmer involvement in Farm to School (Conner, King, Kolodinsky, Roche, Koliba, & Trubek, 2012; Gregoire, Arendt, & Strohbehn, 2005; Izumi, Wright, & Hamm, 2010b; Oberholtzer, Hanson, Brust, Dimitri, & Richman, 2012), 3) farmer distribution practices selling to local and regional school divisions (Conner, King, Kolodinsky, Roche, Koliba, & Trubek, 2012), and 4) barriers of farmer involvement in Farm to School (Kloppenburg, Wubben, & Grunes, 2008; Vogt & Kaiser, 2006).

Research exploring food distributor participation in the Farm to School movement concentrates on two primary issues including 1) exploring food distributor perspectives about their involvement with Farm to School (Izumi, Wright, & Hamm, 2010a), and 2) how food distributors are facilitating Farm to School connections and value-chains between farmers and school nutrition directors (Conner, Nowak, Berkenkamp, Feenstra, Van Soelen Kim, Liquori, & Hamm, 2011; Marshall, Feenstra, & Zajfen; 2012). Research that focuses on exploring school nutrition director participation in the Farm to School movement explores four primary issues including 1) participation levels and perspectives towards Farm to School (Colasanti, Matts, & Hamm, 2012; Conner, Abate, Liquori, Hamm, & Peterson, 2010; Graham, Feenstra, Evans, & Zidenberg-Cherr, 2004; Gregoire & Strohbehn, 2002; Institute for Agriculture and Trade Policy & Minnesota School Nutrition Association, 2010; Izumi, Alaimo, & Hamm; 2010; Izumi, Rostant, Moss, & Hamm, 2006; Oberholtzer, Hanson, Brust, Dimitri, & Richman, 2012; Roche & Kolodinsky, 2011; Schafft, Hinrichs, & Bloom, 2010; Strohbehn & Gregoire, 2001; Vogt & Kaiser, 2006), 2) school nutrition directors as Farm to School leaders (Bagdonis, Hinrichs, & Schafft, 2009), 3) school nutrition directors incorporating more scratch cooking with Farm to School products (Stanley, Colasanti, & Conner, 2012), and 4) how best to link school nutrition directors to local and regional farmers (Vogt, 2006).

Research that examines teacher participation, student participation, parent participation, or school administration participation in the Farm to School movement primarily focuses on school gardens or other Farm to School experiential learning opportunities. When exploring teacher participation in the Farm to School movement, research primarily focuses on three primary issues including 1) the perceptions and attitudes of elementary school teachers associated with school gardens (Graham, Feenstra, Evans, & Zidenberg-Cherr, 2004; Graham & Zidenberg-Cherr, 2005; Skelly & Bradley, 2000; Thorp & Townsend, 2001), 2) teacher perceptions of farmer market salad bars (Graham, Feenstra, Evans, & Zidenberg-Cherr, 2004), and 3) broadly understanding how school gardens impact teacher behavior (Thorp & Townsend, 2001). Research exploring student participation in the Farm to School movement concentrates on four primary issues including 1) examining changes in student attitudes and knowledge about food, nutrition, and agriculture through school gardens and other Farm to School experiential learning experiences (Canaris, 1995; Cason, 1999; Lineberger & Zajicek, 2000; Mabie & Baker, 1996; Morgan, Warren, Lubans, Saunders, Quick, & Collins, 2010; Morris, Neustadter, & Zidenberg-Cherr, 2001; Morris & Zidenberg-Cherr, 2002; Parmer, Salisbury-Glennon, Shannon, & Struempfer, 2009; Prelip, Kinsler, Thai, Erausquin, & Slusser, 2012; Ratcliffe, Merrigan, Rogers, & Goldberg, 2011; Triplett, 2011), 2) changes in student behavior and consumption of healthy foods such as fruits and vegetables because of school gardens and other Farm to School experiential learning experiences (Cason, 1999; Lineberger & Zajicek, 2000; McAlesse, & Rankin, 2007; Morgan, Warren, Lubans, Saunders, Quick, & Collins, 2010; Morris, Neustadter, & Zidenberg-Cherr, 2001; Parmer, Salisbury-Glennon, Shannon, & Struempfer, 2009; Prelip, Kinsler, Thai, Erausquin, & Slusser, 2012; Triplett, 2011), 3) student preferences towards locally-grown/raised food (Robinson-O'Brien, Larson, Neumark-Sztainer, Hannan, & Story,

2009), and 4) how different types of Farm to School instructional techniques influence student learning and behavior (O'Brien & Shoemaker, 2006; Roche, Conner, Kolodinsky, Buckwalter, Berlin, & Powers, 2012). Research that focuses on parent participation in the Farm to School movement primarily explores how garden-based fruit and vegetable interventions for grade school children have changed the home food environment (Heim, Bauer, Stang, & Ireland, 2011). Additionally, research that focuses on school administrator participation in the Farm to School movement primarily explores the attitudes and perceptions of school principals towards the use of school gardens in academic instruction (Graham, Beall, Lussier, McLaughlin, & Zidenberg-Cherr, 2005).

The Cooperative Extension Service is a publicly-funded, non-formal, educational system that links the education and research resources of the USDA, Land-Grant Universities, and county or regional units (Seevers, Graham, Gamon, & Conklin, 1997). The basic mission of Cooperative Extension is to enable people to improve their lives and communities through learning partnerships that put knowledge to work (Seevers, Graham, Gamon, & Conklin, 1997). Cooperative Extension has an important role to play in the Farm to School movement because of its organizational mission to improve people's lives through education while addressing pressing or emerging societal issues. Extension participation in Farm to School has the potential to not only benefit the Farm to School movement, but potentially transform the way Cooperative Extension Systems coordinate and complete educational programs through interdisciplinary program collaboration. Through this study, a variety of diverse individuals, organizations, and stakeholder groups inside and outside of Cooperative Extension can develop an improved understanding of the potential role and opportunity for Extension involvement in the Farm to School movement.

Purpose and Research Questions

The purpose of this study is to explore food system change through an analysis of Cooperative Extension's role in the Farm to School movement. The overall research question guiding this study is: *What role is Cooperative Extension playing in the Farm to School movement?* This question is answered through a series of four research questions.

1. What are the behavioral intentions/behaviors of Cooperative Extension professionals towards educational programs and/or policy initiatives that support the Farm to School movement?
2. What is the relationship between an Extension professional's participation in Farm to School programming and their behavioral intentions towards educational programs and/or policy initiatives that support the Farm to School movement?
3. What are the goals and strategies of Cooperative Extension professionals for the Farm to School movement?
4. What type of knowledge production is occurring through Cooperative Extension professionals being involved in the Farm to School movement?

Conceptual Framework and Methodological Approach

The conceptual framework employed for this research study draws on two theory-bases including the theory of reasoned action (Fishbein & Ajzen, 2010) and social movement theory (Eyerman & Jamison, 1991; Stevenson, Ruhf, Lezberg, & Clancy, 2007). Each of these theory-bases allows for this study to explore aspects regarding the role Cooperative Extension professionals are playing in the Farm to School movement. Drawing from the theory of reasoned action allows for this study to explore the behavioral intentions/behaviors of Cooperative Extension professionals regarding educational programs and/or policy initiatives that support the Farm to School movement. Drawing from social movement theory allows for this study to

explore and classify the strategies, goals, and types of knowledge Cooperative Extension professionals maintain and/or produce towards the Farm to School movement.

The methodological approach for this study is a mixed methods research approach. Mixed methods research has been defined a variety of different ways; however, a common definition of mixed methods research is “the collecting, analyzing, and mixing of both quantitative and qualitative data in a single study or series of studies” (Creswell & Plano Clark, 2007, p. 5).² According to Greene (2007), mixed methods research “involves a plurality of philosophical paradigms, theoretical assumptions, methodological traditions, data gathering and analysis techniques, and personalized understandings and value commitments” (p. 13). Six different types of mixed methods research designs have been developed (Creswell & Plano Clark, 2011), and this study follows the explanatory sequential design. It does so by first collecting and analyzing quantitative data from Cooperative Extension professionals in eight state Extension systems. This is followed by a subsequent collection and analysis of qualitative data in the form of one state-based case study of the Ohio Farm to School Program. In-depth interviews with Cooperative Extension agents/educators, specialists, administrators, and program assistants, as well as Cooperative Extension Farm to School program partners constituted the data collection methods for this case study. Together, this quantitative and qualitative data is used to understand the role Cooperative Extension is playing in the Farm to School movement. This mixed methods research study utilizes an equal priority on both the quantitative and qualitative data strand and can be represented using the following notation: Quan → Qual (Creswell & Plano Clark, 2011).

² Johnson, Onwuegbuzie, and Turner (2007) provide a rich discussion on the evolution of defining mixed methods research and numerous definitions of mixed methods research.

Significance of Study

This research study is significant for several reasons. These reasons relate to the focus of the study, the conceptual framework employed, and the methodological approach. First, this study is significant because it is the first study to examine the role Cooperative Extension is playing in the Farm to School movement. No other studies were found that explore the role of Extension in Farm to School. Cooperative Extension Systems exist in every state with the purpose of completing educational programs and community-based initiatives to strengthen agrifood systems, community, and youth development. Extension should be thought of as an important Farm to School stakeholder group because of its programmatic focus and its ability to build capacity to support agricultural viability and improved public health. By exploring the role or potential role of Extension in Farm to School programming, Cooperative Extension and Farm to School stakeholder groups may have an improved understanding of how Extension can participate and contribute to agricultural viability and improved public health. This study can also improve Cooperative Extension's understanding about what types of training is needed to increase Extension involvement in Farm to School.

Second, this study is significant because it adds to knowledge about the role of Cooperative Extension in supporting community food systems. A few studies have examined Extension involvement in community food systems (Colasanti, Wright, & Reau, 2010; Conner, Cocciarelli, Mutch, & Hamm, 2008; Raison, 2010; Thomson, Radhakrishna, Maretzki, & Inciong, 2006), however none of these studies specifically examined Farm to School. Conner, Cocciarelli, Mutch, and Hamm (2008) found that groups involved with developing community food systems floundered when they did not have strong commitment and support from Cooperative Extension. Raison (2010) states that Cooperative Extension professionals can play a

central role in building sustainable approaches to help empower communities to address pressing agrifood issues. He also asserts that Extension can help develop community food systems through partnership building and group facilitation. Colasanti, Wright, and Reau (2010) assert that Extension is well positioned to play a pivotal role in contested agrifood system issues through leadership that contributes to a more participatory, democratic, and equitable food system. By investigating the role of Cooperative Extension in the Farm to School movement, this study builds on these previous studies to specifically explore how Extension is supporting community food systems through program development and knowledge production while participating in the Farm to School movement.

Third, this study is significant because it is one of few studies that explore Farm to School using a comprehensive methodological approach rather than exploring a single Farm to School activity such as local and regional food procurement in schools, school gardens, or other Farm to School experiential learning programs. Many studies examine solely one Farm to School activity. Studies were located examining farm to cafeteria programs (Conner, Abate, Liquori, Hamm, & Peterson, 2010; Izumi, Alaimo, & Hamm, 2010; Izumi, Rostant, Moss, & Hamm, 2006; Izumi, Wright, & Hamm, 2010a, 2010b; Kloppenburg, Wubben, & Griunes, 2008; Oberholtzer, Hanson, Brust, Dimitri, & Richman, 2012; Roche & Kolodinsky, 2011; Vogt & Kaiser, 2006), and school garden or other types of Farm to School experiential learning programs (Graham, Beall, Lussier, McLaughlin, & Zidenberg-Cherr, 2005; Graham & Zidenberg-Cherr, 2005; Hazzard, Moreno, Beall, & Zidenberg-Cherr, 2011; Morris & Zidenberg-Cherr, 2002; Nowak, Kolouch, Schneyer, & Roberts, 2012; Parmer, Salisbury-Glennon, Shannon, & Struempfer, 2009). However, far fewer studies were found that examine both aspects of Farm to

School in a comprehensive way (Carlsson & Williams, 2008; Graham, Feenstra, Evans, & Zidenberg-Cherr, 2004; Schafft, Hinrichs, & Bloom, 2010; Srinivasan, 2011).

Rather than examining a specific Farm to School activity, this study takes an institutional approach by drawing on mixed methods research to examine how one institution, Cooperative Extension, impacts or can potentially impact the Farm to School movement. Mixed methods research can be classified as an emerging methodology in agrifood studies and the social sciences. Tashakkori and Teddlie (2003) call mixed methods research a “third methodological movement” (p. 5). It has also been called the “third research paradigm” following first quantitative research and then qualitative research (Johnson & Onwuegbuzie, 2004, p. 15). Mayring (2007) describes mixed methods research as a “new star in the social science sky” (p. 1). Creswell and Plano Clark (2010) assert that the development and rise in popularity of mixed methods research is due to its ability to allow researchers to find answers to problems, in multiple ways. Greene (2007) builds on this notion and states that because there are “multiple ways of seeing and hearing,” multiple research methods are needed to generate a more full understanding of any social phenomenon (p. 20). The *Journal of Mixed Methods Research* did not begin until January 2007, and in this inaugural issue, Tashakkori and Creswell (2007) proclaim “a new era in the conceptualization and utilization of integrated approaches across the social and behavioral sciences” (p. 3). This new era is making its way to research in local and regional food systems (Inwood, Sharp, Moore, & Stinner, 2009), specifically Farm to School (Schafft, Hinrichs, & Bloom, 2010). Under these circumstances, this study is another attempt to further show the usefulness of combining both quantitative and qualitative methods into one methodology when exploring community food systems.

Fourth, this study is significant because it is the first Farm to School study to empirically draw on the theory of reasoned action (Fishbein & Ajzen, 2010) and social movement theory (Eyerman & Jamison, 1991; Stevenson, Ruhf, Lezberg, & Clancy, 2007). By drawing on these two conceptual frameworks, this study discovers new knowledge about why some Extension professionals participate in Farm to School programming when others do not, and also helps to explore the goals, strategies, and knowledge production of those Extension professionals that are involved in the Farm to School movement. Additionally, this study provides a baseline analysis for other community food system researchers to employ these conceptual frameworks to explore other agrifood system issues and topic areas which can be compared to in future studies. By additional research drawing on these two conceptual frameworks, food system researchers may be able to more fully understand why some Extension professionals participate in community food systems programming and how their contribution impacts the development of local and regional food systems.

Clarification of Terms

This section includes descriptions of frequently used terms throughout this dissertation. The descriptions are provided from existing literature. The intent of this section is to help clarify the use of these terms throughout this dissertation.

Farm to School is commonly defined as “a program that connects schools (K-12) and local farms with the objectives of serving healthy meals in school cafeterias, improving student nutrition, providing agriculture, health and nutrition education opportunities, and supporting local and regional farmers” (National Farm to School Network, 2012a). Farm to School can be thought of as an organizational manifestation of the social movement working to develop more local or regional food systems (Lyson, 2004). **Social movements** constitute a large and diverse

area of research for social scientists (Hall & Turray, 2006) and can be thought of as “consciously formed associations with the goal of bringing about change in social, economic, or political sectors through collaborative action and the mobilization of large numbers of people” (Stevenson, Ruhf, Lezberg, & Clancy, 2007, p. 35). For a phenomenon to be classified as a social movement it must: 1) be an organized collective, 2) be uninstitutionalized, 3) be large in scope in terms of geographical area covered, length of time advancing beliefs, and the number of events, organizations, participants, goals, strategies, and critical adaptations, 4) promote or oppose change in society norms and values, and 5) encounter opposition in a moral struggle (Stewart, Smith, & Denton, Jr., 2007). Through the formation of social movements, “informal networks of individuals, groups, and organizations that share a common belief about the nature of the problem work to bring attention to the problem and then propose and advocate solutions (Stevenson, Ruhf, Lezberg, & Clancy, 2007).

Community food systems can be described as a food system “in which sustainable food production, processing, distribution and consumption are integrated to enhance the environmental, economic, social, and nutritional health of a particular place” (Garrett & Feenstra, 1999, p. 2). Sustainable is a frequently used term when describing local food or local and regional food systems. According to Hawken (2007), sustainability is about stabilizing the current disruptive relationship between Earth’s human culture and living world. **Sustainable** is defined as “capable of being sustained,” meaning “a method of harvesting or using a resource so that the resource is not depleted or permanently damaged” (Merriam Webster, 2013).

Community food systems attempt to combine sustainable agricultural production with the goal of developing increased community food security (Garrett & Feenstra, 1999; Wilkins & Eames-Sheavly, 2003). **Sustainable agriculture** is defined as “the science, art, or practice of cultivating

the soil, producing the crops, and raising livestock that is economically viable, socially responsible, and ecologically sound, renewing the land for continued agricultural use in the long term” (Hawken, 2007, p. 199). **Community Food Security** is defined as “a situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice” (Hamm & Bellows, 2003, p. 37).

School gardens are often thought of as one organizational manifestation of a community food system or Farm to School program, and are described by Blair (2009) as a site of “place-based learning” (p. 16). School gardens are also described as “outdoor learning laboratories, as aesthetically pleasing spaces for children to play, and, most recently, as places to promote the consumption of fresh produce” (Ozer, 2007, p. 846). Blair (2009) describes and reviews rationales for school gardening including those most pertinent to Farm to School such as the ability of vegetable gardening to teach food system ecology, broaden children’s experience of ecosystem complexity, shape attitudes and environmental values, and clarify the nature and culture continuum. School gardens are one form of Farm to School experiential learning programs. **Experiential learning** theory defines learning as “the process whereby knowledge is created through the transformation of experience.” The production of knowledge “results from the combination of grasping and transforming experience” (Kolb, 1984, p. 41).

Community food systems and Farm to School programs have the goals of promoting community development. **Community development** is commonly defined as “a *process*: developing or increasing the ability to act collectively; and an *outcome*: taking collective action and the result of that action for improvement in a community in any or all realms: physical, environmental, cultural, social, political, economic, etc.” (Phillips & Pittman, 2009, p. 6).

Community development can also be described as a social movement or crusade dedicated to progress involving personal commitment and an emotional dynamic (Sanders, 1958). In this view, community development tends to become uninstitutionalized as a non-neutral process, carrying an emotional charge. Drawing on today's discourse, this view of community development is similar to the idea of radical community development for social transformation (Ledwith, 2011).

Cooperative Extension was designed to link the system of Land-Grant Universities to grassroots needs and national priorities (Committee on the Future of the Colleges of Agriculture in the Land Grant University System, National Research Council, 1996). Cooperative Extension is described by the USDA as a way of “reaching out” to “extend” the resources of Land Grant Universities with the goal of solving public needs through non-formal, non-credit programs (United States Department of Agriculture, 2012d). Today, Cooperative Extension works in six major areas including community and economic development (United States Department of Agriculture, 2012d). Community and economic development became an official program of Cooperative Extension in 1993.

An emerging methodology for studying agrifood systems is mixed methods research. **Mixed methods research** can be defined as the “collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies” (Creswell & Plano Clark, 2007, p. 5). Mixed methods research involves “combining complementary strengths and nonoverlapping weaknesses of quantitative and qualitative research” (Onwuegbuzie & Johnson, 2006, p. 48). A mixed methods research approach has been employed in a number of studies exploring community food system development (Berlin, Lockeretz, & Bell, 2009; Biggelaar & Suvedi, 2000; Bleasdale, Crouch, & Harlan, 2011; Gillespie, Jr. & Johnson, 2010; Inwood,

Sharp, Moore, & Stinner, 2009; Selfa & Qazi, 2005; Shreck, Getz, & Feenstra, 2006), and has been employed in a few studies that explore the topic of Farm to School (Izumi, 2008; Schafft, Hinrichs, & Bloom, 2010).

CHAPTER 2: LITERATURE REVIEW

The Rise of the Farm to School Movement

The Farm to School movement first emerged in large part because of a handful of individual's work, which began during the mid-1990's (Feenstra & Ohmart, 2012). Today, it can be considered one of the hallmark programs of the alternative agrifood movement (Allen, 2004). A convergence of discourses first concerned about sustainable agriculture and community food security helped initiate greater interest in the alternative agrifood movement (Allen 2004), and today, many agricultural and food educators and researchers continue this work through a wide variety of school food projects or programs (Collins, 2012; Reicks, Redden, Mann, Mykerezi, & Vickers, 2012; Rojas, Valley, Mansfield, Orrego, Chapman, & Harlap, 2011; Slusser, Cumberland, Browdy, Lange, & Neumann, 2007; Winson, 2008). Without the connection to public policy and the National School Lunch Program, the Farm to School movement would likely have never been born.

The National School Lunch Program Sets the Stage for Farm to School

The Richard B. Russell National School Lunch Act was signed into law by President Harry Truman in 1946 and established the National School Lunch Program (Ralston, Newman, Clauson, Guthrie, & Buzby, 2008). The purpose of the National School Lunch Program is to “safeguard the health and well-being of the nation’s children and to encourage the domestic consumption of nutritious agricultural commodities and other foods” (Ralston, Newman, Clauson, Guthrie, & Buzby, 2008, p. 1). The National School Lunch Act ensures that meals served as part the National School Lunch Program meet a minimum national standard, and that lunches are offered to low-income students at reduced or no cost (Ralston, Newman, Clauson, Guthrie, & Buzby, 2008).

The National School Lunch Program is the nation's second largest food and nutrition assistance program, and in 2006, it operated in over 101,000 public and nonprofit private schools (Ralston, Newman, Clauson, Guthrie, & Buzby, 2008). The National School Lunch Program has average daily participation of approximately 31.8 million students, and in 2011, it had annual total expenditures of \$11.3 billion (Oliveria, 2012). Almost 60 percent of American children age 5-18 participate in the Program at least one time per week (Ralston, Newman, Clauson, Guthrie, & Buzby, 2008), and over 65 percent of participants receive a free or reduced price lunch (United States Department of Agriculture, 2012a). The high participation allows for the Program to impact the health and nutrition of many students across the U.S. The National School Lunch Program is also a large food market for America's farmers.

Since 1946, several important amendments have been made to the National School Lunch Act such as those that: 1) permit a menu-planning option to allow for more fruits, vegetables, and grains, 2) direct schools to develop wellness plans, and 3) establish the Fresh Fruit and Vegetable Program (Ralston, Newman, Clauson, Guthrie, & Buzby, 2008). In addition to changes in the Program through amendments, the Child Nutrition Act was passed in 1966, which created the School Breakfast Program, established a fund to support the purchasing of food service equipment, and increased funds for meals served to low-income students (Ralston, Newman, Clauson, Guthrie, & Buzby, 2008). Federal legislation that started to support the goals of the Farm to School movement was not passed until much later.

A Convergence of Discourse Cultivates Farm to School

The Farm to School movement grew out of primarily two separate efforts in north Florida on the east coast of the U.S., and southern California on the west coast of the U.S. In north Florida, in conjunction with the release of *A Time to Act* (United States Department of

Agriculture, 1998), a USDA consultant worked to support local farmers, particularly minority farmers, by developing school cafeterias as a potential market for certain crops (Vallianatos, Gottlieb, & Haase, 2004). In southern California, a fruit and vegetable salad bar filled with products from local and regional farmers was implemented in place of the standard hot meal at a low income school in Santa Monica (Vallianatos, Gottlieb, & Haase, 2004). These initial efforts can be connected to the sustainable agriculture movement, as well as the community food security movement (Allen, 2004), in that these efforts helped spur the contemporary movement of individuals concerned about school food, and the increasing prevalence of obesity (Centers for Disease Control and Prevention, 2012).

Farm to School is connected to the sustainable agriculture movement in its commitment to the goals of economic, social, and environmental sustainability. While there was some recognition of the importance of soil conservation during the 1930's, the emergence of sustainable agriculture can be traced back to the energy crisis of the 1970's, when people first began to question the intensification of industrialized agriculture (Allen, 2004). The rise of interest in sustainable agriculture was part of a populist movement of individuals primarily concerned with the environmental aspects of agricultural production (Allen, 2004). During the 1980's, in addition to other environmental concerns, concerns about resource depletion, environmental contamination, water damage, and pesticide poisoning fueled interest in, and activities around, sustainable agriculture (Allen, 2004). These concerns helped move the concept of 'sustainability' from a fringe concern, to one of importance (Buttel & Gillespie, 1988).

Throughout the 1980's, agricultural philosophers and leaders including Wes Jackson, Robert Rodale, and Wendell Berry began to broaden the ideas around sustainable agriculture (Allen, 2004). For example, Wes Jackson introduced many individuals to the idea that

agriculture could work with, rather than against, the environment (Jackson, 1980). Robert Rodale helped introduce concepts such as organic farming, biodynamic farming, and agroecology (Rodale, 1983). Wendell Berry, through the publication of *The Unsettling of America*, argued that agriculture was much more about human culture and values, compared to just the production of food (Berry, 1996). Although perhaps not as well-known, farmer philosopher Frederick Kirschenmann was also developing and championing the ideas behind sustainable agriculture during the 1980's. Today, Kirschenmann's ideas and writings have come to embody the concept of sustainable agriculture (Kirschenmann, 2010). An early 1990's report framed sustainable agriculture as the fourth major era in agriculture, after the horsepower, mechanical, and chemical eras (United States General Accounting Office, 1992).

Although the 1980's helped to broaden the concept of sustainable agriculture, largely up until the early 1990's, and the publication of *Food for the Future*, a groundbreaking edited collection of essays on sustainability, sustainable agriculture had principally been constructed in the discourse and domain of nature and the natural sciences (Allen, 1993). The initial efforts to develop sustainable agriculture privileged environmental priorities, while essentially ignoring social priorities and approaches (Allen, 1993). Building on the initial ideas of sustainable agriculture, Allen took the concept a few steps further. While arguing for the need to integrate the social with the natural, Allen (1993) expanded the scope of sustainable agriculture. Sustainable agriculture became not just about questioning the ability of conventional agriculture to protect the environment (Allen, 1993). Sustainable agriculture also became about the ability of conventional agriculture to address social inequalities such as hunger, poverty, racial oppression, and gender subordination in the current agrifood system (Allen, 1993). The concept of sustainable agriculture began to be viewed as a potential movement to sustain and transform both

agriculture and society (Poincelot, 1990), and it began to be seen as a potential compass for social action (Allen, 1993).

Building on these early developments, it is important to recognize contemporary definitions of sustainable agriculture. Contemporary definitions usually describe sustainable agriculture in some form related to “the science, art, or practice of cultivating the soil, producing the crops, and raising livestock that is economically viable, socially responsible, and ecologically sound, renewing the land for continued agricultural use in the long term” (Hawken, 2007, p. 199). The U.S. Sustainable Agriculture Research and Education Program describes sustainable agriculture similarly, and connects it to the goals of profitability in the long-term, stewardship of land, air, and water, and maintaining a quality of life for farmers, ranchers, and their communities (Sustainable Agriculture Research and Education Program, 2010). Additionally, sustainable world agriculture is thought of as working “toward breaking perverse incentives and practices that encourage soil depletion and agribusiness favoritism, promotes water conservation, higher producer incomes, and protection of biodiversity” (Hawken, 2007, p. 199).

In addition to Farm to School being related to the discourse of the sustainable agriculture movement, Farm to School is also related to the discourse of the community food security movement through its emphasis on improving access and availability of fresh, local and regionally-grown/raised food. Community food security is frequently referred to as “a situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice” (Hamm & Bellows, 2003, p. 37). The concept of ‘food security’ first emerged in the 1960’s and 1970’s as result of growing world hunger (Lutz, Swisher, & Brennan, 2007; von Braun, Bouis, Kumar, & Pandya-Lorch, 1992), and is commonly defined as “the ability to meet aggregate food

needs in a consistent way” (Anderson & Cook, 1999, p. 142). It wasn’t until the 1980’s and 1990’s until individuals began to explore and develop the contemporary concept of community food security (Winne, Joseph, & Fisher, 1998; Fisher, 1997). Community food security initiatives tend to focus on food and nutrition issues, which include those related to hunger and poor nutrition, high rates of diet-related diseases, unprecedented demand for the charitable food sector, the decline of local food systems, and individual and community empowerment (Allen, 2004; Fisher & Gottlieb, 1995). The connection of the Farm to School movement to the now defunct Community Food Security Coalition (CFSC) also helps establish Farm to School as part of the discourse of the community food security movement. The CFSC was the preeminent organization of the community food security movement, and grew out of work on the 1994 Farm Bill (Allen, 2004). It was established in 1996 as an organization working to build more sustainable local and regional food systems while improving the access to nutritious foods (Allen 2004). The CFSCs coalition of organizations is primarily concerned with issues related to social justice, community development, labor relations, antipoverty, and anti-hunger efforts (Allen, 2004). Farm to School has long been a foundational initiative of the CFSC and up until 2005, when the Kellogg Foundation donated monies to develop the National Farm to School Network (National Farm to School Network, 2009); Farm to School was primarily a national initiative under the direction of the CFSC. Publications from the CFSC on Farm to School date back to the early 2000’s (Azuma & Fisher, 2001), and because of the initial location of CFSC in Los Angeles, it was able to partner with the Urban and Environmental Policy Institute at Occidental College to support and develop many of the first Farm to School programs in the U.S.

With the goal to provide an alternative market for farmers, and serve healthy meals in school cafeterias while improving student nutrition, Farm to School initiatives are clearly part of

the discourse of both social movements. The community food security movement and the sustainable agriculture movement are the two most prominent social movements under, and together compose, the broader alternative agrifood system movement (Allen, 2004).

The Role of State and Federal Legislation in Supporting Farm to School

Both state and federal legislation has played a major role in supporting the Farm to School movement. The National School Lunch Act and Child Nutrition Act are reauthorized every four or five years and greatly shape the school food environment (Rosenberg & Broad Leib, 2011). These two pieces of legislation influence what is procured, served, and consumed in school cafeterias across the U.S. The Farm Bill, also authorized every five to seven years greatly shapes food and farming practices, and influences agricultural and land use policies, food consumption patterns, and ultimately the health of the American public (Imhof, 2012; Pollan 2006b). Additionally, state legislation has the potential to influence agricultural and school food procurement practices. When it comes to legislation supporting the Farm to School movement, state legislation is strikingly similar to federal legislation (Leyda, 2011). When enacting state legislation supporting the Farm to School movement, it appears that state legislatures have looked to, and even copied similar legislation passed in other states (Leyda, 2011). An important aspect of public policy analysis is to examine the different types of state and federal Farm to School legislation that has been enacted to understand if this legislation has influenced the Farm to School movement.

Starting in 2004, the Child Nutrition Act began to incorporate language supporting the Farm to School movement (S. 2507, 2004). In 2004, Section 122 of the Child Nutrition Act reauthorization bill (S. 2507), established the National Farm to School Program and created a grant fund for schools to apply to help setup Farm to School programs (S. 2507, 2004; National Farm to School Network, Community Food Security Coalition, & School Food FOCUS, 2009).

The objective of this language was to support both farm to cafeteria programs, as well as school gardens and other forms of experiential learning approaches (S. 2507, 2004). While this program was authorized to receive \$10 million dollars in funding, funds were never appropriated (S. 2507, 2004; National Farm to School Network, Community Food Security Coalition, & School Food FOCUS, 2009). If we fast forward to 2010, the Child Nutrition Act reauthorization bill, commonly referred to as the *Healthy, Hunger-Free Kids Act* further strengthened child nutrition and Farm to School nationally. The most notable improvement can be seen in Section 243 where the USDA was charged with implementing a national competitive grants program to foster and strengthen local and regional Farm to School programs (United States Department of Agriculture, 2012e). Beginning October 1, 2012, \$5 million was made available annually to provide grants, not to exceed \$100,000 each, to schools, state and local agencies, and Indian Tribal Organizations for Farm to School activities (United States Department of Agriculture, 2012e).

In addition to the National School Lunch Act and Child Nutrition Act, the Farm Bill reauthorization process has the opportunity to impact Farm to School through federal legislation. For example, the 2008 Farm Bill (*i.e.*, the Food, Conservation, and Energy Act of 2008) amended the National School Lunch Act to allow institutions receiving funds through child nutrition programs to apply a ‘geographic preference’ when procuring unprocessed locally-grown/raised agricultural products (National Farm to School Network, 2011). This geographic preference allows for school divisions to give preference to locally-grown/raised foods, as defined by the 2008 Farm Bill (National Farm to School Network, 2011). More recently, in June of 2012, forty-nine members of Congress signed a letter addressed to Representative Collin Peterson of Minnesota, a ranking member of the House Agriculture Committee, to support Farm

to School development through a number of legislative changes such as legislation that allows schools to use USDA food dollars and Department of Defense FRESH food dollars to purchase locally-grown/raised foods (Congress of the United States, 2012). Together, the National School Lunch Act, Child Nutrition Act, and Farm Bill reauthorization processes allow for changes to be made to federal legislation that governs the purchasing, preparation, and consumption of food in schools by supporting Farm to School programming.

Although the National School Lunch Act and Child Nutrition Act govern school food at the federal level, states also have the authority to enact state legislation through their legislative processes. Enacting state legislation can help tailor school food purchasing to local needs and the local situation. Through this authority, state legislatures have the ability to emphasize and implement Farm to School programming as they desire. In other words, states have the ability to strengthen school lunch programs through the development of state Farm to School legislation. With participation in the National School Lunch Program at record levels (United States Department of Agriculture, 2012c), Farm to School programs have the opportunity to be highly impactful, not only to the health and nutrition of students, but also to the profitability of small, medium, and even large farms.

Policy approaches have proven to be successful in several public health areas, and policies are continually being developed to augment individual interventions to increase fruit and vegetable consumption (Kim & Blanck, 2011). During 2001, the legislatures in California and New Mexico were the first state governments to pass legislation supporting Farm to School (National Farm to School Network, 2010). In California, Senate Bill 19 (2001) directs the convening of a Child Nutrition and Physical Activity Advisory Committee to develop and recommend how schools can increase the availability of organic fruits and vegetables, school

gardens, and collaborate with local farmers markets (California Legislative Information, 2001). In New Mexico, Representative Stell introduced House Joint Memorial 34 (2001), which directs the Department of Education and Department of Agriculture to collaborate on increasing the use of New Mexico state agricultural products while preparing school meals in public schools (New Mexico Legislature, 2001). These early state-based policy successes helped provide increased attention to strengthening Farm to School programs through state legislation. Between 2002 and 2005, 10 state-based Farm to School policies were passed (National Farm to School Network, 2010). This led to new Farm to School legislation in nine states (National Farm to School Network, 2010). Today, over 38 states have passed over 80 pieces of state legislation supporting Farm to School (Benson, 2012).

The National Farm to School Network classifies Farm to School legislation into eleven different categories (National Farm to School Network, 2010). State-based Farm to School legislative categories include legislation that: 1) supports state program development, 2) gives school divisions the ability to prefer locally-grown/raised food over other foods, 3) creates state-based promotional programs to celebrate Farm to School, 4) designs state Farm to School grant programs, 5) appropriates funds to/for Farm to School programs, 6) forms a Farm to School task force, council, or working group, 7) establishes a directory or database of interested Farm to School stakeholders such as farmers, food distributors, and school food directors, 8) inserts language about Farm to School priorities in school wellness policies, 9) establishes a pilot program for Farm to School activities, 10) provides an additional reimbursement for locally-grown/raised foods purchased for school lunches, and 11) allows a state governor to make a declaration supporting Farm to School activities (National Farm to School Network, 2010). Table two (below) summarizes the eleven different categories of Farm to School legislation,

provides a description for each category and states the number of policies passed in each category that have been enacted through September 2011 (Benson, 2012). Since September 2011, at least six additional state policies have been enacted supporting Farm to School, which include Alabama HB670 (2012), Alaska SB 160 (2012), Connecticut (Resolution 2011), Connecticut HB 5326 (2012), Michigan (Resolution 2012), and Mississippi HC 112 (2012) (Benson, 2012).

Table 2

Summary of State Farm to School Legislation

Legislation Category ^a	Description ^a	Enacted Policies ^b
Project implementation	Establishes a statewide farm to school program and provides support from local government agencies.	15
Local preference	Encourages state organizations, agencies and schools to use local produce by allowing purchasing preferences for state-produced agricultural products.	15
Promotional event or program	Establishes a statewide promotion program or event that will promote local agriculture and foods to children.	12
Grant money allocation	Authorizes grants for implementation of farm to school programs.	11
Budget appropriations or official state fund	Authorizes additional funding to be set aside or appropriated for farm to school programs.	10
Creating a task force, council, or working group	Establishes a task force, working group or intra-agency council to implement and assess farm to school programs or directs state agencies to collect data and make recommendations.	10
Resolutions	Encourages or recommends farm to school programs or policies across the state, in state departments, or on the federal level.	9
Creating a directory or database	Directs state agencies to establish a website or list of participating schools and producers to facilitate local procurement.	8
Additional reimbursements	Allows schools to receive additional reimbursement money for serving local food in meals.	4
Wellness policies	Encourages farm to school efforts as part of a broader wellness or food security policy.	4
Pilot program implementation	Establishes a temporary pilot program for farm to school activities in school districts.	3

^a (National Farm to School Network, 2010). ^b (Benson, 2012).

Stakeholder Participation in the Farm to School Movement

Community development practitioners, researchers, and government officials have been examining and documenting the impacts of Farm to School activities and programs since the concept first emerged. For example in 2000, the USDA released a series of reports about connecting small farms and their local and regional farm products to school cafeterias as a new marketing initiative (Schofer, Holmes, Richardson, & Connerly, 2000; Tropp & Olowolayemo, 2000). One report documented a pilot project that took place between 1997-1999 which connected a group of small farms in the Florida panhandle to the Gadsden County School District as a market opportunity for their fresh agricultural products (Schofer, Holmes, Richardson, & Connerly, 2000). By 2002, research found that this new project, part of the New North Florida Cooperative, was delivering product for approximately 435,300 lunches in 15 different counties, across three states (Holmes, Richardson, & Schofer, 2002). In 2005, the USDA completed a guide for buying and serving locally grown produce in school meals that focused on school food procurement, types and examples of Farm to School distribution models, how to find locally-grown/raised food, menu planning considerations, and strategies for Farm to School success (United States Department of Agriculture, 2005). This handbook also contains a comprehensive, annotated bibliography of Farm to School resources (United States Department of Agriculture, 2005).

In addition to the USDA, the Community Food Security Coalition and National Farm to School Network have also completed several guidebooks and reports that document impacts, share experiences, and make recommendations about Farm to School (Joshi & Paxton, 2011; Markley, Kalb, & Gustafson, 2010; National Farm to School Network, Community Food Security Coalition, & School Food FOCUS, 2009). For example during the spring of 2009, the

National Farm to School Network released a 211-page document, “*Bearing Fruit: Farm to School Program Evaluation Resources and Recommendations*,” that introduces Farm to School, provides Farm to School tools and resources, reviews literature regarding Farm to School, and makes a series of recommendations for stronger Farm to School programs.

As the Farm to School movement grew throughout the U.S., and more stakeholder groups became involved in planning and coordinating Farm to School programs, individuals began to complete and disseminate state-based Farm to School resources. In 2002, the Cornell Farm to School Program was established through funding provided by the USDA to increase the amount of locally produced foods served in New York’s schools, colleges, universities, and other institutions (Cornell Farm to School Program, 2011). By 2007, Cornell developed a toolkit for the Northeast designed to enhance Extension educator’s and community leaders Farm to School knowledge and ability to connect local and regional foods to school meals (Cornell Farm to School Program, NY Farms!, & New York School Nutrition Association, 2007). In 2003, Oklahoma released its first Farm to School report that summarized results of a statewide Farm to School survey of institutional food service providers (McDermott, 2003). These are two examples of some of the first state-based Farm to School resources developed.

Since then, the trend of state-based Farm to School reports and resources has continued to grow. To date, individuals and organizations in at least twenty-eight states have completed state-based Farm to School resources including Alaska (Robb, 2012), California (Joshi & Beery, 2007), Colorado (Moschetti, Kathlene, & Dyer, 2010), Connecticut (Sych & Slupecki, 2012), Florida (Florida Department of Education), Georgia (Georgia Department of Education, 2012; Page), Idaho (Martin & Clark), Illinois (Washuk, 2007), Kentucky (Drury, Garland, & Walters, 2012), Maine (Maine Farm to School Work Group, 2010), Maryland (Oberholtzer, 2010),

Massachusetts (Massachusetts Farm to School Project), Michigan (Matts), Minnesota (Institute for Agriculture and Trade Policy and Minnesota School Nutrition Association, 2010), Mississippi (Rosenberg & Broad Leib, 2011), Missouri (Missouri Farm to School & Farm to Institution Project), New Hampshire (NH Farm to School), New Jersey (Grenci, Cirignano, Hughes, & Morgan, 2011), North Dakota (North Dakota Farm to School), Ohio (The Ohio State University Extension), Oklahoma (Holcomb, Brandenberger, McGlynn, Vo, Kirby, 2009; McDermott, 2003; Oklahoma Farm to School Cookbook Team, 2011), Oregon (Ratcliffe & Smith, 2007), Pennsylvania (Hinrichs, Schafft, Bloom, & McHenry-Sorber, 2008), Vermont (Ryan, 2006; Vermont Farm to School Network, 2010; Vermont FEED, 2007; Vermont FEED, 2010), Washington, D.C. (Bryant, 2012), Washington (Sanger & Zenz, 2004), and Wisconsin (Kloppenburger, Wubben, & Grunes, 2007).

To help categorize the growing body of research on Farm to School, and to help Farm to School stakeholders understand the research gaps that need to be addressed, the USDA published an annotated bibliography about previous research in Farm to School (Ritchie & Chen, 2011). This annotated bibliography lists a number of refereed research articles exploring the Farm to School movement from multiple perspectives (Ritchie & Chen, 2011). A variety of research has been completed investigating issues related to farmer participation, food distributor participation, and school nutrition director participation in the Farm to School movement. Additionally, a variety of research has been completed investigating the role of teacher participation, student participation, parent participation, and school administration participation in the Farm to School movement. Conner, King, Koliba, Kolodinsky, and Trubek (2011) outline the relationships between these stakeholder groups, as well as others, and show possible connections in terms of money exchange, food exchange, and information/ knowledge exchange. These authors classify

five of these seven stakeholders (school nutrition directors, farmers, teachers, parents, and students) as core Farm to School actors. Figure one (below) is a truncated diagram of what Conner, King, Koliba, Kolodinsky, and Trubek (2011) present.

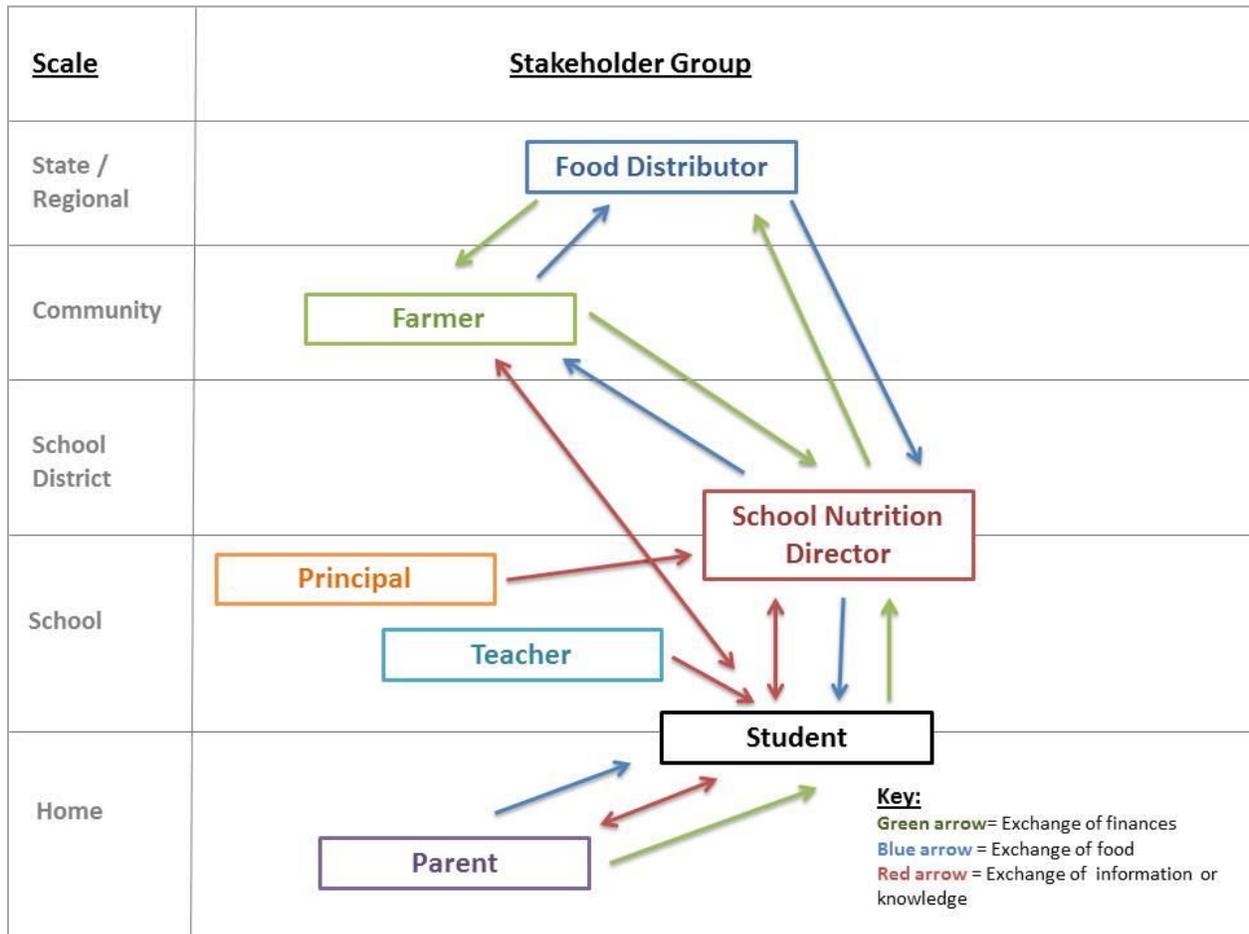


Figure 1. Map of farm to school stakeholders and potential exchanges. Used with permission of Routledge, Taylor & Francis Group, April 11, 2013.

Research completed that explores the participation of these seven stakeholder groups in the Farm to School movement is summarized below. This is followed by a review of the emerging research of agrifood service provider involvement in the Farm to School movement.

Farmer Participation in Farm to School

Farmers are an essential stakeholder within the Farm to School movement and are responsible for supplying the foods children consume as part of the National School Lunch

Program. Farmers can also act as key stakeholders helping educate children about where their food comes from, how food is grown/produced, and the importance of rural and agricultural economies. Farmers are also an essential clientele for educators and other agricultural service providers supporting the Farm to School movement. Farmers must fully understand the impacts of their participation within the Farm to School movement, and understand the issues regarding selling to local and regional school divisions (Conner, King, Koliba, Kolodinsky, & Trubek, 2011).

Current research investigating farmer participation in the Farm to School movement focuses on four main issues. These issues include 1) examining farmer income and current or potential economic impacts from Farm to School procurement (Berkenkamp, 2011; Campbell, Park, Silva, & Nayga, 2008; Carpio, Zapata, & Boonsaeng, 2010; Massachusetts Farm to School Project, 2011; Tuck, Haynes, King, & Pesch, 2010), 2) examining the attitudes and perspectives of farmers involvement in Farm to School (Berkenkamp, 2011; Conner, King, Kolodinsky, Roche, Koliba, & Trubek, 2012; Gregoire, Arendt, & Strohbehn, 2005; Izumi, Wright, & Hamm, 2010b; Oberholtzer, Hanson, Brust, Dimitri, & Richman, 2012), 3) examining farmer distribution practices selling to local and regional school divisions (Conner, King, Kolodinsky, Roche, Koliba, & Trubek, 2012), and 4) exploring the barriers of farmer involvement in Farm to School (Kloppenburger, Wubben, & Grunes, 2008; Vogt & Kaiser, 2006; Vogt, Kaiser, & Rucker, 2006). Researchers exploring farmer participation have employed a variety of research methods including surveys (Conner, King, Kolodinsky, Roche, Koliba, & Trubek, 2012; Izumi, Rostant, Moss, & Hamm, 2006; Schafft, Hinrichs, & Bloom, 2010), case studies (Izumi, Wright, & Hamm, 2010b; Vogt, Kaiser, & Rucker, 2006), and analyzing secondary research (Carpio, Zapata, & Boonsaeng, 2010).

To explore the potential economic impact of Farm to School programs in central Minnesota, Tuck, Haynes, King, and Pesch (2010) found that the annual economic impact of Farm to School programs in Central Minnesota ranges from \$20,000 for a monthly special meal to \$427,000 for sourcing a large amount Farm to School type products. Carpio, Zapata, and Boonsaeng (2010) found that three school divisions in western North Carolina were using a small but concentrated number of locally-grown/raised fresh fruits and vegetables and that there is room for growth in number of products sourced. While exploring attitudes and perceptions of farmer involvement in Farm to School, through a survey of farmers in Minnesota, Berkenkamp (2011) found that sixty percent of all respondents indicated that they are “very interested” in selling to K-12 schools, while ninety percent of respondents are “very” or “somewhat interested” in growing products specifically for a given school or district if the school made a commitment to purchase the product in advance.

To explore farmer motivation and distribution practices for participating in Farm to School programs, research has found that farmers sell products to local school districts for primarily two main reasons including market-based and socially-motivated reasons (Conner, King, Kolodinsky, Roche, Koliba, & Trubek, 2012; Izumi, Wright, & Hamm, 2010). Research supports the hypothesis that farmers who are economically motivated to sell to schools are more willing to incur transaction costs compared to farmers who are more socially motivated (Conner, King, Kolodinsky, Roche, Koliba, & Trubek, 2012). An assortment of research has found that while Farm to School programs are increasing in number, there still remains a number of structural barriers for farmer involvement such as the scale at which schools require food, the price point at which schools can purchase food, and the availability of local food processing facilities (Kloppenburger, Wubben, & Grunes, 2008). Overcoming these barriers can significantly

strengthen a farmer's ability to connect to schools as a market opportunity and more easily allow school nutrition directors to purchase local and regional foods from nearby farmers. The opportunity exists to scale-up local food production and develop new food processing facilities to support Farm to School. By doing so, the cost of local and regional food is likely to decrease. Additionally, research has found that a barrier to successful Farm to School programs is the burden of facilitating information and creating relationships through coordinated networks between farmers and school districts (Vogt & Kaiser, 2006; Vogt, Kaiser, & Rucker, 2006).

Food Distributor Participation in Farm to School

Food distributors have the opportunity to play an essential role in the Farm to School movement such as harnessing the potential of Farm to School to create viable markets for small- and mid-size family farmers, while connecting more locally-grown/raised fresh food to school cafeterias (Izumi, Wright, & Hamm, 2010a). Food distributors such as Sysco have become more interested in Farm to School programs in part as a way to meet the needs of school nutrition directors but also as a way to market their procurement activities (Kennedy, 2007). Local food system activists and advocates have questioned Sysco's and other dominant food distributor's intentions, and debated if food distributors undermine the embedded nature of local food systems and Farm to School programs (Ohmart & Markley, 2007). Because of a food distributor's ability to scale-up Farm to School programs, and help bring farmers and institutional markets together, research which explores the role of different food distributors in the Farm to School movement has the opportunity to lead to significant growth of Farm to School.

To date, research exploring food distributor participation in the Farm to School movement primarily examines two areas including 1) food distributor perspectives on their involvement with Farm to School (Izumi, Wright, & Hamm, 2010a), and 2) how food

distributors are facilitating Farm to School connections and value-chains between farmers and school nutrition directors (Conner, Nowak, Berkenkamp, Feenstra, Van Soelen Kim, Liquori, & Hamm, 2011; Marshall, Feenstra, & Zajfen, 2012). Research exploring the role of food distributors in Farm to School initiatives suggests that food distributors have the potential to play a critical role in the Farm to School movement by connecting local and regional farmers to nearby school districts but that their role is limited by structural issues such as procurement policies and the school year calendar (Izumi, Wright, & Hamm, 2010a). A recent case study of the San Diego Unified School District compliments previous research and found that food distributors were an important stakeholder in the Farm to School movement. Food distributors were found to support Farm to School goals and help local and regional farmers facilitate their products to a variety of school districts (Marshall, Feenstra, & Zajfen, 2012). Research examining how large school divisions can source more locally-grown/raised food for their Farm to School programs found that food distributors are important stakeholders in scaling up food systems. Through participation in the research, food distributors learned that school divisions were serious about local and regional food procurement and that stakeholder involvement to support Farm to School goals is critical to program success (Conner, Nowak, Berkenkamp, Feenstra, Van Soelen Kim, Liquori, & Hamm, 2011). To overcome barriers of providing local produce to Vermont schools, Roche & Kolodinsky (2010-2011) encourage communities to form local food distribution networks to connect Farm to School stakeholders across the supply-chain.

School Nutrition Director Participation in Farm to School

Like farmers, school nutrition directors are an essential stakeholder within the Farm to School movement. Incorporating local and regionally-grown/raised foods in school meals has an opportunity to improve student health and nutrition while supporting farmers, and agricultural or

rural communities (Vogt & Kaiser, 2006). School nutrition directors have worked to help lead the growth of Farm to School programs (National Farm to School Network, 2012), and many local, regional, and national organizations have worked to improve their ability to incorporate more local and regionally-grown/raised foods in school meals. As a result of the USDA *Know Your Farmer, Know Your Food* initiative, during 2010, the USDA Farm to School Team visited 15 school districts across the country that were involved in Farm to School related activities to understand the challenges and opportunities faced by Farm to School efforts. The USDA especially focused on understanding the challenges and opportunities faced by school nutrition directors, and as a result found that a school district's food service infrastructure significantly influences school nutrition director's efforts to incorporate local and regionally-grown/raised foods in school meals (United States Department of Agriculture, 2011c).

Research exploring school nutrition director participation in the Farm to School movement explores a number of issues including their participation levels and perspectives towards Farm to School (Colasanti, Matts, & Hamm, 2012; Conner, Abate, Liquori, Hamm, & Peterson, 2010; Graham, Feenstra, Evans, & Zidenberg-Cherr, 2004; Gregoire & Strohbehn, 2002; Institute for Agriculture and Trade Policy & Minnesota School Nutrition Association, 2010; Izumi, Alaimo, & Hamm; 2010; Izumi, Rostant, Moss, & Hamm, 2006; Oberholtzer, Hanson, Brust, Dimitri, & Richman, 2012; Roche & Kolodinsky, 2011; Schafft, Hinrichs, & Bloom, 2010; Strohbehn & Gregoire, 2001; Vogt & Kaiser, 2006), school nutrition directors as Farm to School leaders (Bagdonis, Hinrichs, & Schafft, 2009), school nutrition directors incorporating more scratch cooking with Farm to School products (Stanley, Colasanti, Conner, 2012), and how to link school nutrition directors to local and regional farmers (Vogt, 2006).

The majority of research exploring school nutrition involvement in the Farm to School movement has been state-based using surveys (Izumi, Alaimo, & Hamm, 2010; Oberholtzer, Hanson, Brust, Dimitri, & Richman, 2012; Schafft, Hinrichs, & Bloom, 2010; Vogt & Kaiser, 2006). Research that surveyed school nutrition directors in Pennsylvania found that slightly over half of respondents had heard of Farm to School but did not really know what was involved. Additionally, approximately one-third of respondents served meals featuring local or Pennsylvania foods (Schafft, Hinrichs, & Bloom, 2010). A study of California school nutrition directors found greater student participation levels (almost half) while sourcing locally-grown/raised food (Vogt & Kaiser, 2006). In Maryland, research found that nearly all public school nutrition directors (94%) purchased local foods for school meals (Oberholtzer, Hanson, Brust, Dimitri, & Richman, 2012).

Research exploring school nutrition director participation levels and perspectives towards Farm to School found that from 2004 to 2009, Michigan school nutrition directors increased participation in Farm to School threefold, and that the majority of school districts (77%) had taken at least one step to connect local farm products with local school meals (Colasanti, Matts, & Hamm, 2012). Researchers also found that small budgets and high costs of local food were the two largest barriers to local food procurement but that education could play an important role in reducing perceived limits to Farm to School involvement (Colasanti, Matts, & Hamm, 2012). In Maryland, researchers found that the biggest reported barrier for public schools sourcing locally-grown/raised food was seasonal availability of foods (Oberholtzer, Hanson, Brust, Dimitri, & Richman, 2012), whereas in California, the biggest barrier was found to be the cost of locally-grown/raised food (Vogt & Kaiser, 2006). Less established in the literature has been barriers related to Farm to School support and training opportunities for school nutrition directors (Izumi,

Rotant, Moss, & Hamm, 2006; Oberholtzer, Hanson, Brust, Dimitri, & Richman, 2012; Schafft, Hinrichs, & Bloom, 2010; Vogt & Kaiser, 2006). School nutrition directors in California and Michigan were found to be highly motivated to source locally-grown/raised food because it provided access to fresher food (Izumi, Rostant, Moss, & Hamm, 2006; Vogt & Kaiser, 2006). To overcome one of the identified barriers of Farm to School participation, and the lack of knowledge about local and regional farmers, a project in California found that the development of a relational database linking supply-chain stakeholders was helpful, and suggested this as one method to better connect diverse Farm to School program stakeholders (Vogt, 2006).

Student and Parent Participation in Farm to School

The home is the most local level relevant to Farm to School programming because it is where students generally spend the majority of their time, consume many of their daily calories, and adopt many of their cultural and nutritional habits (Conner, King, Koliba, Kolodinsky, & Trubek, 2011). Parents can help coordinate or participate in Farm to School activities at schools, and students can help change the home food environment through changes in their knowledge and preferences while participating in Farm to School activities (Joshi, Azuma, & Feenstra, 2008). Parent involvement in school activities has shown to improve student academic performance and foster lower dropout rates (Eccles & Harold, 1996; Hill, Castelino, Lansford, Nowlin, Dodge, Bates, & Pettit, 2004). Through participation in the National School Lunch Program, students of low-income households can participate in Farm to School programs that increase their food security while improving their health and nutrition (Kabbani & Kmeid, 2005; Winicki, 2001).

Research exploring student participation in the Farm to School movement focuses on a variety of issues and primarily employs quasi-experimental approaches (Mabie & Baker, 1996; McAleese & Rankin, 2007; Morgan, Warren, Lubans, Saunders, Quick, & Collins, 2010; Morris,

Neustadter, & Zidenberg-Cherr, 2001; Morris & Zidenberg-Cherr, 2002; Parmer, Salisbury-Glennon, Shannon, & Struempfer, 2009; Prelip, Kinsler, Thai, Erausquin, & Slusser, 2012; Ratcliffe, Merrigan, Rogers, & Goldberg, 2011; Robinson & Zajicek, 2005) and to a lesser extent questionnaires (Lineberger & Zajicek, 2000). Research examining parent participation is less developed, and has primarily employed a quasi-experimental approach (Heim, Bauer, Stang, & Ireland, 2011). Research exploring student participation in the Farm to School movement has concentrated primarily in four areas including examining changes in student attitudes and knowledge about food, health/nutrition, and agriculture (Canaris, 1995; Cason, 1999; Lineberger & Zajicek, 2000; Mabie & Baker, 1996; Morgan, Warren, Lubans, Saunders, Quick, & Collins, 2010, Morris, Neustadter, & Zidenberg-Cherr, 2001; Morris & Zidenberg-Cherr, 2002; Parmer, Salisbury-Glennon, Shannon, & Struempfer, 2009; Prelip, Kinsler, Thai, Erausquin, & Slusser, 2012; Ratcliffe, Merrigan, Rogers, & Goldberg; Triplett, 2011; Robinson & Zajicek, 2005; Wang et al., 2010), examining changes in student behavior and consumption of healthy foods including fresh fruits and vegetables (Cason, 1999; Lineberger & Zajicek, 2000; McAlesse, & Rankin, 2007; Morgan, Warren, Lubans, Saunders, Quick, & Collins, 2010; Morris, Neustadter, & Zidenberg-Cherr, 2001; Parmer, Salisbury-Glennon, Shannon, & Struempfer, 2009; Prelip, Kinsler, Thai, Erausquin, & Slusser, 2012; Triplett, 2011; Wang et al., 2010), exploring student preferences towards locally-grown/raised food (Feenstra, 2000; Robinson-O'Brien, Larson, Neumark-Sztainer, Hannan, & Story, 2009), and investigating how different types of Farm to School instructional techniques influence student learning and behavior (O'Brien & Shoemaker, 2006; Roche, Conner, Kolodinsky, Buckwalter, Berlin, & Powers, 2012).

Overall, much of the research exploring the influence of school garden experiences on student knowledge and attitudes about food, health/nutrition, or agriculture has showed positive

impacts (Lineberger & Zajicek, 2000; Mabie & Baker, 1996; Morris & Zidenberg-Cherr, 2002; Parmer, Salisbury-Glennon, Shannon, & Struempfer, 2009; Prelip, Kinsler, Thai, Erasquin, & Slusser, 2012; Ratcliffe, Merrigan, Rogers, & Goldberg, 2011; Wang et al., 2010). Additionally, similar research has showed that students are generally more likely to taste or eat more fresh fruits and vegetables when participating in garden-based teaching and learning programs (Langellotto & Gupta, 2012; McAleese & Rankin, 2007; Morgan, Warren, Lubans, Saunders, Quick, & Collins, 2010; Morris, Neustadter, & Zidenberg-Cherr, 2001; Morris & Zidenberg-Cherr, 2002; Parmer, Salisbury-Glennon, Shannon, & Struempfer, 2009; Ratcliffe, Merrigan, Rogers, & Goldberg, 2011; Wang et al., 2010). For example, Wang et al. (2010) found that implementing a comprehensive school intervention that included transforming school food service, offering cooking and gardening programs, and integrating nutrition and food system topics into the academic curriculum increased the consumption of fruits and vegetables by almost one standard serving for fourth and fifth graders. Additionally, this same research study found that this intervention significantly increased student preferences for fruit and green leafy vegetables. Similarly, Morgan et al. (2010) found that school gardens can positively impact primary school students' willingness to taste vegetables. While much of the literature confirms similar results, researchers acknowledge the need for more investigation to further explore the validity of these findings (Morgan, Warren, Lubans, Saunders, Quick, & Collins, 2010; Ratcliffe, Merrigan, Rogers, & Goldberg, 2011; Wang et al., 2010).

Research completed by Robinson-O'Brien, Larson, Neumark-Sztainer, Hannan, and Story (2009) found that one in five adolescents in Minnesota (20.9%) reported that it was "somewhat important" or "very important" for their food be locally-grown/raised and almost one in four adolescents (23.2%) stated that it was "important" for their food to be organic. Feenstra

(2000) reports that the Berkeley Unified School District saw a 46 percent increase in school meal participation when schools included fresh, locally-grown produce in school meals. Additionally, Feenstra (2000) found that 80 percent of the students chose to consume a meal made with food from the farmer's market rather than the standard hot meal not made with food from the farmers market. When describing the inclusion of local and regional foods, one student raved, "this food is 'the bomb'" (Feenstra, 2000, p. 10). Furthermore, researchers found that Farm to School teaching/learning could benefit by employing a social cognitive approach to student instruction (*i.e.*, an approach that emphasizes the environment, personal characteristics, and personal experience) (O'Brien & Shoemaker, 2006; Roche, Conner, Kolodinsky, Buckwalter, Berlin, & Powers, 2012). This is a particularly important finding for school teachers and non-formal educators such as Cooperative Extension agents/educators.

Research focused on parent participation in the Farm to School movement has primarily explored two areas including how garden-based fruit and vegetable interventions for grade school children have changed the home food environment (Heim, Bauer, Stang, & Ireland, 2011), and parent involvement in school gardens (Azuma, Horan, & Gottlieb, 2001). Heim, Bauer, Stang, and Ireland (2011) found that garden-based school interventions improved the home food environment, children asked for more fruits and vegetables while at home, and parent's value for fresh fruits and vegetables improved. Additionally, while completing a case study of school gardens in the Los Angeles Unified School District, Azuma, Horan and Gottlieb (2001) found that most parents (63%) were involved with school gardens.

Teacher and Administration Participation in Farm to School

Because of the involvement of teachers, school administration, students, school nutrition directors, and other school staff members, schools can be considered the most notable places for

participation in the Farm to School movement (Conner, King, Koliba, Kolodinsky, & Trubek, 2011). Schools can play a particularly important role in addressing the unintended ecological, social, educational, and economic harms of the dominant agrifood system (Carlsson & Williams, 2008). Teachers and school administrators are likely involved with both components of Farm to School, local and regional food procurement, and Farm to School experiential learning programs. Teachers are considered a core actor at the school level, and are primarily responsible for the educational component of Farm to School. Farm to School activities that teachers can lead include taking students on field trips to farms, facilitating farmers as guest speakers at schools, implementing and coordinating school garden projects or other types of Farm to School experiential learning activities. Studying agriculture, food, and natural resources in school classrooms can bring learning to life (Knobloch, 2008). Principals can participate in the Farm to School movement by designing and encouraging activities that promote Farm to School, such as encouraging teachers to implement school gardens or school cafeteria staff to complete farm to cafeteria procurement (Conner, King, Koliba, Kolodinsky, & Trubek, 2011). In West Virginia, Mason County Principal Don Bower recently supported their efforts to include locally-grown/raised food in school lunches by stating, “From the beef for the hamburgers and the wheat ground into flour to bake the buns to the watermelon and peppers on the garden bar, all of it was raised or grown in Mason County. It’s not fancy, but everything is homegrown” (West Virginia Department of Education, 2012).

Research investigating teacher and administration participation in the Farm to School movement is less documented than many of the other Farm to School movement stakeholders such as farmers, school nutrition directors, and students. When exploring teacher participation in the Farm to School movement, research primarily focuses in three areas including examining the

perceptions and attitudes of elementary school teachers associated with school gardens and other Farm to School experiential learning programs (Graham, Feenstra, Evans, & Zidenberg-Cherr, 2004; Graham & Zidenberg-Cherr, 2005; Knobloch, 2008; Skelly & Bradley, 2000; Thorp & Townsend, 2001), perceptions and participation in school meal programs when sourcing locally-grown/raised food (Center for Food & Justice, 2006; Graham, Feenstra, Evans, & Zidenberg-Cherr, 2004; Schmidt, Kolodinsky, & Symans, 2006), and broadly understanding how school gardens impact teacher behavior (Thorp & Townsend, 2001). When examining the impact of incorporating locally-grown/raised food in school meals, one research study found that 71% of surveyed teachers reported a change in their dietary behaviors as a result of a Farm to School program (Schmidt, Kolodinsky, & Symans, 2006). Similarly, another study reported that more teachers participated in the school meal program when it sourced Farm to School products (6 lunches per month compared to 133 lunches per month) (Center for Food & Justice, 2006).

When examining the perceptions and attitudes of elementary school teachers associated with school gardens and other Farm to School experiential learning programs, research has found that teachers perceive school gardens to be “somewhat” to “very effective” at enhancing academic performance, physical activity, language arts, and healthful eating habits (Graham & Zidenberg-Cherr, 2005). Knobloch (2008) found that two factors primarily explained the integration of agriculture, food, and natural resource topics into classrooms including if the teacher found the topic to fit into academic subjects and if the teacher saw educational value of integrating the topics into the curriculum. Research has also found that the majority of teachers surveyed (84%) rated providing nutrition-related curriculum and gardening education as “moderate to very important”. Additionally, the majority of surveyed teachers (82%) stated that they were somewhat to very interested in having a nutrition expert teach nutrition in their classrooms

(Graham, Feenstra, Evans, & Zidenberg-Cherr, 2004). Furthermore, Thorp and Townsend (2001) found that school gardens were an important place for teacher and student self-expression, creativity, and innovation. Finally, having a dedicated committee made up of a variety of individuals including teachers and administrators to assist with school gardens was found to be the most important step toward success (Hazzard, Moreno, Beall, & Zidenberg-Cherr, 2011).

Research exploring school administration participation in the Farm to School movement is almost non-existent (Joshi, Azuma, & Feenstra, 2008), and primarily explores the attitudes and perceptions of school principals towards the use of school gardens in academic instruction (Graham, Beall, Lussier, McLaughlin, & Zidenberg-Cherr, 2005). A study by Graham, Beall, Lussier, McLaughlin, and Zidenberg-Cherr (2005) found that of the surveyed California principals, the most frequent reason for having a school garden was for the enhancement of academic instruction. Additionally, this study found that school gardens were mostly used to teach science, environmental studies, and nutrition. Surveyed principals were found to “strongly agree” that there was a need for additional resources and curriculum to link school gardens to academic instruction, and that there was a need to better link school gardens to the school meal program (Graham, Beall, Lussier, McLaughlin, & Zidenberg-Cherr, 2005).

Agrifood Service Provider Participation in Farm to School

In addition to research on food system stakeholders and school system stakeholders participating in the Farm to School movement, there is an emerging body of research beginning to explore the role of agrifood service provider’s in the Farm to School movement (Alexander, North, & Hendren, 1995; Hermann, Parker, Brown, Siewe, Denney, & Walker, 2006; Nowak, Kolouch, Schneyer, & Roberts, 2012; Srinivasan, 2011). Srinivasan (2011) explores the role of an agrifood service provider acting as a meta-leader while coordinating Farm to School activities

in Kentucky. Srinivasan (2011) found that drawing on the meta-leader framework, the service provider was able to “leverage the resources of several organizations across public and private sectors” (Srinivasan, 2011, p. 345). This approach allowed for the Farm to School program to create impact well beyond the meta-leader’s involvement (Srinivasan, 2011). Nowak, Kolouch, Schneyer, and Roberts (2012) summarize the results of Slow Food Denver partnering with the Denver Public Schools to create a Farm to School program (*i.e.* Seed-To-Table). These authors state that through this work, students are starting to increase their food literacy and begin to value healthy food in their lives. Nowak, Kolouch, Schneyer, and Roberts (2012) assert that the success of the Seed-To-Table program was in large part because of adult volunteers acting as service providers. Similarly, Alexander, North, and Hendren (1995) found that through the creation of a classroom garden project developed in partnership between Cooperative Extension Master Gardeners and the San Antonio Independent School District, students improved their gardening and social skills, and acquired a greater appreciation of food production. Furthermore, Hermann, Parker, Brown, Siewe, Denney, and Walker (2006) found that an Oklahoma Cooperative Extension Service after-school education and gardening program improved vegetable intake and physical activity levels of participants on a daily basis. Together, research is beginning to indicate that agrifood service providers play a role in developing local and regional Farm to School programs that improve the consumption of locally-grown/raised fresh foods. With the Cooperative Extension Service having the explicit mission to improve individual lives and communities through educational programs, what is Extension’s role in Farm to School?

The Cooperative Extension Service: A New Partner for the Farm to School Movement

According to Conner, Cocciarelli, Mutch, and Hamm (2008), nearly everyone can support community food systems because community food systems have the opportunity to find

solutions to a wide variety of complex, social problems related to public health, economic development, and land use (Conner & Levine, 2007). With community food systems ability to potentially aid in addressing these issues, Conner, Cocciarelli, Mutch, and Hamm (2008) believe that it makes sense for Cooperative Extension to support community food systems through educational and community development programs. Raison (2010) echoes these claims by claiming that nationally, Cooperative Extension is well positioned to collectively influence the development and growth of community food systems. With most state Extension systems having dedicated personnel in four program areas (*i.e.*, 4-H Youth Development, Agriculture and Natural Resources, Family and Consumer Sciences, and Community Development), new education and research teams can be developed around community food systems (Raison, 2010). Furthermore, by possessing traditional program delivery skills in combination with community capacity-building facilitation skills, it makes sense to believe that Extension can play a major role in fostering community food system development. Conner, King, Koliba, Kolodinsky, and Trubek (2011) group Cooperative Extension as part of the state governmental system, and emphasize that Extension systems primarily support Farm to School through their research and educational/outreach programs to teachers and farmers. Dunning, Creamer, Lelekacs, O'Sullivan, Thraves, and Wymore (2012) describe Extension agents/educators engaged in food systems work as institutional entrepreneurs, and assert that these individuals have the opportunity to transform Cooperative Extension Systems while strengthening the food systems in which they are embedded in.

Fitzgerald and Spaccarotella (2009) proclaim that Cooperative Extension agents/educators can help reduce the barriers to healthy eating through a number of strategies including helping limited-resource individuals learn how to select more healthful foods and

stretch their dollars throughout the month, supporting community partnerships and policies that promote easy access to healthier food options, and taking an active part in school wellness policies or collaborating with local businesses to promote wellness in worksites. Fitzgerald and Spaccarotella (2009) list Farm to School as one program with the potential for promoting a healthy lifestyle. In North Carolina, Dunning, Creamer, Lelekacs, O’Sullivan, Thraves, and Wymore (2012) found that Extension agents/educators were successful in convening community food system programs, and in 2012, local foods was designated “a flagship Cooperative Extension program for the state” (p. 9). In Virginia, Benson, Hightower, Bendfeldt, Tyler-Mackey, Niewolny, and Groover (2012) found that Extension played an important role in completing a statewide food system assessment, and these authors encouraged other agrifood groups to explore working with Cooperative Extension to develop community food systems. However, if Cooperative Extension has a role to play in strengthening community food systems through the Farm to School movement, what activities, strategies, and goals should it prioritize? And how can Farm to School initiatives be supported by Cooperative Extension when Extension continues to be put on the defensive through budget cuts and the growth of anti-government and anti-intellectual sentiments (Peters & Franz, 2012).

Connecting Extension to Community Development and Community Food Systems

The Cooperative Extension Service began as a result from passage of the Smith-Lever Cooperative Extension Act, passed by Congress in the spring of 1914, and signed into law by President Wilson on May 8, 1914 (Cochran, 1993). The Morrill Act of 1862, was an outgrowth of the lack of resources devoted to agriculture at that time, and created the Land-Grant System allowing for the development of the Cooperative Extension Service (Seevers, Graham, Gamon, & Conklin, 1997). The Land-Grant System was first created so that:

“at least one college in each state where the leading object shall be, without excluding other scientific or classical studies to teach such branches of learning as are related to agriculture and the mechanical arts, as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life” (Eddy, 1957, p. 31).

The original mission of the Cooperative Extension Service was to “...aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics, and to encourage the application of the same” (Seevers, Graham, Gamon, & Conklin, 1997, p. 7). The Cooperative Extension Service was meant to act as a vehicle for human development through non-formal, off-campus education aimed at rural populations. It focused its curriculum in agricultural sciences, home economics, and youth development (Seevers, Graham, Gamon, & Conklin, 1997). This connection to the Land-Grant University System, and an exceptional research base, sets Cooperative Extension apart from many of the other non-formal education providers (Warner, Hinrichs, Schneyer, & Joyce, 1998). Over the years, Cooperative Extension programs have evolved to include other topics, and today, its programs focus in six major areas including 4-H youth development, agriculture, leadership development, natural resources, family and consumer sciences, and community and economic development. Although the number of local Cooperative Extension offices has declined in recent the years, approximately 2,900 local offices still exist nationwide (United States Department of Agriculture, 2012f).

Community development became an official program area for Cooperative Extension in 1993, and differs from the three original program areas in that it is not likely to have a full-time

Extension agent/educator at the local level and is process-oriented rather than content-oriented (Seevers, Graham, Gamon, & Conklin, 1997). The goal of the Extension community development program is to “improve the social and economic well-being of communities through group action” (Seevers, Graham, Gamon, & Conklin, 1997, p. 85). Unlike the other program areas who mainly work with individuals, community development agents/educators mostly work with groups on issues related to leadership, public policy, economic development, and community services and facilities. Community development agents/educators may have the opportunity to work on interdisciplinary programs that address multiple issues to meet local needs (Seevers, Graham, Gamon, & Conklin, 1997), such as those relating to strengthening community food systems.

Although community development agents/educators can fill a number of needs related to supporting community food system growth, one of the most pressing needs is matching the supply of local and regional food to the demand by institutions, organizations, and consumers (Green & Robinson, Jr., 2011). Specifically related to Farm to School programs, community development agents/educators and practitioners can help reestablish community kitchens or community owned facilities to help small producers connect to schools as markets (Green & Robinson, Jr., 2011). Community development agents/educators can also play a number of other roles such as facilitating food system collaborations (Thomson, Abel, & Maretzki, 2001), or supporting farmers who are interested in growing products for local markets (Green & Robinson, Jr., 2011). To accomplish these types of goals, community development agents/educators can play a variety of roles including providing evidence of the need (*i.e.*, needs assessment), pulling together a list of community resources, and promoting collective action (Green & Robinson, Jr., 2011).

An Emerging Focus on Community Food System Development in Extension

Over the last several years, Cooperative Extension has begun to recognize, discuss, and validate the emerging discourse around sustainable agriculture (New Mexico State University, 2011; University of Maryland Extension, 2009; University of Wisconsin-Extension, 2012), community food security (Lutz, Place, & Swisher, 2007), and more recently community food systems (Colasanti, Wright, & Reau, 2010; Conner, Cocciarelli, Mutch, & Hamm, 2008). While unheard of just a few years ago, more and more Cooperative Extension Systems are developing program areas to support community food systems (University of Maine, 2012; Michigan State University Extension, 2012; Virginia Cooperative Extension, 2012), and explicitly support Farm to School programs (The Ohio State University Extension, 2012a; University of Illinois Extension, 2012; University of Minnesota Extension, 2012). Additionally, in 2012, the national eXtension initiative supported the development of a community of practice focused on community, local, and regional food systems (eXtension, 2012).

While Cooperative Extension has historically been slow to engage in sustainable agriculture, community food security, and community food system development work, research related to these emerging discourses has been focused in several areas including supporting local or community food system development (Conner, Cocciarelli, Mutch, & Hamm, 2008; Dougherty & Green, 2011; Raison, 2010; Remley, Broadwater, Jordan, Allen, & Ehlers, 2009; Sharp, Clark, Davis, Smith, & McCutcheon, 2011; Thomson, Abel, & Maretzki, 2001; Thomson, Radhakrishna, Maretzki, & Inciong, 2006; Timmons, Wang, & Lass, 2008), strengthening food access and justice (Ohri-Vachaspati, Masi, Taggart, Konen, & Kerrigan, 2009), coordinating direct marketing initiatives (Bagdonis, Thomson, & Altemose, 2008; Burrows, 2008; Sharp, Imerman, & Peters, 2002), developing a more sustainable agricultural system (Boone, Jr.,

Hersman, Boone, & Gartin, 2007; Brunson & Price, 2009; Conner & Kolodinsky, 1997; Drost, Long, Wilson, Miller, & Campbell, 1996; Minarovic & Mueller, 2000), and more broadly improving healthy behaviors and lifestyles (Fitzgerald & Spaccarotella, 2009). There continues to be an increasing and emerging opportunity for Land-Grant Universities and Cooperative Extension Systems to address the changes taking place in, or as a result of, the globalized agrifood system (Colasanti, Wright, & Reau, 2009).

When examining issues related to community food systems, research has primarily focused on the needs and roles of Cooperative Extension, as well as the tools available for them to draw on. Current research to date has explored the role of Cooperative Extension in the local foods movement (Raison, 2010), described methods Cooperative Extension can employ to forge new partnerships and facilitate community dialogues to support community food systems (Conner, Cocciarelli, Mutch, & Hamm, 2008; Thomson, Abel, & Maretzki, 2001), evaluated the effectiveness of Extension programming on community food system issues (Remley, Broadwater, Jordan, Allen, & Ehlers, 2009), and identified the training needs of Extension related to community food systems (Thomson, Radhakrishna, Maretzki, & Inciong, 2006). Additionally, research has provided information about ways Cooperative Extension professionals can estimate demand for local foods and potential economic impacts (Knight & Chopra, 2013; Sharp, Clark, Davis, Smith, & McCutcheon, 2011; Timmons, Wang, & Lass, 2008) and explored how word of mouth techniques can facilitate local food tourism networks (Dougherty & Green, 2011). From this review, an individual can conclude that Cooperative Extension is playing a role in the local foods movement but has yet to fully embrace the movement. Additionally, one can conclude that Cooperative Extension has yet to fully embrace its ability to impact the Farm to School movement. A study by Oberholtzer, Hanson, Brust, Dimitri, & Richman (2012) which

examines farmer and school nutrition director involvement in the Maryland Farm to School program connects implications of the research to Extension, and suggests ways for Extension to become more involved with Farm to School activities. Oberholtzer, Hanson, Brust, Dimitri, & Richman (2012) suggest for Extension professionals to hold county-based meetings on Farm to School or help develop local and regional food aggregation and distribution systems that can help the distribution of this type of food to school cafeterias. Another study by Dimitri, Hanson, and Oberholtzer (2012) also suggests that there is a clear role for Cooperative Extension in Maryland in the Farm to School movement. These authors assert that Extension can be involved in information provision about using local foods in school meals, helping farmers understand which type of crops they can market to schools for inclusion in a school meals program, or helping setup new distribution channels and systems to better connect local foods to schools.

An Opportunity for Rebirth and Transformation in Cooperative Extension

The current mission of Cooperative Extension is to enable people to improve their lives and communities through learning partnerships that put knowledge to work (Extension Committee on Organization and Policy, 1995). This mission acknowledges that the focus of Extension has broadened from its original mission, and that today's needs are different than when the Extension System was first created. This updated mission statement also acknowledges that today's approach to education must be different than the traditional approach and instead, an educators role must be more like that of an 'educational missionary,' "transforming the quality of people's lives and contributing to their development as human beings through education" (Seevers, Graham, Gamon, & Conklin, 1997). Raison (2010) repeats these claims and asserts his belief that the traditional teaching/learning approach of imparting expert research and knowledge to Cooperative Extension clientele no longer provides the value that it once did and, that at its

core Cooperative Extension is a grassroots effort built on engagement to make social change (Peters, O’Connell, Alter, & Jack, 2006). Peters, O’Connell, Alter, and Jack (2006) assert that the Cooperative Extension Service is not just about the delivery of information, but serves a far more important function such as being a “non-neutral force for change” (Peters, O’Connell, Alter, & Jack, 2006, p. 16). These authors acknowledge the tension between old and new educational methods, and proclaim the Cooperative Extension Service as a “catalyst or agent of change” (p. 16).

The argument that Cooperative Extension is positioned for rebirth can be developed by taking a somewhat different view, by looking at Extension program areas. With most state Extension systems having program areas in agriculture, community, family, and youth development, Extension is well positioned to not only support community food system development, but particularly support the Farm to School movement. Additionally, it is well positioned to work with the diversity of Farm to School stakeholders including farmers, food distributors, school nutrition directors, school principals, teachers, parents, and students. The Farm to School movement is deeply concerned about the goals of each of the four Extension program areas (Feenstra & Ohmart, 2012), and in some states the National Farm to School Network collaborates with Extension as a strategic partner (National Farm to School Network, 2012a). Raison (2011) proclaims that agricultural extension education is not yet dead, but that if the profession does not take seriously the warning signals calling for change, funding will not likely continue and resources may dry up. Raison (2011) stresses the need for Extension to embrace alternative methods for helping clientele access information and resources, and for Extension agents/educators to act more as facilitators of information in participatory processes, rather than as simply teachers imparting knowledge. This warning/call is not something new to

Extension. Hightower (1973) in his ground-breaking book, *Hard Tomatoes, Hard Times*, critiques Cooperative Extension for its perceived failure to serve the interests of rural people and find solutions to help their lives. Hightower (1973) claims that the Land-Grant University complex is hindered by a close connection to “agriculture’s industrialized elite” (p. 1). Conner, Cocciarelli, Mutch, and Hamm (2008) state that diverse, multi-stakeholder collaborations supporting community food system development have great potential to contribute to addressing community development issues and Extension is poised to play a role in these initiatives. Conner, Cocciarelli, Mutch, and Hamm (2008) even found that local food system development teams lacking strong leadership and support from Cooperative Extension floundered, while groups with strong input and support from Cooperative Extension flourished (Conner, Cocciarelli, Mutch, & Hamm, 2008). If involvement from Cooperative Extension is important to support community food systems, is Cooperative Extension support important to the Farm to School movement?

A Conceptual Framework to Explore the Role of Cooperative Extension in the Farm to School Movement

This study combines two theory-bases to explore the role of Cooperative Extension in the Farm to School movement. This includes drawing on the theory of reasoned action (Fishbein & Ajzen, 2010) and social movement theory (Eyerman & Jamison, 1991; Stevenson, Ruhf, Lezberg, & Clancy, 2007). Drawing on these two theory-bases allows for this research study to explore unique elements regarding the role of Cooperative Extension in the Farm to School movement and its ability to create change. Figure two (below) shows how these separate theory-bases relate to each other and tie together to explore the role of Cooperative Extension in the Farm to School movement.

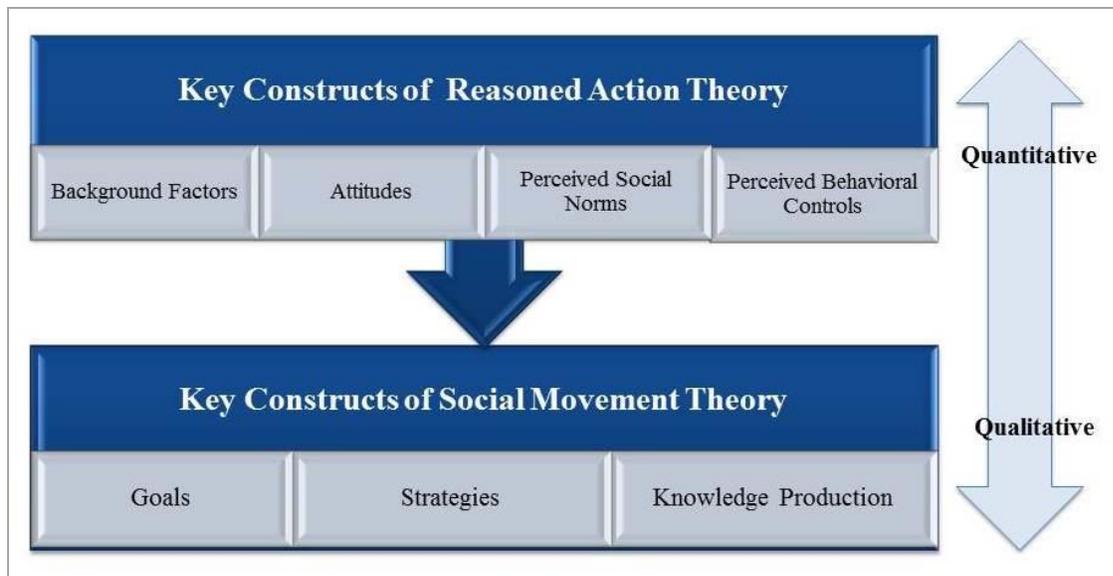


Figure 2. The relationship and integration of each theory-base to explore the role of Extension in the Farm to School movement.

Assessing Behavioral Intentions for Food System Change through the Theory of Reasoned Action

According to Fishbein and Ajzen (2010), the behaviors people perform in their daily lives can have a profound impact on their own health and well-being, on the health and well-being of other individuals, groups, and organizations, and on society at large. While it may seem that understanding behavior requires the development of unique explanatory constructs, Fishbein and Ajzen (2010) argue that human behavior is not that complicated. These authors argue that individuals approach different kinds of behavior similarly and that the same limited set of constructs can be applied to understand any behavior of interest. Fishbein and Ajzen (2010) assert the theory of reasoned action as a unifying framework which incorporates unique constructs from divergent disciplinary perspectives to predict and explain human social behavior. Donovan (2011) describes the theory of reasoned action as one of the most widely used models in social psychology and one of the most developed types of the cognitive decision models employed to analyze behavior change.

Martin Fishbein and Icek Ajzen have a long history of evaluating human behavior change. In 1980, Fishbein and Ajzen published their first joint book, *Understanding Attitudes and Predicting Social Behavior*, which tried to familiarize individuals with their theoretical approach and show how a small number of constructs could be used to predict and explain human behavior in a variety of settings (Fishbein & Ajzen, 1980; Fishbein & Ajzen, 2010). In this book, Fishbein and Ajzen developed the original theory of reasoned action (Fishbein & Ajzen, 1980). Following this original work, Ajzen (1985, 1987, 1988, 1991) developed a series of publications building on and adding to the theory of reasoned action (Fishbein & Ajzen, 1980), and in doing so, Ajzen developed the theory of planned behavior (Ajzen, 1991). The theory of planned behavior asserts that behavior change can be predicted with high accuracy by examining the attitudes towards the behavior, subjective norms about the behavior, and perceptions of behavioral control (not to be confused with locus of control) (Ajzen, 1991). Singularly, each of these dispositions and traits were found to provide poor predictive validity, however, the aggregation of an individual's attitudes, subjective norms, and perceived behavioral control have shown to account for considerable variance in actual behavior (Ajzen, 1991). The theory of planned behavior differs from the original theory of reasoned action by including perceived behavioral control as a construct (Ajzen, 1991; Fishbein & Ajzen, 1980). The theory of planned behavior shows that together, an educators or educational programs ability to change an individual's attitude toward the behavior, subjective norms around the behavior, and perceived behavioral control can influence ones intention to perform that behavior, in turn helping lead to human behavior change (Ajzen, 1991). Intentions are assumed to capture the motivational factors that influence a behavior and are a central factor in the theory of planned behavior (Ajzen, 1991). Intentions can be described as indications of how hard people are willing

to try, or how much of an effort an individual is planning to exert in order to perform that behavior (Ajzen, 1991). In other words, behavior change is more likely to occur with stronger intentions to engage in that behavior (Ajzen, 1991).

Drawing on Ajzen (1985, 1987, 1988, 1991), Ajzen and Fishbein (1969, 1970, 1977), and Fishbein and Ajzen, (1980), Martin Fishbein and Icek Ajzen updated their original theory of reasoned action to develop a richer model (Fishbein & Ajzen, 2010). In addition to other topics, this approach has been used to account for behavior change regarding health and safety, politics, marketing, the environment, and the workplace (Fishbein & Ajzen, 2010). By reviewing the research in three distinct behavioral domains, organizational behavior, political behavior, and discriminatory behavior, Fishbein and Ajzen (2010) show that neither demographic characteristics, nor personality traits, nor general attitudinal dispositions account for much variance in any particular behavior. These authors assert that the updated reasoned action model is the best conceptual framework available to account for any social behavior of current interest. Fishbein and Ajzen (2010) believe that the reasoned action model has the ability to explain and predict behavior change (Fishbein & Ajzen, 2010).

The theory of reasoned action suggests that intentions are the best single predictor of human behavior. Reasoned action theory suggests that intentions are influenced by a set of behavioral beliefs, normative beliefs, and control beliefs (Fishbein & Ajzen, 2010). These three beliefs respectively influence an individual's attitudes toward the behavior, perceived norms towards the behavior, and perceived behavioral controls of the behavior (Fishbein & Ajzen, 2010). An attitude is a latent disposition or tendency to respond favorable or unfavorable to some degree towards a particular behavior. Fishbein and Ajzen (2010) assert that researchers should employ a semantic differential scale question, first developed by Charles Osgood and his

associates in 1957, to measure an individual's overall attitude toward a behavior. A perceived norm is an individual's perceived social pressure to perform a behavior, and an individual's perceived behavioral control is the belief in control of the behavioral performance (Fishbein & Ajzen, 2010). Fishbein and Ajzen (2010) acknowledge that an individual's perceived behavioral control is similar to Bandura's concept of self-efficacy. Each of these predictors of intention can take on different weights, meaning that these predictors can influence intentions and ultimately behavior change differently (Fishbein & Ajzen, 2010). In other words, the relative importance of these different predictors can vary from person to person (or one population to another) and impact behavior change differently (Fishbein & Ajzen, 2010).

The reasoned action approach recognizes the importance of a variety of background factors such as an individual's gender, age, education, value-system, income, and takes these variables into account (Fishbein & Ajzen, 2010). However, Fishbein and Ajzen (2010) are clear that while these background factors may influence behavioral, normative, and control beliefs, there is no automatic connection between one's background factors and beliefs. Additionally, Fishbein and Ajzen (2010) assert that behavior is made up of four elements including the *action* performed, *target* at which the action is directed, the *context* in which the behavior is performed, and the *time* at which it is performed. Fishbein and Ajzen (2010) offer a variety of techniques to measure an individual's attitudes, perceived norms, and perceived behavioral control (Fishbein & Ajzen, 2010). A program evaluation can be developed and implemented using the theory of reasoned action to measure behavior change when conducting an educational program such as those implemented by Cooperative Extension. Challenges to the theory of reasoned action exist, which include its ability to sufficiently explain and predict, and the degree to which it can be

viewed as a rational model of human behavior (Fishbein & Ajzen, 2010). Figure three (below) is a schematic that represents the reasoned action model.

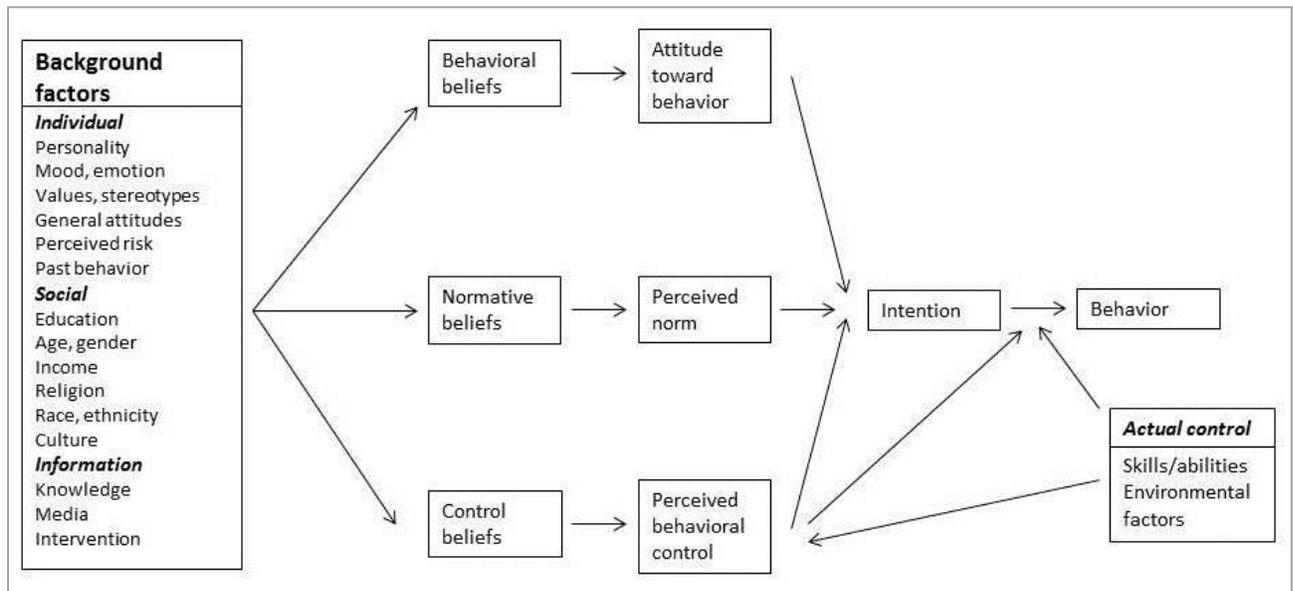


Figure 3. The reasoned action model. From *Predicting and Changing Behavior* (p. 22), by M. Fishbein and I. Ajzen, 2010, New York: Psychology Press. Copyright (2010) by the Taylor and Francis Group LLC. Reprinted with permission.

Exploring Strategies, Goals, and Knowledge Production for Food System Change through Social Movement Theory

Over the last several decades, social movements have become a popular avenue for investigation (Eyerman & Jamison, 1991), and constitute a large and diverse area of research for social scientists (Hall & Turray, 2006). Social movement studies have grown impressively (Rucht, 1990), and determining whether or not something is a social movement is one of the most perplexing questions for most social movement scholars (Starr, 2010). Scholars from numerous fields and disciplines have worked to define what constitutes a social movement, examine their characteristics, and explore their impacts (Diani, 1992). Interest in studying social movements comes from a variety of individuals with backgrounds in sociology (Benford, 1992; Eyerman & Jamison, 1991; Snow & Soule, 2009), communication (Stewart, Smith, & Denton,

Jr., 2007), community development (Green, 2008; Ledwith, 2011; Sanders, 1958), agriculture and food (Allen, 2004; Barham, 1997; Buttel, 1993; Starr, 2010; Stevenson, Ruhf, Lezberg, & Clancy, 2007), and education (Crowther, 2006; Crowther & Shaw, 1997; Eyerman & Jamison, 1991; Hall & Turray, 2006; Holford, 1995).

Social movements can be thought of as consciously formed associations with the goal of bringing about change in social, economic, or political sectors through collective action and the mobilization of large numbers of people (Stevenson, Ruhf, Lezberg, & Clancy, 2007). Over the last several years, scholars are increasingly relating the change activities emerging towards the modern globalized agrifood system in terms of a social movement (Allen, 2004; Guptill, Copelton, & Lucal, 2013; Stevenson, Ruhf, Lezberg, & Clancy, 2007). Allen (2004) traces the development of change activities emerging towards the modern globalized agrifood system in terms of social movements for a more sustainable agricultural system and for increased community food security. According to Allen (2004), the sustainable agriculture movement and community food security movement are the two most prominent social movements under, and together compose, the broader alternative agrifood system movement. From a historical perspective, the Farm to School movement is a result of both of these social movements. Like farmers markets, community supported agriculture farms, farm to table restaurants, and more recently food hubs, Farm to School programs can be considered an organizational manifestation of the broader alternative agrifood movement (Allen, 2004).

Crowther (2006) provides a useful typology of social movements and classifies social movements into four main categories. These categories include old social movements, new social movements, contemporary social movements, and urban movements. Other social movement literature distinguishes social movements into two main categories, old social movements and

new social movements (Dalton & Kuechler, 1990; Diani, 1992; Finger, 1989).³ Old social movements are primarily concerned with issues of exploitation and oppression, and often involve an organization and membership (Crowther, 2006). Old social movements advocate for a wholesale transformation of society (Crowther, 2006), and seek to mobilize a mass group of individuals to put political pressure on various institutions of the state (Finger, 1989). Themes within the study of old social movement theory include looking at social movements as expressions of collective behavior, resource mobilization, and political processes (Diani, 1992). The labor movement and early women's movement are often associated with old social movements (Crowther, 2006). The study of new social movements has most often been associated with European scholars, post-1960 (Diani, 1992). New social movements are usually issue-based, rather than class-based, and seek social transformation of values, rather than structures (Crowther, 2006). New social movements developed with the rise of the new left and post-industrial economy, and seek a transformation of the social order but do not attempt to gain control of the central state (Welton, 1993). Instead, new social movements seek personal change "from within" (Finger, 1989, p. 17). Because of this, transformation can take place at either the local or transnational level, without the need for a structured or hierarchically organized mass movement (Finger, 1989). New social movement theories stress that actors struggle to create new social identities (Scott, 1990). New social movements seek to bring about changes in society that transform values, lifestyles, and symbols (Melucci, 1985). Exemplars of new social movements include the peace, feminist, ecological, local and personal autonomy movements (Welton, 1993).

³ Cohen (1985) shows that old social movements and new social movements are not necessarily incompatible and suggests that the term contemporary social movement should be used to describe social movement's post-1970 as a way to move past the divide.

Social movement's goals and strategies. Two dimensions of a conceptual framework for food system change within the alternative agrifood movement include the goal orientations framework for social change and the strategic orientations framework for social change (Stevenson, Ruhf, Lezberg, & Clancy, 2007). These conceptual frameworks have been developed with the goal of helping alternative agrifood system service-providers understand, and create, social change activities (Stevenson, Ruhf, Lezberg, & Clancy, 2007). Alternative agrifood system service-providers are described as a growing base of citizens concerned with developments in the agrifood system, and academic colleagues who share a similar concern and professional commitment. Social movement theorists have labeled these types of individuals as 'publics' (Emirbayer & Sheller, 1998).

The first dimension of this conceptual framework considers the goals for change within the alternative agrifood movement and describes three goals which include *inclusion*, *reformation*, and *transformation* (Stevenson, Ruhf, Lezberg, & Clancy, 2007). Each of these three goals can be viewed as one area to foster food system change. The goal of inclusion seeks to bring marginalized players into the agrifood system and increase their participation. The goal of reformation works to reform or change the rules of the food system and can take place at the national, community, or business level. The goal of transformation is to try and fundamentally change the modern agrifood system by developing different paradigms between food producers and consumers through community supported agriculture farms or rural landowners and city dwellers through farmland protection programs. Table three (below) describes these three goals (Stevenson, Ruhf, Lezberg, & Clancy, 2007, pp. 40-41).

Table 3

Goal Orientations for Food System Change within the Alternative Agrifood Movement

Goals	Strategic Goal for Social and Food System Change
Inclusion	To get marginalized players into the agrifood system.
Reformation	To change the rules of the agrifood system.
Transformation	To change the agrifood system.

The second dimension of this conceptual framework focuses on the strategies for change within the alternative agrifood movement and describes change strategies in the form of *resistance*, *reconstruction*, and *connection* (Stevenson, Ruhf, Lezberg, & Clancy, 2007). Each of these three strategies can be viewed as one method for fostering food system change. Stevenson, Ruhf, Lezberg, and Clancy (2007) respectively describe the individuals who participate in these strategies as warriors, builders, and weavers. Warriors within the alternative agrifood movement seek to resist the corporate trajectory of the industrialized food system by organizing public protest and working towards policy reform. Submerged warrior work may be research and analysis that contests the prevailing political and economic structure and processes. Those individuals classified as builders within the alternative agrifood movement seek to develop new business models and entrepreneurial activities that develop new collaborative structures to support alternative agrifood system development. Most of the builder work takes place in the economic sector to develop new production and distribution models, initiatives, and networks. Weavers work is to link diverse individuals and groups together as part of the alternative agrifood movement by developing strategic and conceptual linkages. These horizontal and vertical linkages are meant to spark change within the agrifood system, and link builders and warriors together. Stevenson, Ruhf, Lezberg, and Clancy (2007) argue that Extension professionals are likely to adopt the weaver strategic orientation. Table four (below) describes

these three classifications in greater detail (Stevenson, Ruhf, Lezberg, & Clancy, 2007, pp. 42-43).

Table 4

Strategic Orientations for Change within the Alternative Agrifood Movement^a

	Warrior	Builder	Weaver
Strategic Orientation	<i>Resistance:</i> Public protest and legislative work.	<i>Reconstruction:</i> Entrepreneurial economic activities building new collaborative structures.	<i>Connection:</i> Linking warriors and builders, coalition building, communicating messages to civil society.
Activity	Resisting the corporate food trajectory.	Creating new agrifood initiatives and models.	Developing strategic and conceptual linkages.
Goals	Change political rules, protect territory, and recruit adherents from civil society to confront or thwart economic concentration or unsustainable production practices.	Reconstruct economic sector to include social goals, work within established political structures to create alternative public policies.	Build a food system change movement, engage citizens of civil society, create and strengthen coalitions within and beyond food system change communities.
Main Target	Political, civil society.	Economic, political.	Civil society, political.
Examples of Actors	Situation specific networks of organizations for public protests, policy advocates within or outside established political structures.	Individual and collective economic enterprises, policy advocates, agricultural researchers, producers.	Non-profit and voluntary organizations and networks, Cooperative Extension, movement professionals.
Link with Civil Society	Recruits adherents from civil society by drawing attention to the issue, mass mobilization for public protest.	Requests that civil society protect alternative economic spaces through consumption choices or public policies.	Serves linkage function for advocates and engaged actors with the public sphere, potential to provide vehicles for participation by less engaged members of society.
Issues and/or Types of Organizations	Factory farming, GMOs, WTO, World Bank, IMF, farm workers' rights, Farm Bill, Organic rule, grape boycott.	Sustainable and organic farmers, grazing farmers and networks, farmers markets, on-farm market owners, delivery schemes, enterprise development, market cooperatives.	Local and regional non-profit organizations, food policy councils, regional and national networks and organizations, Cooperative Extension programs.

^a Stevenson, Ruhf, Lezberg, & Clancy (2007), pg. 42-43. Used with permission of G.W. Stevenson, March 5, 2013.

Social movement's as producers of knowledge. In addition to the alternative agrifood movement maintaining diverse goals and strategies for social and food system change, alternative agrifood system service-providers can pursue change through education and the development of new knowledge. A third dimension of social movement theory explores knowledge production through social movements (Eyerman & Jamison, 1991). In 1991, Ron Eyerman and Andrew Jamison proposed that there was something fundamental missing to the way sociologists were studying social movements and proposed a cognitive approach to investigation of social movements (Eyerman & Jamison, 1991). Griffin (1991) echoed this claim, and accused adult education theory of being “sociologically naive” (p. 261). Eyerman and Jamison (1991) argue that social movement scholars should not neglect the role of education in social movements, and that the study of education, knowledge production, and learning through social movement should be done from a variety of perspectives. For theorists of knowledge, some social movements provide the space for innovations in thought, and the social organization of thought. For others such as Eyerman and Jamison (1991), social movements carry new ideas, new scientific theories, new scientific fields as a whole, and new political and social identities.

Learning in a social movement is for social, cultural, and political objectives that seek to challenge the established order, and involves a collective process towards these objectives, rather than it being individualized (Crowther, 2006). One outcome of learning in social movement is social action, which often times exposes power relations through processes of conflict, action, and reaction (Crowther, 2006). In a seminal piece, Eyerman and Jamison (1991) argue the concept of “cognitive praxis” is often left out of the various conceptualizations of social movement largely because social movements are being studied empirically by those individuals part of, and involved with, the movement (p. 45). Eyerman and Jamison (1991) assert that the

concept of cognitive praxis is of central importance to the study of social movements, and conceive social movements as an expression of cognitive praxis. In their terms, cognitive praxis is the knowledge making activity that takes place within a social movement (Eyerman & Jamison, 1991). This knowledge making activity allows for social movements to shift the consciousness of its actors and allows an individual to distinguish one social movement from another (Eyerman & Jamison, 1991). Eyerman and Jamison (1991) believe their view of social movements most closely follows that of Alberto Melucci's, who sees social movements in symbolic terms. Eyerman and Jamison (1991) conceive of social movements as the places for social action where new knowledge originates. Holford (1995) argues that this approach to social movement holds endless possibilities for adult education because it moves away from an appreciation for social movements, to the view that social movements are central to the production of knowledge. The concept of cognitive praxis helps recognize the role of social movements in the formation of knowledge, and also helps us understand the forms and characteristics of knowledge production (Holford, 1995).

Social movements offer a significant opportunity for “sustained and collective learning experiences” (Crowther & Shaw, 1997, p. 266). Social movements combine three different types of knowledge interests, including the *cosmological* interest, *technological* interest, and *organizational* interest into the concept of cognitive praxis (Eyerman & Jamison, 1991). The cosmological dimension of knowledge gives social movements its common worldview assumptions that provide the social movement its utopian mission or emancipatory aims. The technological dimension of knowledge critiques modern technologies, and offers alternative technologies to fit within the social movement's mission. The organizational dimension of knowledge is the way social movements get their messages across. The combination of these

three dimensions of knowledge into a core identity allows for the topic or concept to become a social movement (Eyerman & Jamison, 1991).

In addition to these three types of knowledge interests, the concept of ‘movement intellectuals’ is an important aspect of cognitive praxis and knowledge production through social movements (Eyerman & Jamison, 1991). Movement intellectuals are described as individuals who combine social roles and types of competence (Jamison, 2006). Movement intellectuals have the task of articulating the knowledge interests (*i.e.*, values, principals, arguments *etc.*) and cognitive identity of the movement. Movement intellectuals develop their own role, while also developing the movement’s identity (Eyerman & Jamison, 1991). The concept of movement intellectuals is similar to Gramsci’s notion of an organic intellectual (Ledwith, 2011). The focus on movement intellectuals is an important aspect of understanding learning through social movement because it allows researchers to focus on the role of the adult educator (Holford, 1995). By examining the movements of the 19th century, Eyerman and Jamison (1991) show that the concept of cognitive praxis can be useful when examining both old and new social movements. Crowther (2006) outlines four potential roles for adult and community educator’s interacting with social movements, which include network agent, resource agent, educational guide, and teacher (Johnson, 1998; Lovett, 1975). The network agent develops social capital among fragmented groups and communities, and facilitates more inclusive and participatory approaches within groups and movements. The job of the resource agent can involve a number of components such as providing information to groups, drafting applications for funding, or assisting groups with research needs. The job of the educational guide is important because these individuals help guide movements to identify suitable educational resources to further their cause (Crowther, 2006). The role of the teacher in social movements is also important, which is to

introduce a problem-solving approach with curriculum, and teach for social action (Crowther, 2006).

Summary of Conceptual Framework

The overall research question is answered by a series four research questions. Each of these research questions draws on a conceptual framework. Research question one and research question two draw on the theory of reasoned action (Fishbein & Ajzen, 2010). Research question three and research question four draw on social movement theory (Eyerman & Jamison, 1991; Stevenson, Ruhf, Lezberg, & Clancy, 2007). Figure four (below) summarizes the integration of the overall guiding research question with each specific research question, conceptual framework, and research method.



Figure 4. Integration of Research Questions, Conceptual Framework, and Research Methods.

Integrating these two theory-bases (*i.e.*, the theory of reasoned action and social movement theory) explores the role Cooperative Extension professionals are playing in the Farm

to School movement. The theory of reasoned action allows this study to examine the behavioral intentions/ behaviors of Cooperative Extension professionals towards educational programs and policy initiatives supporting the Farm to School movement. Social movement theory allows this study to explore the goals, strategies, and knowledge Cooperative Extension is producing to support the Farm to School movement. Employing both of these conceptual frameworks allows this study to build on existing literature exploring behavioral intentions towards Farm to School activities (Ratcliffe, 2012), and individuals attachment to local food through a social movement (Starr, 2010).

These two conceptual frameworks come together through their ability to explore the role of Cooperative Extension in creating food system change through the Farm to School movement. The theory of reasoned action explores Cooperative Extension professional's behavioral intentions/behaviors towards the Farm to School programming while social movement theory explores the goals, strategies, and knowledge production of Cooperative Extension professionals involved in the Farm to School movement. According to Christenson, Fendley, and Robinson, Jr. (1989), there are three avenues for community development activities to impact local communities. These avenues include their ability to (1) create social and economic change through stimulating local initiatives, (2) improve the social, economic, and cultural well-being of individuals, and (3) develop channels of communication that promote solidarity. Sanders (1958) asserts that community development can be viewed as a social movement or crusade dedicated to progress. Viewing community development as social movement can "help inform researchers, community development practitioners and policy makers to better understand the enterprise of social change at the local level" (Green, 2008, p. 50). With the theory and practice of community development currently going through a fundamental transformation, and with community food

systems becoming an emerging topic area for community development, these two conceptual frameworks work together to explore how individuals supporting these community development goals are creating change at local, regional, and state levels through participation in the Farm to School movement.

CHAPTER 3: METHODOLOGY

Methodological Approach

The methodological approach for this study draws on mixed methods research and mixes both quantitative and qualitative data collection and analysis procedures to explore the role Cooperative Extension is playing in the Farm to School movement. Mixed methods research can be defined as the “collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies” (Creswell & Plano Clark, 2007, p. 5). Mixed methods research involves “combining complementary strengths and nonoverlapping weaknesses of quantitative and qualitative research” (Onwuegbuzie & Johnson, 2006, p. 48). Mixed methods research “involves a plurality of philosophical paradigms, theoretical assumptions, methodological traditions, data gathering and analysis techniques, and personalized understandings and value commitments” (p. 13). Over the last few decades, there has been a transition in the behavioral and social sciences from the use of monomethods to the use of mixed methods, and today, mixed methods research has become a widely accepted and prevalent form of research (Tashakkori & Teddlie, 1998). Tashakkori and Teddlie (2003) call mixed methods research a “third methodological movement” (p. 5), while Johnson and Onwuegbuzie (2004) refer to mixed methods research as the “third research paradigm” (p. 15).

Pragmatism as a Worldview for Mixed Methods Research

I have embraced a pragmatic worldview for this study concerning the research methods and design. Pragmatism is commonly known through the work of John Dewey (Schwandt, 2007). A pragmatic worldview places an importance on the actions, situations, and consequences of research (Creswell, 2009), and is concerned with using methods that find solutions to problems (Patton 1990). The pragmatist tends to focus on the consequences of the research and on the importance of the questions asked, rather than the methods. Pragmatists tend to use

multiple methodologies and multiple methods of data collection to inform the purpose of the study. In other words, pragmatists tend to be pluralistic and focus on what methods work best to answer the question. Pragmatists tend to view reality as both singular (*e.g.*, there is one theory to inform the phenomenon under study) and multiple (*e.g.*, multiple theories could be drawn on to inform the phenomenon under study). Pragmatism is frequently associated with mixed methods research and has become a widely accepted worldview for completing mixed method research studies (Creswell & Plano Clark, 2011; Tashakkori & Teddlie, 1998). Pragmatism is an especially useful worldview for conducting mixed methods research because it can combine both inductive and deductive reasoning, and collect both quantitative and qualitative data (Creswell & Plano Clark, 2011).

My epistemology is guided by pragmatism. Epistemology is the study of social knowledge (Greene, 2007), and often provides much of the justification for the employment of particular methodologies (Schwandt, 2007). A pragmatic epistemology views knowledge practically, by choosing to collect data through the methods that work best to answer the research question. I allowed for the research question to drive the selection of the methodology, research design, research methods, and type of analyses that were conducted. To answer the overall research question that explores the role Cooperative Extension is playing in the Farm to School movement, I believe that a mixed methods research approach that incorporates both quantitative and qualitative research methods is best. This follows the belief in both singular and multiply realities and truths, and allowed me to select the research method through the research question. Employing quantitative research methods, such as a survey, allowed me to develop a questionnaire that solicits information from a large number of individuals (Ary, Jacobs, Razavieh, & Sorensen, 2006), and summarize the behavioral intentions that Cooperative

Extension professionals hold toward Farm to School programs and activities. Employing qualitative research methods such as a case study that includes in-depth interviews (Creswell, 2007), allowed me to understand the strategies, goals, and knowledge production of Cooperative Extension professionals, and program partners supporting the Farm to School movement.

My ontology is also guided by pragmatism. Ontology is the study of reality, of being, and the real nature of whatever is (Schwandt, 2007). A pragmatic ontology views reality as pluralistic, both singular, there is one theory to inform the phenomenon under study, and multiple, multiple theories could be drawn on to inform the phenomenon under study. This view of the nature of reality allows me to use both quantitative and qualitative methods to explore the overall research question. It does so because it allows me to select the research method through the question asked. Deductive reasoning was used to address the singular nature of reality, whereas inductive reasoning was used to address the multiple nature of reality. Deductive inferences start with general knowledge and predict a specific observation. Inductive inferences start with an observation and arrive at a general conclusion (Ary, Jacobs, & Razavieh, 2006).

Rationale for a Mixed Methods Research Design

There are multiple rationales that exist for completing a mixed methods research study (Creswell & Plano Clark, 2011). For this study, which explores the role Cooperative Extension is playing in the Farm to School movement, there are three complimentary rationales for using a mixed methods research approach. These rationales include: 1) employing one methodological approach collects an insufficient amount of data to answer the overall research question, 2) there is an opportunity to further explore quantitative findings through qualitative methods, and 3) the overall research question can be addressed through multiple research phases.

Quantitative data is commonly used to provide a more general understanding of a problem and often collects information from a large number of individuals about a few variables. Qualitative data is commonly used to provide an in-depth or detailed understanding of the problem and frequently collects data from studying a few individuals while exploring their perspectives and experiences in greater depth (Creswell & Plano Clark, 2011). Incorporating both of these approaches allows for both a broad analysis, as well as an in-depth analysis, of the role Cooperative Extension is playing in the Farm to School movement. Using this approach collects data from all Cooperative Extension professionals and collects greater amounts of data from those professionals who are more active in the Farm to School movement. Employing a mixed methods research approach also allows for this research study to further explore the results of state-based surveys of Cooperative Extension professionals through qualitative data collection methods. This is important because it helps illuminate findings of the survey and shed greater light on the role of Cooperative Extension in the Farm to School movement.

Additionally, employing a mixed methods research approach allows for the study to be completed in two-phase sequential fashion that helps answer the research question. Results from phase one of the data collection (*i.e.*, quantitative data collection) were analyzed and used to better explore the role of Cooperative Extension professionals in the Farm to School movement in phase two of the data collection (*i.e.*, qualitative data collection). Exploring the survey results prior to completing phase two allowed me to tailor the qualitative data collection and more accurately explore the role Cooperative Extension is playing in the Farm to School movement.

While there are a number of strong rationales for employing a mixed methods research approach, it also has a few weaknesses (Creswell & Plano Clark, 2011). Weaknesses of this approach include that it requires the researcher to hold skills in quantitative, qualitative, and

mixed methods research, and completing mixed methods research can be challenging because it may demand more time, resources, and effort compared to quantitative and qualitative research approaches (Creswell & Plano Clark, 2011). While these may be weaknesses of employing a mixed methods research approach, I took the necessary steps to ensure that I completed this study in a scientifically rigorous and timely fashion.

Mixed Methods Design: Explanatory Sequential Research Design

Six different types of mixed methods research designs have been developed (Creswell & Plano Clark, 2011), and this study follows the explanatory sequential design. It does so by first collecting and analyzing quantitative data from an online survey of Cooperative Extension professionals including Extension agents/educators, specialists, administrators, and program assistants in eight state Extension systems. This was followed by a subsequent collection and analysis of qualitative data in the form of a state-based case study of The Ohio State University (OSU) Extension involvement and leadership of the Ohio Farm to School Program. Data was collected through in-depth interviews with Extension educators, specialists, administrators, and program assistants, as well as Extension Farm to School program partners. Together, quantitative and qualitative data were used to understand the role Cooperative Extension is playing in the Farm to School movement. This research study utilized an equal priority, with equal emphasis placed on the quantitative and qualitative data, and can be represented using the following notation: Quan → Qual (Creswell & Plano Clark, 2011). The quantitative data collection was guided by drawing on the theory of reasoned action (Fishbein & Ajzen, 2010) to understand the behavioral intentions of Cooperative Extension professionals toward the Farm to School movement. The qualitative data collection was guided by drawing on social movement theory (Stevenson, Ruhf, Lezberg, & Clancy, 2007; Eyerman & Jamison, 1991) to understand

strategies, goals, and knowledge production of Extension professionals, and the program partners supporting the Farm to School movement. Figure five (below) provides a visual model and timeline for this mixed method explanatory sequential design procedure used in this study.

Explanatory Sequential



Procedures

- Online survey of Cooperative Extension professionals
 - Administrators
 - Agents/educators
 - Program assistants
 - Specialists
- Convenient sample of eight state Extension Systems
- SPSS v. 20
- Case study of OSU Extension involvement in the Ohio Farm to School Program
 - Purposeful sample of Cooperative Extension Farm to School professionals and program partners
- Interviews
 - Agents/educators
 - Specialists
 - Administrators
 - Program partners
- Secondary documents
- Program observation
- Coding and thematic analysis
- Constant comparative data analysis
- Atlas.ti
- Interpretation and explanation of the quantitative and qualitative results

Timeline

- October – January 2013
- January 2013 – February 2013
- January 2013
- January 2013 – February 2013
- February – March 2012
- February – May 2013

Figure 5. Visual model and timeline of mixed methods explanatory sequential study design (Creswell & Plano Clark, 2007).

Protection of Human Subjects

Virginia Tech Institutional Review Board (IRB) policies were followed throughout this study. Procedures for the protection of subjects and their rights were followed according to Creswell (2008). Appendix A includes the IRB approval letter (IRB #: 12-898).

Quantitative Strand: Online Survey of Eight State Cooperative Extension Systems

The overall purpose of the quantitative strand was to collect data from Cooperative Extension professionals using an online survey questionnaire. Drawing on the theory of reasoned action (Fishbein & Ajzen, 2010), this survey questionnaire focused on asking a series of questions to explore and measure Cooperative Extension professionals behaviors regarding educational programs and/or policy initiatives that support the Farm to School movement.

Population and Sample

The population for the quantitative strand was Cooperative Extension professionals in eight states from across the U.S. These states were selected as part of a convenient sample through email correspondence with each system's Extension director. This included Extension agents/educators, specialists, administrators, and program assistants. These specific state Extension systems that were included as part of the population were Alabama, Alaska, Hawaii, Louisiana, Ohio, Pennsylvania, Tennessee, and Washington. Figure six (below) shows a visual map of the state Extension systems participating in the quantitative research strand. Each gold/yellow star represents a state that participated in the quantitative research strand.



Figure 6. Map of state Extension systems participating in the quantitative research strand.

The Virginia Cooperative Extension director sent an email (found in Appendix B) on behalf of the researcher to all 50 state Extension directors outlining the study and inviting their state to participate. The researcher then initiated correspondence with each state Extension director who replied to the previous email, briefed them or a designated alternate about the study, and outlined the research procedures. Six of the eight states (Alaska, Louisiana, Ohio, Pennsylvania, Tennessee, and Washington) agreed to allow their entire Extension System to participate in the study. Alabama agreed to allow 4-H Youth Development professionals to participate in the study rather than the entire Extension System. Hawaii first asked for volunteers interested in completing the survey instrument, collected this information internally, and then forwarded the contact information of those Extension professionals who agreed to complete the questionnaire. The unit of analysis for the quantitative strand is individuals working for each Cooperative Extension System including Extension agents/educators, specialists, administrators, and program assistants.

Instrumentation

The quantitative questionnaire was developed using the theory of reasoned action (Fishbein & Ajzen, 2010) and included four main sections. The first section asked respondents about their Extension position and current program responsibilities. The second section asked respondents about their level of knowledge regarding activities that are associated with the Farm to School movement. The third section asked respondents about their attitudes towards connecting local and regional farm products to local school cafeterias, developing school gardens, and developing other Farm to School experiential programs through the semantic differential scale. The semantic differential scale first developed by Charles Osgood is a commonly used type of survey question to measure attitudes towards a statement or product (Fishbein & Ajzen, 2010). The semantic differential scale asks respondents to rate the attitude object on a set of bipolar evaluative adjective scales, with usually seven places or alternatives. The evaluative adjectives are classified in the customary “evaluation, potency, and activity” categories (Fishbein & Ajzen, 2010, p. 80). In section three, respondents were also asked about their perceived norms and perceived behavioral control regarding their involvement in the Farm to School movement. This information was gathered through a series of Likert-scale questions that asked respondents to rank their level of agreement with a statement. Likert scale questions illustrate a scale with theoretically equal intervals among responses (Creswell, 2008), and are used to determine the relative intensity of different items (Babbie, 2004). The fourth section asked respondents about their background through a series of demographic questions. The survey questionnaire was finalized into a nine page document and can be found in Appendix D. Page one of the questionnaire included an introduction to the study, the purpose of the study, and information about who was conducting the research study. Using a separate online data

collection instrument, respondents were also asked to provide additional contact information if they were willing to participate in follow-up in-depth interviews. This was done to keep each survey response anonymous.

An expert panel reviewed the survey instrument. The expert panel was made up of researchers and practitioners familiar with the Farm to School movement, Cooperative Extension programming, and survey design. The researcher contacted individuals working for or associated with the National Farm to School Network as part of the expert panel review. The researcher also contacted several Extension professionals familiar with and/or supporting Farm to School programming. The expert panel included the following members.

Expert Panel Members

- Dr. Kim Niewolny, Agricultural and Extension Education, Virginia Tech
- Dr. Rick Rudd, Agricultural and Extension Education, Virginia Tech
- Dr. Cheryl Brown, Agricultural and Resource Economics, West Virginia University
- Dr. Brian Calhoun, Virginia Cooperative Extension, Virginia Tech
- Mr. Jesse Richardson, Urban Affairs and Planning, Virginia Tech
- Mr. Brad Burbaugh, Agricultural and Extension Education, Virginia Tech
- Ms. Alyssa Densham, National Farm to School Network
- Dr. Julie Fox, The Ohio State University Extension
- Ms. Julia Govis, University of Illinois Extension
- Ms. Stephanie Heim, University of Minnesota Extension
- Ms. Jan Poppendieck, National Farm to School Network
- Dr. Amy Winston, National Farm to School Network

The expert panel reviewed the survey instrument to ensure content validity and face validity. Content validity is the level to which the instrument measures the variables (Ary, Jacobs, Razavieh, & Sorensen, 2006). The expert panel also reviewed the survey instrument to confirm face validity. Face validity measures “the acceptability of the assessment to users” including how well the respondents understand the terminology used in the survey (Haynes, Richard, & Kubany, 1995, p. 243). After the expert panel reviewed the questionnaire, the researcher revised the protocol based on the panel’s recommendations and sent it to the Virginia

Tech IRB Office for initial review and approval. IRB was granted on October 16, 2012 (#12-898).

Pilot Testing

A pilot test was conducted in October 2012 prior to administration of the questionnaire with key individuals familiar with the Farm to School movement. Pilot tests are most often associated with quantitative research and are described as “a procedure in which the researcher makes changes in an instrument based on feedback from a small number of individuals who complete and evaluate the instrument” (Creswell, 2008, p. 644). This included asking individuals who were active in connecting local farm products to school meals or active in supporting school garden-based and other Farm to School experiential learning programs to complete the online questionnaire and provide feedback about the questionnaire design. Participants included those working in higher education, non-profit organizations, state and federal agriculture agencies, K-12 school systems, and Virginia Cooperative Extension.

Through an email to select individuals familiar with Farm to School, participants were invited to complete the online survey instrument. The email provided information about the study, a form for the participants to provide feedback about the instrument, and a web link for the participants to complete the online questionnaire. In total, eleven individuals completed the questionnaire during the pilot test. A Cronbach’s alpha coefficient of 0.788 was computed from the pilot test participants to determine if the questionnaire was internally consistent or that the questionnaire is reliable (45 items) (Ary, Jacobs, Razavieh, & Sorensen, 2006). This statistic indicated a good level of reliability within the instrument (Santos, 1999). Feedback provided from participants was used to improve and finalize the questionnaire before sending it to the Virginia Tech IRB Office for final review and approval.

Data Collection

Data collection was performed using the web-based survey software SurveyMonkey (www.surveymonkey.com). Utilizing SurveyMonkey allowed the researcher to collect responses from the eight Cooperative Extension Systems simultaneously. It also allowed the researcher to easily merge the data from the different Cooperative Extension Systems during the analysis phase. Surveys are frequently used in the social sciences and are excellent vehicles for measuring the attitudes and orientations in a large population. Surveys are often thought of as the best method for collecting original data to describe a population too large to observe directly (Babbie, 2004). Development and implementation of the online survey followed guidelines outlined for web survey implementation by Dillman, Smyth, and Christian (2009).

Through collaboration with the director of Virginia Cooperative Extension, the researcher identified eight Cooperative Extension Systems to participate in the online survey. The criteria for selecting these Cooperative Extension Systems was that the director of each Extension System was committed to supporting this research and that the Extension System would assist with the implementation of the survey by providing a list of appropriate email addresses or by facilitating a web link to the online survey to appropriate Extension personnel. Following approval from the state Extension director, a pre-notice email with information about the study was sent to Extension professionals in each state Extension system by the director. Having the Extension director send the pre-notice email was done to potentially increase the response rate. A copy of the pre-notice email can be found in Appendix C. Following the pre-notice email, three to five days later, the selected group of Extension professionals was contacted through an email message and asked to complete the online survey. Extension professionals were contacted using one of two approaches. Extension professionals in Alaska, Hawaii, Ohio, Louisiana, and

Tennessee were contacted using the automated SurveyMonkey data collection feature that sends potential respondents an automated email inviting them to complete the questionnaire. Extension professionals in Alabama, Pennsylvania, and Washington were contacted by working with an administrative assistant designated by the director of Extension to deliver an email that contained a web link to access the survey instrument. Under both approaches, the message sent to the potential respondent explained the goal of the survey and provided a URL to complete the questionnaire. The pre-notice email and first email invitation to each Cooperative Extension System was distributed in November or December 2012. Cooperative Extension professionals were then sent a follow-up reminder to complete the questionnaire through email seven to ten days after the initial invitation. A second follow-up reminder email with information about the purpose of the survey and a survey web link was sent to each Extension System seven to ten days after the first follow-up reminder. In the case of Alaska, Hawaii, Ohio, Louisiana, and Tennessee, only those who had not completed the instrument received the follow-up emails. The reminder emails were sent to each Extension System in November or December 2012, or January 2013. The pre-notice of questionnaire can be found in Appendix C, the invitation to complete the questionnaire can be found in Appendix D, the first follow-up reminder email can be found in Appendix F, and the second follow-up reminder email can be found in Appendix G.

Data Analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS) Statistics version 20. Data from the close-ended survey questions were analyzed using SPSS. A descriptive analysis was completed for each item included in the questionnaire. In addition to computing descriptive statistics, nine multiple regression models were developed to explore which variables are statistically significant in explaining Extension participation in Farm to School programming.

The goal of these models was to explain Extension participation in Farm to School programming. Socio-demographic variables were developed including race, sex, and age of respondent and were inserted into the models as independent or explanatory variables. Additionally, a set of Extension variables were developed and were inserted into the models as independent variables including area or region of service, years of service, position, and primary program area with Extension. Finally, a set of independent variables were developed to measure each construct part of the theory of reasoned action including past behavior, knowledge, attitudes, perceived norms, and perceived behavior control towards Farm to School activities and were inserted into the models as independent variables. Table five (below) summarizes the variables included in the multiple regression. Multiple regression is a commonly used type of data analysis and can use both categorical and continuous variables. It can also easily incorporate multiple independent variables to explain the dependent variable (Keith, 2006).

Sequential (also known as hierarchical) regression analysis was utilized to allow the researcher to enter the independent variables one at a time in an order determined by the researcher (Keith, 2006). The sequence of variables entered follows table six (below) with socio-demographic variables entered first, followed by Extension variables, past behavior, knowledge, attitudes, perceived norms, and perceived behavioral control. Additionally, simultaneous (also known as forced entry or standard) regression were utilized to determine the extent of influence of the independent variables on the dependent variable (Keith, 2006). During this analysis, all of the independent variables were entered at the same time as shown in model eight in table six.

The final regression equation used for the simultaneous regression model can be displayed as:

$$Y_{\text{Total Farm to School Activity}} = B_0 + B_1X_{\text{Male}} + B_2X_{\text{Non-white}} + B_3X_{\text{Age}} + B_4X_{\text{Years of Service}} + B_5X_{\text{Dummy 4-H}} + B_6X_{\text{Dummy ANR}} + B_7X_{\text{Dummy CD}} + B_8X_{\text{Dummy FCS}} + B_9X_{\text{Dummy Agent}} + B_{10}X_{\text{Dummy PA}} +$$

$$B_{11}X_{\text{Dummy Specialist}} + B_{12}X_{\text{Dummy Admin}} + B_{13}X_{\text{Dummy Local}} + B_{14}X_{\text{Dummy Regional}} + B_{15}X_{\text{Dummy State}} + B_{16}X_{\text{Knowledge}} + B_{17}X_{\text{Attitudes}} + B_{18}X_{\text{Perceived Social Norms}} + B_{19}X_{\text{Perceived Behavioral Controls}} + e$$

Table 5

Summary of Variable Name, Description, and Corresponding Survey Questions

Variable	Description	Survey Questions
Total Farm to School Activity	Current participation and interested participation in Farm to School programming.	Q10, Q11
Male	Sex of Extension professional (0=Female, 1=Male).	Q15
Non-white	Race of Extension professional (0=White, 1=Non-white).	Q17
Age	Age of Extension professional (Years).	Q18
Dummy 4-H	4-H program duties with Extension (0=No, 1=Yes).	Q2
Dummy ANR	ANR program duties with Extension (0=No, 1=Yes).	Q2
Dummy CD	CD program duties with Extension (0=No, 1=Yes).	Q2
Dummy FCS	FCS program duties with Extension (0=No, 1=Yes).	Q2
Dummy Agent	Agent/ Educator position with Extension (0=No, 1=Yes).	Q3
Dummy PA	Program assistant position with Extension (0=No, 1=Yes).	Q3
Dummy Specialist	Specialist position with Extension (0=No, 1=Yes).	Q3
Dummy Admin	Administration position with Extension (0=No, 1=Yes).	Q3
Dummy Local	Local area or region of work (0=No, 1=Yes).	Q4
Dummy Regional	Regional area or region of work (0=No, 1=Yes).	Q4
Dummy State	Statewide area or region of work (0=No, 1=Yes).	Q4
Years of Service	Length of service with Extension (Years).	Q5
Knowledge	Construct measuring actual knowledge of Farm to School.	Q6
Past Behavior	Construct measuring past experience attending a Farm to School workshop or educational program.	Q7, Q8, Q9
Attitudes	Construct measuring attitudes towards Farm to School activities.	Q12-Q23
Perceived Behavioral Controls	Construct measuring perceived behavioral control towards Farm to School activities.	Q13
Perceived Social Norms	Construct measuring perceived social norms towards Farm to School activities.	Q14

In total, the researcher developed nine multivariate regression models. Model one included all of the socio-demographic variables including sex, race, and age. Model two included all of the Extension variables including program area, position, region or area, and years of

service. Models three through seven contained each of the five constructs part of the theory of reasoned action including past participation, knowledge, attitudes, perceived social norms, and perceived behavioral control towards Farm to School. Model eight included all of the reasoned action variables including past participation, knowledge, attitudes, perceived social norms, and perceived behavioral control towards Farm to School. Model nine included all of the socio-demographic variables, Extension variables, and reasoned action variables. Table six (below) summarizes a description for each of the regression models.

Table 6

Multivariate Regression Models Exploring Farm to School Program Participation

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Socio-demographics	X								X
Extension demographics		X							X
Past Behavior			X					X	X
Knowledge				X				X	X
Attitudes					X			X	X
Perceived Social Norms						X		X	X
Perceived Behavioral Controls							X	X	X

In addition to using SPSS to analyze data collected from the close-ended survey responses, I used Atlas.ti to store, interpret, and categorize data from the open-ended survey responses. To analyze the amount of text generated by the open-ended survey question, I used the constant comparative data analysis method (Glaser & Strauss, 2008). The constant comparative method uses specific coding and analysis procedures to compare incident with incident. Responses to the open-ended survey question were coded using the theory of reasoned action (Fishbein & Ajzen, 2010). The initial code list included the following five codes: 1)

behaviors supporting Farm to School, 2) past training in Farm to School, 3) attitudes towards Farm to School, 4) internal challenges to Farm to School, and 5) external challenges to Farm to School. I added codes to the code list as additional themes emerged. Coding of this qualitative data was completed following the producers developed for whole text analysis (Corbin & Strauss, 2008; Glaser & Strauss, 1967). Whole text analysis involves analyzing free-flowing or continuous text that is relatively complete as far as the meaning that it contains. When the coding process was complete, I reviewed the code list and then used the list of codes to compile themes related to research question one.

Qualitative Strand: A Case Study of The Ohio State University Extension Involvement and Leadership of the Ohio Farm to School Program

The overall purpose of the qualitative strand was to collect data from Cooperative Extension professionals and their Extension Farm to School program partners using a case study approach that involved in-depth, semi-structured interviews. Drawing from social movement theory (Eyerman & Jamison, 1991; Stevenson, Ruhf, Lezberg, & Clancy, 2007), the in-depth interviews explored the strategies, goals, and knowledge produced by Cooperative Extension professionals while supporting the Farm to School movement.

The object of case study research is to generate research of the particular through an in-depth description and analysis (Creswell, 2007; Stake, 1995; Schwandt, 2007). Case study research often involves multiple forms of data collection including primary and secondary data (Creswell, 2007). For purposes of this study, a case is thought of as one state-based Farm to School program specifically exploring the involvement and leadership of professionals working for the state Cooperative Extension System. By viewing a case as one state Farm to School program, this research revealed the role Cooperative Extension professionals are playing in the Farm to School movement (Ragin & Becker, 1992).

This case study drew upon multiple methods including in-depth, semi-structured interviews, program observation, and secondary document collection and review. Interviews took place with Extension professionals consisting of Extension agents/educators, specialists, administrators, and program assistants. Interviews also took place with Extension-based Farm to School program partners. Interviews took place individually and also in small groups of two to three individuals. The unit of analysis for the case study is the individual Cooperative Extension professional or Farm to School program partner. A single-case study design was used rather than a multiple case study design and included the selection of an extreme or unique case (Yin, 2009). A single case study design can also be known as a single instrumental case study (Creswell, 2007, 2008). Using an extreme or unique case where Cooperative Extension is highly involved with Farm to School programming allowed me to capture the circumstances and conditions of a highly engaged Extension System that is working to support the Farm to School movement in diverse ways. Examining an extreme or unique case also allowed me to gather more information about the current and potential role of Cooperative Extension in the Farm to School movement. Results from this single case study can possibly influence other Cooperative Extension Systems involvement with Farm to School programming.

Case Selection

The case selection began in January 2013. I reviewed the respondents who had completed the survey by January 8, 2013. At this time, five of the eight states had completely finished all aspects of the quantitative strand data collection process. Three states, Alabama, Hawaii, and Washington were in the final stages of quantitative data collection. At this time, I reviewed the results and also reviewed secondary information that had been gathered about each state-based Farm to School program and Extension's involvement in the state-based Farm to School

program. Through the review of data and supporting literature, I identified the following criteria to be used to select the case including: 1) the number of individuals who completed the online survey instrument, 2) support for Farm to School by Extension administration, and 3) human and financial resources devoted to Farm to School within each Cooperative Extension System.

From these criteria, I selected Ohio as the state where I would conduct a case study of Extension involvement and leadership in the state Farm to School program. Ohio was selected based on the above criteria. In Ohio, 221 Extension professionals had completed the questionnaire for an overall response rate of 35.2 percent. This represented the largest number of respondents for one state and the greatest percent of sample. Additionally, OSU Extension administration was fully engaged and extremely supportive of the survey instrument implementation process. Furthermore, OSU Extension Farm to School Program director had been engaged and supportive of the survey development and implementation process. She had reviewed the survey and acted as a key contact throughout development of the research study. Furthermore, OSU Extension was the only Cooperative Extension System that had participated in the quantitative data collection process and had a designated Farm to School program director within the Extension system. Through review of previous literature and online websites, I was familiar with the work of OSU Extension in Farm to School. I had also met the Farm to School director at the 6th National Farm to Cafeteria Conference in Burlington, Vermont during the summer of 2012.

Participant Selection

According to Creswell and Plano Clark (2011), participants selected for the qualitative strand in the explanatory sequential design should be participants who completed the initial quantitative strand. The intent of the explanatory sequential design is to collect qualitative data to provide more detail regarding the quantitative results. Because of this, participants that are best

suited are those that participated in the quantitative strand. However, the size of the sample for the qualitative strand should be much smaller than that used in the quantitative strand (Creswell & Plano Clark, 2011). Following recommendations by Creswell and Plano Clark (2011), the majority of the participants used in the qualitative stand were determined by exploring and analyzing results of the quantitative strand. In this study, Cooperative Extension program partners who were involved with the Ohio Farm to School Program were added to the qualitative strand to gain additional information about the role of Cooperative Extension in the Farm to School movement. This was done to avoid solely depending on information provided by Cooperative Extension professionals. Additionally, participants selected for the qualitative strand consisted of those Extension professionals involved with a broad range of Farm to School activities. Participants included individuals who were working to support the procurement of local and regional food by school divisions for school cafeterias and classroom tastings, individuals supporting the development of school garden-based learning programs, and individuals supporting the development of other forms of Farm to School experiential learning.

To help with the case selection process, survey respondents were asked about their interest in participating in the qualitative strand. These results were used to help inform the participant selection process. While completing this case study, I implemented both a purposeful and snowball (chain or network) sampling method. A purposeful sampling method was employed to identify initial participants to participate in the case study based on prior knowledge of their relevance to the study and the belief that it was important to understand their role in the Farm to School movement (Schwandt, 2007). The snowball sampling method was employed after the purposeful sampling method by asking initial participants to suggest the names of other individuals who were appropriate for the sample. I continued this process until the names of new

individuals were no longer suggested. A snowball sampling method is a particularly well suited sampling method when potential participants are not centrally located and scattered throughout different sites (Ary, Jacobs, Razavieh, & Sorensen, 2006). In total, I interviewed 21 individuals supporting the Farm to School movement in Ohio. I spoke with 15 different Extension professionals including five Extension educators, four program assistants, five field specialists, program coordinators, or program directors, and one administrator. I also spoke with six Farm to School program partners including four individuals from three different state agencies and two individuals from non-profit organizations specializing in local and regional food systems and Farm to School.

Preliminary Work

The *a priori* propositions proposed in table six assisted me in the planning and development of the interview guide. Propositions are defined as “hypotheses, typically written in a directional form, that relate to categories in a study” (Creswell, 2007, p. 240). Propositions are sentences or statements that express “what we believe, doubt, affirm, or deny” (Schwandt, 2007, p. 245). Table seven (below) explains how my propositions are correlated with supporting literature, relate to each specific research question, and are reflected in the interview and focus group discussion guide.

Table 7

a Priori Propositions

Proposition	Supporting Literature	Research Question	Interview/Focus Group Guide Question
Extension goals for the Farm to School movement are primarily related to inclusion (<i>i.e.</i> , increasing participation of marginalized stakeholders).	The mission of Extension is to “enable people to improve their lives through learning partnerships” (SeEVER, Graham, Gamon, & Conklin, 1997, p. 1) Extension professionals value collaboration, democracy, diversity, life-long education (Extension Committee on Organization and Policy, 1995).	3. What are the goals and strategies of Cooperative Extension professionals for the Farm to School movement?	What are your goals for programs that help farmers sell local and regional food to school cafeterias? What are your goals for programs that help schools develop gardens and other Farm to School experiential learning programs?
Extension strategies for the Farm to School movement are primarily related to weaver work (connecting builders and warriors).	Extension systems are developing multi-state programs and networks to facilitate community food system development (Remley, Broadwater, Jordan, Allen, & Ehlers, 2009). Land-Grant University Extension programs fall under the classification of weaver work with the goal of developing strategic and conceptual linkages among alternative agrifood stakeholders (Stevenson, Ruhf, Lezberg, & Clancy, 2007).	3. What are the goals and strategies of Cooperative Extension professionals for the Farm to School movement?	What types of strategies are you employing to support programs that help farmers sell local and regional food to school cafeterias? What types of strategies are you employing to support programs that help schools develop gardens and other Farm to School experiential learning programs?

<p>Extension programs will produce primarily technological and organizational knowledge regarding how to better connect local and regional farm products to school cafeterias and develop school garden-based and other Farm to School experiential learning programs.</p>	<p>Community food system programs discuss topics/issues related to production, marketing, and consumption of food (Remley, Broadwater, Jordan, Allen, & Ehlers, 2009). Extension systems are developing new ways to facilitate community food system development through programs that promote greater collaboration among food system stakeholder groups (Thomson, Abel, & Marezki, 20001).</p>	<p>4. What type of knowledge production is occurring through Cooperative Extension professionals being involved in the Farm to School movement?</p>	<p>What types of topics are Extension programs discussing when they coordinate programs that help farmers sell local and regional food to school cafeterias? What types of topics are Extension programs discussing when they coordinate programs that help schools develop gardens or other Farm to School experiential learning programs? What types of educational programs or activities is Extension coordinating to support farmers selling local and regional food to school cafeterias? What types of educational programs or activities is Extension coordinating to support schools developing gardens or other Farm to School experiential learning programs?</p>
<p>A small group of Extension professionals will be supporting programs that connect local and regional farm products to school cafeterias and develop school garden-based and other Farm to School experiential learning programs.</p>	<p>Extension educators perceive limited support from local/community residents and city/county administration for local food system development programs (Thomson, Radhakrishna, Marezki, & Inciong, 2006). Extension educators rated “institutional use of local food” as a relatively low priority for local food system development programming (Thomson, Radhakrishna, Marezki, & Inciong, 2006).</p>	<p>4. What type of knowledge production is occurring through Cooperative Extension professionals being involved in the Farm to School movement?</p>	<p>Is there anyone working for Extension enthusiastically supporting Farm to School programs?</p>

Data Collection

Data within the qualitative strand was collected using in-depth, semi-structured interviews. Additionally, data was collected by asking for documents related to Ohio Farm to School activities and direct observation while attending Ohio Farm to School programs. In-depth interviews are when the researcher asks a participant a series of open-ended questions and records their answers for the purpose of recording their experiences (Creswell, 2008; Schwandt, 2007). I selected OSU Extension for the qualitative strand which had participated in the quantitative strand. I conducted in-depth, semi-structured individual and small group interviews with Extension educators, specialists, administrators, and program assistants, as well as Ohio Farm to School Program partners to explore the role of Extension in the Ohio Farm to School Program. The in-depth interview questions were designed as open-ended questions so that the participants could provide their own experiences and answers to the questions (Babbie, 2004). The in-depth interview guide for both Extension professionals and Extension Farm to School program partners can be found in Appendix I. The in-depth interview guide was designed for a 45 to 60 minute conversation and all in-depth interviews were audio recorded. Following completion of the in-depth interviews, the audio recorded data was transcribed verbatim.

Data Analysis

The overall purpose of the qualitative strand was to collect data from OSU Extension professionals and OSU Extension Farm to School program partners using in-depth interviews drawing from social movement theory (Eyerman & Jamison, 1991; Stevenson, Ruhf, Lezberg, & Clancy, 2007). Data analysis began when I transcribed the in-depth interviews. Express Scribe transcription software was used when transcribing the in-depth interviews. During the

transcription process, I created memos to capture my thoughts while engaged in the process of data analysis (Schwandt, 2007).

To analyze the amount of text generated by in-depth interviews, I used the constant comparative data analysis method (Glaser & Strauss, 2008). The constant comparative method uses specific coding and analysis procedures to compare incident with incident. As part of the constant comparative method, as I moved along with the coding and analysis, I compared each incident in the data with other incidents for similarities and differences. Initial codes were generated by drawing on social movement theory (Eyerman & Jamison, 1991; Stevenson, Ruhf, Lezberg, & Clancy, 2007). The initial code list included the following codes: 1) inclusion, 2) reformation, 3) transformation, 4) resistance, 5) reconstruction, 6) connection, 7) cosmological knowledge, 8) technological knowledge, 9) organizational knowledge, and 10) movement intellectual. Coding was completed following the procedures developed for whole text analysis (Corbin & Strauss, 2008; Glaser & Strauss, 1967). During the coding of the data, I ensured saturation occurred (Creswell, 2007; Glaser & Strauss, 2008). When the coding process was complete, I reviewed the code list and then used the list of codes to compile themes related to research question three and research question four. I used Atlas.ti to store, interpret, and categorize the data.

Trustworthiness

According to LeCompte and Goetz (1982), qualitative inquiry has garnered much criticism for its failure to comply with the standards of quantitative research and fully embrace the concepts of reliability and validity. However, the quantitative concepts of reliability and validity are not analogous to qualitative inquiry in part because it is based on different philosophical assumptions. Through this tension, a number of qualitative researchers have come

up similar concepts in an attempt to quiet the critics of qualitative inquiry (Creswell, 2007). According to Lincoln and Guba (1985) trustworthiness involves the extent to which the researcher can persuade their audience that the research findings are worthy of attention. These researchers developed a series of four terms to help establish the trustworthiness of qualitative inquiry which include “credibility,” “transferability,” “dependability,” and “confirmability” (p. 300). These terms were developed to offset quantitative arguments and measures associated with “internal validation,” “external validation,” “reliability,” and “objectivity” (p. 300). To establish credibility, Lincoln and Guba suggest an extended engagement in the field as well as the triangulation of data sources and methods. To ensure that the findings are transferable, these authors suggest developing a thick or rich description of the phenomenon. Finally, Lincoln and Guba suggest establishing dependability and confirmability through an auditing (i.e., providing the reader with information that documents how the study was conducted) of the research process. The steps suggested by Lincoln and Guba (1985) were taken during the qualitative inquiry process to ensure the qualitative strand is trustworthy.

Generalizability

Generalization is the “act of reasoning from the observed to the unobserved” (Schwandt, 2007, p. 126). Generalizability is one of the criteria for social science inquiry, and translates to the quantitative research concept of external validity (Creswell, 2008; Schwandt, 2007). Lincoln and Guba (1985) suggest that qualitative inquiry is unrealizable, but that transferability from one case to the other is possible. To accomplish transferability, these authors suggest the development of thick and rich descriptions and recommend for the researcher to provide detail about the circumstances or situation studied so that the reader can determine if the findings from the case is similar to other cases. Similarly, Stake (1995) contends that generalization can be

developed by creating interpretive accounts that are personal, richly detailed, and narrative in structure. I employed these recommendations as a way to develop generalizability.

Personal Reflexivity

My positioning as a 31-year-old, single, middle income, white male in the third year of his PhD program in the Department of Agricultural and Extension Education at Virginia Tech orients me to the phenomenon in a particular way. With past experience as an Extension Specialist in Community Viability, I would like to position myself in relationship to the phenomenon regarding the role of Cooperative Extension in the Farm to School movement. Prior to enrolling at Virginia Tech, I worked for Virginia Cooperative Extension as a Community Viability Specialist for over four years. In this position, I worked closely with colleagues across the Commonwealth of Virginia to complete educational programs and initiatives that support the development of community food systems and Farm to School programs. This work was largely influenced by my life experiences going to farmers markets and other local food markets, as well as through my experiences as a graduate student at West Virginia University where I began to explore the intersection of food, agriculture, and public health.

While working for Virginia Cooperative Extension, in late 2007 and early 2008, I became especially aware of the Farm to School movement and connected with the National Farm to School Network at several Community Food Security Coalition Conferences. These experiences led me to coordinate a statewide Virginia Farm to School conference in 2008 that was well received by a broad constituent of Farm to School stakeholder groups from education, agriculture, public health/nutrition, and community development. This statewide conference helped spur the creation of a Virginia Farm to School Work Group that I chaired until enrolling at Virginia Tech. Since enrolling as a graduate student at Virginia Tech, I have continued my

interest and commitment to Farm to School through a series of research projects including a statewide evaluation of the Virginia Farm to School Program and through a summer internship with the Community Food Security Coalition that focused on analyzing state and federal legislation supporting Farm to School program development.

During these experiences, I witnessed firsthand the benefits of Cooperative Extension professionals playing a role in the Farm to School movement to help coordinate farm to cafeteria programs and other Farm to School experiential learning programs. These experiences shaped my belief that Farm to School is an ideal topic area for Cooperative Extension to support and that Cooperative Extension should be supporting Farm to School activities and program development through interdisciplinary collaboration. I believe that through its four contemporary program areas of agriculture, community, family, and youth development, Cooperative Extension is well positioned to play an active and strong role in the strengthening the Farm to School movement.

Integration of Quantitative and Qualitative Data: The Mixing Approach

One of the key procedural decisions for choosing a mixed method design is deciding how the quantitative and qualitative research methods are mixed (Creswell & Plano Clark, 2007). Mixing can be defined as “the explicit relating of the two data sets” (Creswell & Plano Clark, 2007, p. 83). A study that does not mix the quantitative and qualitative data is simply a study that includes multiple methods and is not a mixed methods research study (Creswell & Plano Clark, 2007). Creswell and Plano Clark (2007) suggest that there are three overall strategies for mixing quantitative and qualitative data which include: 1) merging the data sets, 2) embedding data, and 3) connecting data. This research study mixed the data two of the three ways including merging the data sets and connecting the data sets. Merging of the data is when the researcher takes the two separate data sets and explicitly brings them together. For this study, the merging of data

was completed during the discussion phase by analyzing the two data sets separately in the results section and then bringing the two data sets together to provide a single interpretation of the data. Connecting of the data happens when the analysis of one type of data leads to the need of a second type of data and can occur by first collecting quantitative data leading to the collection of qualitative data or by first collecting qualitative data leading to the collection of quantitative data. For this study, connecting of the data was done by first collecting quantitative data leading to the collection of qualitative data. This connection occurred at the research questions, selection of the participants, and development of the survey questionnaire and interview/focus group guide.

Validity of Mixed Methods Research

Discussion about the validity of mixed methods research are in their infancy (Onwuegbuzie & Johnson, 2006), however, validity of mixed method designs has been identified as one of the six major issues of mixed methods research (Teddlie & Tashakkori, 2003). Onwuegbuzie and Johnson (2006) acknowledge that integrating quantitative data with qualitative data can be problematic, and rather than using a quantitative term like validity, these authors suggest to use bilingual nomenclature such as “legitimation” (p. 48). Creswell and Plano Clark (2011) assert that validity issues can be addressed through the phases of data collection, data analysis, and data interpretation. To accomplish validity within a mixed methods research, Creswell and Plano Clark (2011) suggest “employing strategies that address potential issues in data collection, data analysis, and data interpretations” so that the merging or connecting of the quantitative strand and qualitative strands is not compromised (p. 417). For this study, I employed strategies to minimize threats during these phases. Specifically, I employed the following strategies to minimize threats to validity: “drew quantitative and qualitative samples

from the same population,” “used separate data collection procedures,” “collected qualitative data after the collection of quantitative data was finished,” and “used procedures to present both sets of results in an equal way” (Creswell & Plano Clark, 2011, pp. 241-242).”

Summary

This study explored the role Cooperative Extension professionals are playing in the Farm to School movement. The researcher incorporated a two-phase explanatory sequential design to fully explore the breadth and depth of this complex phenomenon. The quantitative research strand involved an online survey of eight state Extension systems from across the U.S. The qualitative research strand incorporated a case study of the Ohio Farm to School Program and focused particularly on the involvement of OSU Extension professionals and OSU Extension Farm to School program partners. The findings from the quantitative research strand were used to inform the collection of data within the qualitative research strand. The findings from each strand were then used to explain the role Cooperative Extension is playing in the Farm to School movement.

CHAPTER 4: RESULTS

Introduction

The purpose of this study was to explore food system change through an analysis of Cooperative Extension professional's role in the Farm to School movement. In this two-phase explanatory sequential mixed methods study, quantitative data were used to select participants for follow-up in-depth interviews part of a state-based case study of the Ohio Farm to School Program. In the first phase, quantitative data was gathered through a convenient sample of Extension professional's in eight states to explore Cooperative Extension's behavioral intentions/behaviors towards the Farm to School movement. In the second phase, qualitative data was gathered through a purposeful sample of OSU Extension professionals and Farm to School program partners supporting the Farm to School movement in Ohio. Semi-structured, in-depth interviews were completed to explore OSU Extension professional's goals, strategies, and knowledge production. Specifically, the following four research questions were outlined and guided the study:

1. What are the behavioral intentions/behaviors of Cooperative Extension professionals towards educational programs and/or policy initiatives that support the Farm to School movement?
2. What is the relationship between an Extension professional's participation in Farm to School programming and their behavioral intentions towards educational programs and/or policy initiatives that support the Farm to School movement?
3. What are the goals and strategies of Cooperative Extension professionals for the Farm to School movement?
4. What type of knowledge production is occurring through Cooperative Extension professionals being involved in the Farm to School movement?

Context for Results

A discussion of the findings from the quantitative data strand and the qualitative data strand are offered below. Background is provided about the online survey of eight state Extension systems as well as the case study of OSU Extension involvement in the Ohio Farm to School Program. With respect to the online survey, an overview and demographics of the survey respondents and characteristics of the behaviors Extension professionals represent towards Farm to School programming is provided. This includes responses from both the close-ended and open-end questions. Additionally, results are shared that describe how well the theory of reasoned action explains the behavior of Cooperative Extension professionals towards Farm to School programming. With regard to the case study, the involvement of OSU Extension in the Ohio Farm to School Program is described and a description of the data collected for the case study is offered. Results are shared regarding Extensions goals and strategies towards the Farm to School movement, as well as knowledge production by Extension professional's currently supporting the Farm to School movement. Finally, a summary that mixes the quantitative data strand with the qualitative data strand is offered.

Quantitative Strand: Findings from an Online Survey of Participants from Eight State Extension Systems

Within the quantitative strand 931 usable online questionnaires were completed for a total response rate of 47.7 percent. Data included 37 completed questionnaires from Alabama (4 percent of sample), 28 completed questionnaires from Alaska (3 percent of sample), 8 completed questionnaires from Hawaii (1 percent of sample), 186 completed questionnaires from Louisiana (20 percent of sample), 223 completed questionnaires from Ohio (24 percent of sample), 190 completed questionnaires from Pennsylvania (20 percent of sample), 189 completed questionnaires from Tennessee (20 percent of sample), and 73 completed questionnaires from

Washington (8 percent of sample). In a similar study that surveyed Extension professionals in eight state Extension systems, Lamm, Israel, and Diehl (2013) received a slightly higher response of 65 percent. Table eight (below) describes the number of respondents from each state Extension system, the total population of each Extension system, the response rate of each Extension system, and the percent of the population of each Extension system, and the percent of the sample of each Extension system.

Table 8

Respondents by State Cooperative Extension System

State	Responses (N=)	Population (N=)	Response Rate (%)	Percent of Population (%)	Percent of Sample (%)
Alabama	37	182	20.3	9.3	4.0
Alaska	28	57	49.1	2.9	3.0
Hawaii	8	9	88.9	0.5	0.9
Louisiana	186	351	53.0	18.0	20.0
Ohio	221	628	35.2	32.2	23.7
Pennsylvania	189	510	37.1	26.1	20.3
Tennessee	189	407	46.4	20.8	20.3
Washington	73	600	12.2	30.7	7.8
<i>Total</i>	<i>931</i>	<i>1,953</i>	<i>47.7</i>	<i>100.0</i>	<i>100.0</i>

The researcher computed a second Cronbach's alpha test statistic from the complete data set to determine the level of reliability of the survey items (45 items). The overall Cronbach's alpha statistic was 0.85. In other words, the survey was found to have a good level of reliability (Santos, 1999).

Within the survey, respondents were asked to identify their primary program area. Out of the total of 931 usable completed questionnaires, 250 respondents (27 percent) indicated that their primary program area was 4-H Youth Development, 351 respondents (38 percent) indicated that their primary program area was Agriculture and Natural Resources, 45 respondents (5

percent) indicated that their primary program area was Community Development, and 117 respondents (19 percent) indicated that their primary program area was Family and Consumer Sciences. Additionally, 34 respondents (4 percent) indicated that their primary program area was Extension administration and 74 respondents (8 percent) stated they had a primary program area of other. Table nine (below) describes the respondents by Extension program area.

Table 9

Respondents Primary Program Area

Program Area	Responses (N=931)	Percent (%)
4-H Youth Development	250	26.9
Agriculture & Natural Resources	351	37.7
Community Development	45	4.8
Family & Consumer Sciences	117	19.0
Administration	34	3.7
Other	74	7.9

Respondents were also asked to identify their position with Extension. Out of the total of 931 completed questionnaires, 474 respondents (51 percent) indicated that they were an Extension agent or educator. Additionally, 104 respondents (11 percent) stated that they were an Extension program assistant or program associate. Furthermore, 146 respondents (16 percent) stated they were an Extension specialist. Moreover, 137 respondents (15 percent) indicated that they were Extension administration. Finally, 70 respondents (8 percent) indicated they had a position other than those listed. Table ten (below) summarizes respondent's position with Extension.

Table 10

Respondents Position with Cooperative Extension

Position	Responses (N=931)	Percent (%)
Extension Agent or Educator	474	50.9
Extension Program Assistant or Program Associate	104	11.2
Extension Specialist	146	15.7
Extension Administration	137	14.7
Other	70	7.5

Respondents were asked to identify their service area or territory. Out of the total of 931 completed questionnaires, 509 respondents (55 percent) indicated that their region or service area for providing education, training, or support was local. Additionally, 167 respondents (18 percent) indicated that their region or service area for providing education, training, or support was regional. Additionally, 237 respondents (26 percent) indicated that their region or service area for providing education, training, or support was statewide. Additionally, 18 respondents (2 percent) indicated that their region or service area for providing education, training, or support was other. Table eleven (below) describes respondent's area for providing education, training, or support.

Table 11

Respondent's Region or Service Area for Providing Education, Training, or Support

Region	Responses (N=931)	Percent (%)
Local (County or City)	509	54.7
Regional (Multi-county)	167	17.9
Statewide	237	25.5
Other	18	1.9

When asked how many years they had worked for Cooperative Extension, the mean response of respondents was 15.1 years. The median response of respondents was 14 years and

the mode response of respondents was 1 year (N=82). When asked to identify themselves, 362 respondents (44 percent) indicated that they were male. Additionally, 409 respondents (56 percent) indicated that they were female. When asked to select the ethnic group that best described them, 12 respondents (1.5 percent) selected Hispanic or Latino. Additionally, 815 respondents (98.5 percent) selected not Hispanic or Latino. When asked to select which racial category best described themselves, 6 respondents (1 percent) selected American Indian or Alaska Native. Additionally, 8 respondents (1 percent) selected Asian, 26 respondents (3 percent) selected Black or African American, 3 respondents (0.4 percent) selected Native Hawaiian or other Pacific Islander, 771 respondents (93 percent) selected white, and 15 respondents (2 percent) selected other. When asked to state their age, the mean age of respondents was 50 years. The median age of respondents was 51. Table twelve (below) summarizes the length of professional service in Extension, sex, ethnicity, race, and age of respondents.

Table 12

Demographics of Respondents

Variable	Responses (N=)	Percent (%)
Sex		
Male	362	43.6
Female	409	56.4
Ethnicity		
Hispanic or Latino	12	1.5
Not Hispanic or Latino	815	98.5
Race		
American Indian or Alaska Native	6	0.7
Asian	8	1.0
Black or African American	26	3.1
Native Hawaiian or Other Pacific Islander	3	0.4
White	771	93.0
Other	15	1.8
Age		
	Years	
Mean	49.6	
Median	51.0	
Length of Service		
	Years	
Mean	15.1	
Median	14.0	
Mode	1.0	

Research Question 1: Summarizing Extension Behaviors Supporting Farm to School

Research question one sought to explore the behavioral intentions/behaviors of Cooperative Extension professionals towards the Farm to School movement in eight state Extension systems. The researcher analyzed data from the online survey to answer research question one. The researcher compiled data from the survey on variables measuring knowledge of Farm to School, past participation in Farm to School trainings, current levels of involvement in Farm to School programming, interested/ like to levels of involvement in Farm to School programming, attitudes towards Farm to School programming, perceived social norms towards Farm to School programming, and perceived behavioral controls towards Farm to School programming. The researcher also completed an analysis of the responses from the open-ended

question using reasoned action theory to further explore the respondent’s behavioral intentions towards Farm to School programming.

Survey results: Close-ended questions. When respondents were asked if they had ever attended an educational training program about connecting local and regional farm products to school cafeterias, 19.1 percent of respondents (N=172) selected yes. When respondents were asked if they had ever attended an educational training program about developing school gardens, 38.6 percent of respondents (N=347) selected yes. When respondents were asked if they had ever attended an educational training program about developing Farm to School experiential learning programs, 10.7 percent of respondents (N=96) selected yes. From this set of questions, 52 percent of respondents (N=479) were found to never have attended a Farm to School training or program. Only six percent of respondents (n=56) stated that they had attended a training or program that included all three Farm to School topic areas. Table thirteen (below) summarizes respondents past participation in Farm to School educational trainings or programs.

Table 13

Respondents Past Participation in Farm to School Educational Trainings or Programs

Attended a Program about Connecting Local and Regional Farm Products to School Cafeterias		
Variable	Responses (N=902)	Percent (%)
Yes	172	19.1
No	729	80.8
I don’t know.	1	0.1
Attended a Program about Developing School Gardens		
Variable	Responses (N=899)	Percent (%)
Yes	347	38.6
No	548	61.0
I don’t know.	4	0.4
Attended a Program about Developing Farm to School Experiential Learning Programs		
Variable	Responses (N=898)	Percent (%)
Yes	96	10.7
No	795	88.5
I don’t know.	7	0.8

When asked about their level of knowledge towards Farm to School, overall, the majority of respondents were unfamiliar with specific Farm to School characteristics. Respondents were found to have the most knowledge about Farm to School involving more than just serving local and regionally grown/raised food in school cafeterias. Almost 50 percent of respondents (N=445) answered this item correctly. Respondents were found to have the least knowledge regarding the creation of a national Farm to School month. Only 24 percent of respondents (N=216) answered this item correctly. Out of a total possible score of 10, the mean knowledge score for respondents was 3.8, the median score was 3.0, and the mode score was 0.0. Out of a total of 873 respondents, 22 percent of respondents (N=192) were found to have a mode score of 0.0. In other words, from this list of questions, 22 percent of respondents (N=192) were found to have no knowledge of Farm to School. On the converse, 6.5 percent (N=57) of respondents scored the maximum 10 points, indicating the highest level of knowledge about Farm to School. Table fourteen (below) summarizes respondent's level of knowledge towards ten Farm to School statements.

Table 14

Respondents Knowledge about Farm to School

Variable	Yes (%)	No (%)	I don't know (%)	Responses (N=)
There is a national Farm to School month.	23.9	2.8	73.3	902
Federal legislation supports schools buying local and regionally grown/raised foods.	44.6	4.9	50.6	900
Many states have state based/sponsored Farm to School programs.	47.2	2.7	50.1	896
There is an organization known as the National Farm to School Network supporting Farm to School programs across the U.S.	33.1	1.6	65.3	897
Farm to School can involve more than just serving local and regionally grown raised food in school cafeterias.	49.6	1.6	48.9	898
The USDA has a national grant program to support schools buying local and regionally grown/raised food.	38.8	1.8	59.4	896
The USDA has a national grant program to support school garden based learning programs.	42.6	1.7	55.7	896
The USDA has a national grant program to support Farm to School experiential learning programs.	27.9	2.2	69.9	894
The goals of the USDA Know Your Farmer, Know Your Food program support the goals of the national Farm to School program.	37.5	1.0	61.5	895
The goals of the First Lady's Let's Move initiative support the goals of the national Farm to School program.	42.1	3.4	54.6	894

When asked which Farm to School activities they were currently completing or involved with, the number one activity respondents were involved with was “school gardens or community garden programs” (N=200). This was followed by “farm-based field trips for youth/students” (N=115), “market opportunities for farmers” (N=93), “farm/farmer-based presentations in schools” (N=68), and “community economic development” (N=65). From this list of Farm to School activities, 39 percent of respondents (N=365) were found to be involved with or coordinating at least one Farm to School activity. Respondents were found to be currently coordinating an average of one Farm to School activity. Table fifteen (below) describes respondent’s participation in completing Farm to School activities.

Table 15

Farm to School Activities Respondents Stated They Were Currently Completing

Rank	Item	Responses (N=)	Percent (%)
1	School gardens or community garden programs	200	21.5
2	Farm-based field trips for youth/students	115	12.4
3	Market opportunities for farmers	93	10.0
4	Farm/farmer-based presentations in schools	68	7.3
5	Community economic development	65	7.0
6	Local food, agriculture, or health policy development	64	6.9
7	Local food and farm curriculum development for schools	49	5.3
8	Local food cooking in schools	44	4.7
9	Tastings with local food in schools	44	4.7
10	Composting programs at schools	40	4.3
11	Grant-writing to support Farm to School programs or activities	38	4.1
12	Volunteer recruitment and development for Farm to School activities	34	3.7
13	Training about on-farm food safety regulations for selling to institutional markets	33	3.5
14	USDA Fresh Fruit & Vegetable Program presentations in schools	30	3.2
15	Training and technical assistance for farmers to sell products to schools	28	3.0
16	Local food coordination/procurement for schools	21	2.3
17	Local food aggregation and distribution development for schools	19	2.0
18	Farmers markets at schools	14	1.5
19	Local food recipe development in schools	14	1.5
20	Training about insurance regulations for selling to institutional markets	9	1.0
21	Local food coordination/procurement for pre-K programs or daycare facilities	8	0.9
-	Other	43	4.6

When asked which Farm to School activities they would like to complete or become involved with, the number one activity respondents stated they would like to become involved with was “school gardens or community garden programs” (N=326). This was followed by “farm-based field trips for youth/students” (N=295), “farm/farmer-based presentations in schools” (N=245), “market opportunities for farmers” (N=223), and “local food and farm

curriculum development for schools” (N=218). From this list of Farm to School activities, 72 percent of respondents (N=672) stated that they would like to be involved with or coordinate at least one Farm to School activity. Respondents were found to be interested in being involved with an average of four Farm to School activities. Table sixteen (below) describes respondent’s interest in completing Farm to School activities.

Table 16

Farm to School Activities Respondents Stated They Would Like to Complete

Rank	Item	Responses (N=)	Percent (%)
1	School gardens or community garden programs	326	35.0
2	Farm-based field trips for youth/students	295	31.7
3	Farm/farmer-based presentations in schools	245	26.3
4	Market opportunities for farmers	223	24.0
5	Local food and farm curriculum development for schools	218	23.4
6	Local food cooking in schools	207	22.2
7	USDA Fresh Fruit & Vegetable Program presentations in schools	159	17.1
8	Composting programs at schools	157	16.9
9	Farmers markets at schools	132	14.2
10	Grant-writing to support Farm to School programs or activities	132	14.2
11	Community economic development	129	13.9
12	Local food recipe development in schools	126	13.5
13	Volunteer recruitment and development for Farm to School activities	124	13.3
14	Local food, agriculture, or health policy development	119	12.8
15	Tastings with local food in schools	119	21.4
16	Training and technical assistance for farmers to sell products to schools	111	11.9
17	Local food coordination/procurement for schools	110	11.8
18	Training about on-farm food safety regulations for selling to institutional markets	102	11.0
19	Local food aggregation and distribution development for schools	88	9.5
20	Local food coordination/procurement for pre-K programs or daycare facilities	87	9.3
21	Training about insurance regulations for selling to institutional markets	64	6.9
-	Other	26	2.8

With each Extension program area having a different mission and focus, leading to a different potential role in Farm to School programming, it is important to know how each Extension program area is currently or interested in supporting Farm to School activities. The number one current (N=57) and interested (N=126) Farm to School activity of respondents who identified themselves as 4-H Youth Development Extension professionals was “school and community garden programs.” Table seventeen (below) lists the top five current and interested/like to Farm to School activities of those respondents who identified themselves as 4-H Youth Development Extension professionals.

Table 17

Top Five Current and Interested Farm to School Activities for 4-H Youth Development Extension Professionals

Rank	Current Farm to School Activities	Responses (N=)	Percent (%)
1	School gardens or community garden programs	57	22.8
2	Farm-based field trips for youth/students	32	12.8
3	Farm/farmer-based presentations in schools	26	10.4
4	Local food and farm curriculum development for schools	17	6.8
	Local food, agriculture, or health policy development	9	3.6
5	Local food cooking in schools	9	3.6
	Volunteer recruitment and development for Farm to School activities	9	3.6
Rank	Interested/Like to Farm to School Activities	Responses (N=)	Percent (%)
1	School gardens or community garden programs	126	50.4
2	Farm-based field trips for youth/students	124	49.6
3	Farm/farmer-based presentations in schools	93	37.2
4	Local food and farm curriculum development for schools	90	36.0
5	Tastings with local food in schools	80	32.0

Analysis was also completed to determine which Farm to School activities Agricultural and Natural Resource Extension professionals are currently or interested in being involved in.

When exploring which Farm to School activities Agricultural and Natural Resource Extension

professionals are currently involved in, the number one current Farm to School activity of respondents was “school gardens or community garden programs” (N=74). Differently, the number one interested/like to Farm to School activity of respondents who identified themselves as Agricultural and Natural Resource Extension professionals was “market opportunities for farmers” (N=122). Table eighteen (below) lists the top five current and interested/like to Farm to School activities of those individuals who identified themselves as Agricultural and Natural Resource Extension professionals.

Table 18

Top Five Current and Interested Farm to School Activities for Agriculture and Natural Resource Extension Professionals

Rank	Current Farm to School Activities	Responses (N=)	Percent (%)
1	School gardens or community garden programs	74	21.1
2	Market opportunities for farmers	53	15.1
3	Farm-based field trips for youth/students	47	13.4
4	Farm/farmer-based presentations in schools	25	7.1
5	Local food, agriculture, or health policy development	24	6.8
Rank	Interested/Like to Farm to School Activities	Responses (N=)	Percent (%)
1	Market opportunities for farmers	122	34.8
2	Farm-based field trips for youth/students	108	30.8
3	School gardens or community garden programs	97	27.6
4	Farm/farmer-based presentations in schools	96	27.4
5	Training and technical assistance for farmers to sell products to schools	66	18.8

Additionally, analysis was also completed to determine which Farm to School activities Community Development Extension professionals are currently or interested in being involved in. When exploring which Farm to School activities Community Development Extension professionals are currently or interested in being involved in, the number one current (N=18) and interested (N=20) Farm to School activity of respondents was “community economic

development.” Table nineteen (below) lists the top five current and interested/like to Farm to School activities of those respondents who identified themselves as Community Development Extension professionals.

Table 19

Top Five Current and Interested Farm to School Activities for Community Development Extension Professionals

Rank	Current Farm to School Activities	Responses (N=)	Percent (%)
1	Community economic development	18	40.0
2	Market opportunities for farmers	14	31.1
3	School or community garden programs	11	24.4
4 (tie)	Farm-based field trips for youth/students	6	13.3
4 (tie)	Local food, agriculture, or health policy development	6	13.3
4 (tie)	Grant-writing to support Farm to School programs or activities	6	13.3
Rank	Interested/Like to Farm to School Activities	Responses (N=)	Percent (%)
1	Community economic development	20	44.4
2	Market opportunities for farmers	15	33.3
3	School or community garden programs	12	26.7
4	Farmers markets at schools	9	20.0
5	Local food and farm curriculum development for schools	9	20.0

Finally, analysis was also completed to determine which Farm to School activities Family and Consumer Sciences Extension professionals are currently or interested in being involved in. When exploring which Farm to School activities Family and Consumer Sciences Extension professionals are currently involved in, the number one current Farm to School activity of respondents was “school gardens or community garden programs” (N=36). Differently, the number one interested/like to Farm to School activity of respondents who identified themselves as Family and Consumer Sciences Extension professionals was “local food cooking in schools” (N=79). Table twenty (below) lists the top five current and interested/like to Farm to School

activities of those respondents who identified themselves as Family and Consumer Sciences Extension professionals.

Table 20

Top Five Current and Interested Farm to School Activities for Family and Consumer Sciences Extension Professionals

Rank	Current Farm to School Activities	Responses (N=)	Percent (%)
1	School gardens or community garden programs	36	20.3
2	Tastings with local food in schools	27	15.3
3	Local food cooking in schools	25	14.1
4	USDA Fresh fruit and vegetable program presentations in schools	18	10.2
5	Farm-based field trips for youth/students	18	10.2
Rank	Interested/Like to Farm to School Activities	Responses (N=)	Percent (%)
1	Local food cooking in schools	79	44.6
2	Tastings with local food in schools	70	39.5
3	USDA Fresh fruit and vegetable program presentations in schools	61	34.5
4	School gardens or community garden programs	56	31.6
5	Local food recipe development in schools	51	28.8

Using a semantic differential scale, first developed by Charles Osgood and his associates in 1957 to measure an individual's overall attitude toward a behavior, respondents were asked to state their overall attitudes towards Farm to School programming. The semantic differential scale asks respondents to rate the attitude object on a set of bipolar evaluative adjective scales, with usually seven places or alternatives. Respondents overall attitude towards Farm to School was slightly positive, with an overall mean attitudinal score of 0.84. Respondents overall evaluative score towards Farm to School was positive, with a mean evaluative score of 2.12. Respondents overall potency score towards Farm to School was slightly negative, with a mean potency score of -0.18. Respondents overall mean activity score towards Farm to School was slightly positive, with a mean activity score of 0.57. In general, respondents believed that Farm to School

programs are good and valuable programs for Cooperative Extension to be involved in, but that Farm to School programs are slightly complex and difficult to coordinate. Table twenty one (below) summarizes respondents mean attitude scores towards Farm to School programming.

Table 21

Respondents Attitudes towards Farm to School

Bipolar Pair	Minimum	Maximum	Mean
Evaluation			
Positive/Negative	-3	3	2.31
Good/Bad	-3	3	2.31
Valuable/Worthless	-3	3	2.07
Pleasant/Unpleasant	-3	3	1.80
Subtotal			2.12
Potency			
Simple/Complex	-3	3	-0.69
Soft/Hard	-3	3	-0.02
Easy/Difficult	-3	3	-0.50
Strong/Weak	-3	3	0.48
Subtotal			-0.18
Activity			
Exciting/Calm	-3	3	1.29
Quiet/Loud	-3	3	0.04
Relaxing/Tense	-3	3	0.15
Active/Passive	-3	3	0.80
Subtotal			0.57
<i>Total</i>			<i>0.84</i>

Respondents were also asked about their behavioral controls towards Farm to School. From a list of ten statements, respondents most strongly agreed with the statement “I believe that programs that help farmers sell local and regional food to school cafeterias can be educational and impactful for participants.” From a list of ten statements, respondents most strongly disagreed with the statement “I believe that I have the necessary resources to help farmers sell local and regional food to school cafeterias.” Table twenty two (below) summarizes the ranking of responses for respondents towards the perceived behavioral control towards Farm to School.

Table 22

Respondents Perceived Behavioral Control towards Farm to School

Rank	Variable	(N=)	Mean ^a
1	I believe that programs that help farmers sell local and regional food to school cafeterias can be educational and impactful for participants.	833	1.48
2	I believe that I can inform my stakeholders about the importance of programs that help farmers sell local and regional food to school cafeterias.	830	1.34
3	I believe that I can help schools develop school garden-based learning programs.	831	1.08
4	I believe that I can help schools develop Farm to School experiential learning programs.	833	1.08
5	There are few external barriers to Extension supporting Farm to School experiential learning programs.	830	0.70
6	I believe that if I coordinate programs that help farmers sell local and regional food to school cafeterias the program will be successful.	830	0.67
7	There are few external barriers to Extension supporting school garden-based learning programs.	830	0.65
8	There are few external barriers to Extension supporting programs that help farmers sell local and regional food to school cafeterias.	829	0.30
9	I believe that I have the skills and knowledge to help farmers sell local and regional food to school cafeterias.	836	0.25
10	I believe that I have the necessary resources to help farmers sell local and regional food to school cafeterias.	835	-0.23

^aThe mean comes from a seven point scale ranging from '3' as strongly agree to '-3' as strongly disagree.

Respondents were also asked about their perceived social norms towards Farm to School. From a list of ten statements measuring respondents perceived norms towards Farm to School programming, respondents most strongly agreed with the statement "Extension administrations value programs that help farmers sell local and regional food to school cafeterias." From a list of ten statements measuring respondents perceived norms towards Farm to School programming, respondents most strongly disagreed with the statement "Extension colleagues expect for me to assist with programs that help farmers sell local and regional food to school cafeterias." Table twenty three (below) summarizes the ranking of responses for respondents towards their perceived norms towards Farm to School.

Table 23

Respondents Perceived Norms towards Farm to School

Rank	Variable	(N=)	Mean ^a
1	Extension administrations value programs that help farmers sell local and regional food to school cafeterias.	808	1.41
2	Extension administrations believe that I should support programs that help farmers sell local and regional food to school cafeterias.	803	1.07
3	I believe that I will be positively acknowledged for supporting programs that help farmers sell local and regionally food to school cafeterias.	800	1.05
4	Extension partners such as schools, local Farm Bureaus, and community groups support my involvement in programs that help farmers sell local and regional food to school cafeterias.	802	0.95
5	School personnel expect Extension to assist with school garden-based learning programs.	802	0.52
6	School personnel expect Extension to assist with Farm to School experiential learning programs.	802	0.43
7	School personnel expect Extension to assist with programs that help farmers sell local and regional food to school cafeterias.	801	0.25
8	Extension colleagues expect for me to assist with school garden-based learning programs.	805	0.22
9	Extension colleagues expect for me to assist with Farm to School experiential learning programs.	806	0.13
10	Extension colleagues expect for me to assist with programs that help farmers sell local and regional food to school cafeterias.	805	0.00

^aThe mean comes from a seven point scale ranging from '3' as strongly agree to '-3' as strongly disagree.

Survey results: Open-ended question. Survey results from the open-ended question were coded using the theory of reasoned action (Fishbein & Ajzen, 2010). Similar passages were grouped together into major themes. Many of the activities described in the open-ended question were similar to those reported in the close-ended questions. Respondents described coordinating local and regional farm to cafeteria programs and coordinating school garden-based learning programs. Respondents also described coordinating a variety of Farm to School experiential learning programs such as local food cooking demonstrations for students. Additionally, respondents described supporting Farm to School by participating in local food policy councils, grant-writing collaborations, conducting educational programs about food production,

distribution, and good food safety practices, and group facilitation to help better connect local food suppliers and distributors.

The most common response described in the open-ended question was that Extension should be currently supporting, and continue to support, Farm to School programming. Many of the responses encouraged Cooperative Extension Systems to further explore Farm to School as a program area within Extension and for Extension systems to devote more resources to establishing local and regional Farm to School programs. One respondent from Alaska stated, “Extension could and should play an important part, particularly in the educational roles for youth and adults. Extension can be the go-to place for resources, collaborative opportunities, and research based information.” Another respondent from Alabama echoed this response and stated,

“I feel that Extension should and can play a crucial role in connecting local farm products to school cafeterias, developing school gardens, and developing Farm to School experiential learning programs. I feel that it is extremely important for our youth to know where their food comes from and to appreciate our local farmers. I also feel that we should help support our local farmers by giving them an opportunity to market their foods in our local schools and community.”

Although the majority of attitudes shared towards Extension participation in Farm to School were positive, there were open-ended responses that stated Cooperative Extension should not be involved with supporting Farm to School programming.

The second most common response was that the lack of government and school support for Farm to School constituted a major challenge to Extension participation in Farm to School programming. Many of the respondents stated that they found it difficult to support Farm to School through educational programs because of lack of interest for Farm to School by school

system stakeholders. One respondent from Ohio stated, “Unfortunately, in my county, partnering with local schools is extremely difficult. We have tried to approach the schools with various Extension programs and the teachers and schools have no interest in them.” When describing the opportunity to connect local and regional foods to school meals, a respondent from Tennessee stated, “Problem lies with the food service coordinator and the school cooks willing, and having the time, to prepare fresh fruits and vegetables. Here, they refuse to purchase items that are time consuming to prepare. Schools need an extra individual designated to new farm fresh fruits and vegetables preparation.”

The third most common response was that Extension professionals would like training in Farm to School and that this training would be beneficial to increasing Extension participation in the Farm to School movement. A respondent from Tennessee supported Extension participation in Farm to School but stated that he needed training to become more involved. S/he stated, “I believe this is a valuable program, however, I do not possess the necessary skills and/or training to currently be useful for this.” The lack of training was described by respondents as a barrier to Farm to School program involvement. Another respondent from Tennessee stated, “We need more training and support to make these [Farm to School programs] happen.” Similarly, a respondent from Louisiana stated, “I would like training on the Farm to School experiential learning programs.”

The fourth most common response from Extension professionals was that there are significant community-based food system challenges and barriers to supporting Farm to School programs. Respondents stated that these challenges were primarily in the form of the lack of food system infrastructure. Respondents described the lack of food system infrastructure in terms of the lack of local and regional food processing, handling, and storage facilities, the lack of mid-

scale commercial growers/producers, and the need for better local and regional food system supply and distribution chains. A respondent in Louisiana explained the lack of food system infrastructure by stating, “There are no USDA certified food processing facilities so there is no pathway to get regionally grown food into the school cafeterias.” Similarly, a respondent in Pennsylvania stated, “I think that the food processing and handling infrastructure would have to be set-up to do this [Farm to School] and this may be a significant challenge.” Additionally, when describing the limited number of mid-scale commercial farmers, a respondent from Tennessee stated, “The local producer base to provide farm products to schools is not large enough to support local school systems in such programming.” A respondent in Tennessee described the need for coordinated supply and distribution chains as a challenge to Farm to School program involvement and stated, “Any farmer in my county who wants to participate in this program [Farm to School] has to be able to deliver to 17 different schools. With current energy costs and what the county is willing to pay, this makes participating in the program unprofitable for most if not all producers.” Respondents identified additional external challenges which included the price of local and regional foods, the small budget schools have to work with when buying local foods, the seasonality of local and regional food, and the lack of agricultural production during the majority of the school year. A respondent in Ohio summed this up by stating, “Schools are a low cost provider. The main issue with farmers producing for schools is the profitability of the enterprise. This, and other external issues, affects the success of the Farm to School program.”

The fifth most common response from respondents regarding Extension participation in the Farm to School movement was that there are significant internal challenges within Extension to Farm to School program involvement. These challenges are primarily related to the lack of

existing resources such as program curriculum available to support Extension involvement in Farm to School programming. A respondent from Pennsylvania stated, “I think Pennsylvania Extension is missing the wagon and is slow to respond to this movement. There is very little curriculum available for this activity.” Another respondent from Tennessee stated,

“[Farm to School] has a very promising future in Tennessee! We just need the tools to market/explain to both the producers and the school system how it would work. We also need resources to get commitment from both sides in terms of assuring there is a market for the harvest, so that farmers will plant the amounts needed.”

In addition to curriculum, other internal challenges included the lack of time, staff, and funding available to support Farm to School programming. A respondent from Tennessee stated, “I think this is a good idea, where is funding and time?” Another respondent from Pennsylvania stated this similarly and wrote, “Time is the limiting factor. We are being asked to do more than is possible. While the concept is good, the time demands make it unrealistic.” A respondent from Alaska stated, “I think the largest barrier is time. There are many great programs we all would like to be a part of but with so few of us in the state we can only be spread so thin.”

Summary of survey results: Mixing of close-ended questions and open-ended question.

The researcher found that responses to the open-ended questions supported the results of the close-ended questions. Responses to the close-end and the open-ended questions support the finding that Cooperative Extension professionals are engaged with programming that support Farm to School through connecting local and regional foods to school cafeterias, developing school gardens, and developing other types of Farm to School experiential learning programs. Additionally, responses to the close-ended and the open-ended questions support the finding that

Extension professionals are somewhat knowledgeable about Farm to School and that future trainings in Farm to School related topics would be beneficial. Responses to both the close-ended and open-ended questions indicate that Extension professionals generally have a positive attitude towards Farm to School but that there are a number of internal and external challenges/barriers to increasing Cooperative Extension involvement in the Farm to School movement. These challenges include the lack of Extension resources available to complete Farm to School programs and the lack of interest and support from school and food system stakeholders in Farm to School programming.

Research Question 2: Explaining Extension Behavior in Farm to School

Research question two was developed to determine how well the theory of reasoned action (Fishbein & Ajzen, 2010) explains Extension participation in the Farm to School movement. Data from the online survey of eight state Extension systems were utilized to answer research question two. The researcher created one composite dependent variable to measure total participation in Farm to School programming. This variable included combining the two variables that measured current participation in Farm to School programming and interested/like to participation in Farm to School programming by each Extension professional survey respondent. Each unit increase measures an Extension professional's additional unit of participation in Farm to School programming (*i.e.*, currently or interested in participating in one more Farm to School activity or program). The researcher also created five composite variables to represent the independent variables included in the theory of reasoned action (Fishbein & Ajzen, 2010). This included creating a composite variable to measure past behavior in Farm to School trainings or programs, a composite variable to measure knowledge about Farm to School, a composite variable to measure attitudes towards Farm to School, a composite variable to

measure perceived norms towards Farm to School, and a composite variable to measure perceived behavioral control towards Farm to School. The composite variable measuring knowledge about Farm to School was created by adding the responses to a series of ten survey items asking respondents about select Farm to School characteristics. The composite variable measuring past behavior towards Farm to School was created by adding the responses to a series of three survey items asking respondents about past participation in Farm to School programs or trainings. The composite variable measuring attitudes towards Farm to School was created by adding the responses to a series of twelve survey items using twelve different bipolar pairs asking respondents about their overall attitude towards Farm to School. The composite variable measuring perceived norms towards Farm to School was created by adding the responses to a series of ten survey items asking respondents about their perceived social norms towards specific Farm to School characteristics. The composite variable measuring perceived behavioral control towards Farm to School programming was created by adding the responses to a series of ten survey items asking respondents about their perceived behavioral control towards specific Farm to School programming characteristics. In addition to developing composite variables to represent the theory of reasoned action variables, the researcher created a series of eleven dummy variables to represent each respondent's program area, position type, and service area. Furthermore, the researcher created dummy variables to indicate the respondent's race and sex. The variables representing the respondent's age and length of service with Cooperative Extension were categorized in number of years. Table twenty four (below) summarizes the variables included as part of the sequential multiple regression models developed to answer research question two.

Table 24

Descriptive Statistics for Variables Included in the Nine Sequential Multiple Regression Models

Variable	Responses (N=)	Minimum	Maximum	Range	Mean	Std. Dev.
Total Farm to School Activity	931	0.00	37.00	37.00	4.78	5.35
Male	831	0.00	1.00	1.00	0.44	0.50
Non-white	829	0.00	1.00	1.00	0.07	0.26
Age	797	22.00	74.00	52.00	48.45	11.66
Dummy 4-H	931	0.00	1.00	1.00	0.27	0.44
Dummy ANR	931	0.00	1.00	1.00	0.38	0.48
Dummy CD	931	0.00	1.00	1.00	0.48	0.21
Dummy FCS	931	0.00	1.00	1.00	0.19	0.39
Dummy Agent	931	0.00	1.00	1.00	0.51	0.50
Dummy PA	931	0.00	1.00	1.00	0.11	0.32
Dummy Specialist	931	0.00	1.00	1.00	0.16	0.36
Dummy Admin	931	0.00	1.00	1.00	0.15	0.35
Dummy Local	931	0.00	1.00	1.00	0.55	0.50
Dummy Regional	931	0.00	1.00	1.00	0.18	0.38
Dummy State	931	0.00	1.00	1.00	0.25	0.44
Years of Service	931	0.00	42.00	42.00	15.10	10.87
Past Behavior Knowledge	895	0.00	3.00	3.00	0.68	0.88
Attitude	873	0.00	10.00	10.00	3.82	3.24
Perceived Social Norms	759	-23.00	35.00	58.00	10.24	7.20
Perceived Behavioral Controls	782	-30.00	30.00	60.00	6.12	11.13
	795	-30.00	30.00	60.00	7.41	10.26

Using the variables listed in Table 24, the researcher developed a series of nine multiple regression models to determine which of the socio-demographic variables, Extension-demographic variables, and theory of reasoned action variables were statistically significant in

explaining an Extension professional's participation in Farm to School programs or activities.

Table twenty five (below) summarizes the results of each of the nine regression models.

Table 25

Comparison of Nine Regression Models of Cooperative Extension Participation in Farm to School

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
-- Standardized Regression Coefficients --									
Socio-demographic variables									
Non-white	0.121***								0.104**
Age	-0.030								0.041
Male	-0.090**								-0.043
Extension demographic variables									
Dummy 4-H		0.027							0.068
Dummy ANR		0.002							0.055
Dummy CD		0.061							0.036
Dummy FCS		0.025							0.011
Dummy Agent		0.006							-0.106
Dummy PA		-0.084							-0.119
Dummy Specialist		0.003							-0.078
Dummy Admin		0.021							-0.079
Dummy Local		0.111							0.051
Dummy Regional		0.013							-0.029
Dummy State		-0.092							-0.097
Years of Service		-0.098**							-0.124*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
-- Standardized Regression Coefficients --									
Reasoned action variables									
Past Behavior			0.331***					0.227***	0.226***
Knowledge				0.298***				0.161***	0.167***
Attitudes					0.153***			0.074*	0.054
Perceived Social Norms						0.246***		0.112**	0.104*
Perceived Behavioral Controls							0.267***	0.116**	0.112**
Adjusted R ²	0.021	0.040	0.108	0.088	0.022	0.059	0.070	0.187	0.225
F value	6.596***	4.265***	109.630***	85.007***	18.025***	50.324***	60.692***	31.450***	10.221***

* Significant at the 0.05 level. ** Significant at the 0.01 level. *** Significant at the 0.001 level.

Model 1: Socio-demographic variables. Sequential multiple regression model one explores which of the socio-demographic variables were statistically significant in explaining an Extension professional's participation in Farm to School programming. The socio-demographic variables that were included in the model were *non-white*, *age*, and *male*. The overall model was found to be statistically significant ($F=6.596$, $p<0.001$). The adjusted R^2 for the model was 0.021. This means that the model accounts for 2.1 percent of the variance in an Extension professionals participation in Farm to School programming. In the regression model, the variables of *non-white* and *male* were found to be statistically significant in explaining an Extension professional's participation in Farm to School programming. The variable *non-white* was found to be positively related to an Extension professional's participation in Farm to School programming. The variable *non-white* had a regression coefficient of 0.121 ($p<0.001$) which means that non-white Extension professionals participate in 0.121 more Farm to School activities compared to white Extension professionals. Male had a regression coefficient of -0.090 ($p<0.01$) which means that male Extension professionals participate in 0.090 fewer Farm to School activities compared to female Extension professionals.

Model 2: Extension demographic variables. Model two explores which of the Extension demographic variables were statistically significant in explaining an Extension professional's participation in Farm to School programming. The model included twelve Extension demographic variables. Each of the variables representing an Extension professional's primary program area, type of position, and service region or coverage area were entered into the model as dummy variables. The variable representing an Extension professional's years of service was

entered into the model as a continuous variable based on how many years the respondent had stated that they had worked for Cooperative Extension. The overall model was found to be statistically significant ($F=4.265$, $p<0.001$). The adjusted R^2 for the model was 0.040. This means that the model accounts for 4.0 percent of the variance in an Extension professionals participation in Farm to School programming. In the model, the variable measuring respondent's years of service with Extension was found to be statistically significant in explaining an Extension professional's participation in Farm to School programming. The variable *years of service* was found to be negatively related to an Extension professional's participation in Farm to School programming. The variable measuring years of service had a regression coefficient of -0.098 ($p<0.01$). This means that for every additional year of service working for Cooperative Extension, an Extension professional's participation in Farm to School activities decreased by 0.098 activities.

Model 3: Past behaviors in Farm to School. Model three explores if past behavior by attending a Farm to School training or program is statistically significant in explaining an Extension professional's participation in Farm to School programming. The overall model was found to be statistically significant ($F=109.630$, $p<0.001$). The adjusted R^2 for the model was 0.108. This means that the model accounts for 10.8 percent of the variance in an Extension professional's participation in Farm to School programming. In the model, the variable, *past behavior* was found to be statistically significant in explaining an Extension professional's participation in Farm to School programming. The variable measuring past behavior of an Extension professional towards Farm to School had a regression coefficient of 0.331 ($p<0.001$). This means that for each additional Farm to School training program an Extension professional

attends, an Extension professional's participation in Farm to School programming increased by 0.331 activities.

Model 4: Knowledge about Farm to School. Model four explores if knowledge about Farm to School is statistically significant in explaining an Extension professional's participation in Farm to School programming. The overall model was found to be statistically significant ($F=85.007$, $p<0.001$). The adjusted R^2 for the model was 0.088. This means that the model accounts for 8.8 percent of the variance in an Extension professional's participation in Farm to School programming. In the model, the variable measuring an Extension professional's knowledge about Farm to School was found to be statistically significant in explaining an Extension professional's participation in Farm to School programming. The variable measuring an Extension professional's knowledge about Farm to School was found to have a positive relationship with overall participation in Farm to School programming. The variable measuring as Extension professional's knowledge about Farm to School had a regression coefficient of 0.298 ($p<0.001$). This means that for every correct answer to a question asking about a specific Farm to School characteristic, an Extension professional's participation in Farm to School programming increased by 0.298 activities.

Model 5: Attitudes towards Farm to School. Model five explores if attitudes towards Farm to School is statistically significant in explaining an Extension professional's participation in Farm to School programming. The overall model was found to be statistically significant ($F=18.025$, $p<0.001$). The adjusted R^2 for the model was 0.022. This means that the model accounts for 2.2 percent of the variance in an Extension professionals participation in Farm to School programming. In the model, the variable measuring an Extension professional's attitudes towards Farm to School had a regression coefficient of 0.153 ($p<0.001$). This means that as an

Extension professional's attitude towards Farm to School increases one unit, an Extension professional's participation in Farm to School increased by 0.153 activities.

Model 6: Perceived social norms towards Farm to School. Model six explores if perceived social norms towards Farm to School is statistically significant in explaining an Extension professional's participation in Farm to School programming. The overall model was found to be statistically significant ($F=50.324$, $p<0.001$). The adjusted R^2 for the model was 0.059. This means that the model accounts for 5.9 percent of the variance in an Extension professional's participation in Farm to School programming. In the model, the variable measuring perceived social norms had a regression coefficient of 0.246 ($p<0.001$). This means that as an Extension professional's perceived social norms about Farm to School increases one unit, an Extension professional's participation in Farm to School increased by 0.246 activities.

Model 7: Perceived behavioral controls towards Farm to School. Model seven explores if perceived behavioral control towards Farm to School is statistically significant in explaining an Extension professional's participation in Farm to School programming. The overall model was found to be statistically significant ($F=60.692$, $p<0.001$). The adjusted R^2 for the model was 0.070. This means that the model accounts for 7.0 percent of the variance in an Extension professional's participation in Farm to School programming. In the model, the variable measuring an Extension professional's perceived behavioral control towards Farm to School programming had a regression coefficient of 0.267 ($p<0.001$). This means that as an Extension professional's perceived behavioral control towards Farm to School programming increases one unit, an Extension professional's participation in Farm to School increased by 0.267 activities.

Model 8: The reasoned action model. Model eight explores which of the theory of reasoned action variables are associated with explaining an Extension professional's

participation in Farm to School programming. The overall model was found to be statistically significant ($F= 31.450$, $p<0.001$). The adjusted R^2 for the model was 0.187. This means that the model accounts for 18.7 percent of the variance in an Extension professional's participation in Farm to School programming. In the model, each of the reasoned action variables including *past behavior*, *knowledge*, *attitude*, *perceived social norms*, and *perceived behavioral control* towards Farm to School was found to be statistically significant in determining an Extension professional's participation in Farm to School programming. Each of these variables were found to be positively related to an Extension professional's participation in Farm to School programming. In other words, as an Extension professional's past behavior, knowledge, attitude, perceived social norms, and perceived behavioral control towards Farm to School increases, their participation in Farm to School programming increases. Comparing the regression results of this model to the results of each of the models that included only one of the reasoned action variables, each of the variables coefficients in the reasoned action model were slightly smaller compared to each coefficient in the models that included only a single variable. The variable with the greatest impact on an Extension professional's participation in Farm to School programming was past behavior.

Model 9: The additive model. Model nine explores whether or not all of the independent variables are associated with explaining an Extension professional's participation in Farm to School programming. The overall model was found to be statistically significant ($F= 16.422$, $p<0.001$). The adjusted R^2 for the model was 0.226. This means that the model accounts for 22.6 percent of the variance in an Extension professional's participation in Farm to School programming. In the model, the variables including *non-white*, *years of service*, *past behavior*, *knowledge*, *perceived social norms*, and *perceived behavioral control* were found to be

statistically significant in explaining an Extension professional's participation in Farm to School programming. Non-white Extension professionals were found to be participating in more Farm to School activities compared to white Extension professionals. Additionally, Extension professionals with fewer years of service were found to be participating in more Farm to School activities compared to Extension professionals with more years of service with Cooperative Extension. Furthermore, Extension professional's with past participation in a Farm to School training or program, higher levels of knowledge about Farm to School, greater levels of perceived social norms towards Farm to School, and greater levels of perceived behavioral control towards Farm to School were found to be participating in more Farm to School activities. This result is expected and describes which type of Extension professionals develop and complete more Farm to School programs.

In summary, nine regression models were calculated to determine which socio-demographic variables, Extension demographic variables, and theory of reasoned action variables were statistically significant in explaining Extension participation in the Farm to School movement. Theory of reasoned action variables measuring past behavior, knowledge, attitudes, perceived social norms, and perceived behavioral control were found to be statistically significant in explaining Extension participation in Farm to School programming. Each of these variables was found to be positively related to an Extension professional's participation in the Farm to School programming. Additionally, the variable measuring an Extension professional's years of service was found to be statistically significant in explaining an Extension professional's participation in Farm to School programming. This variable was found to be negatively related to an Extension professional's participation in Farm to School programming. Finally, the socio-demographic variable *non-white* was found to be statistically significant in explaining an

Extension professional's participation in Farm to School programming. This variable was found to be positively related to an Extension professional's participation in the Farm to School.

Qualitative Strand: The Ohio State University Extension Involvement and Leadership of the Ohio Farm to School Program

Background. I conducted a single case study of the Ohio Farm to School Program focused on the involvement of OSU Extension professionals. OSU Extension is the state lead organization for Farm to School in Ohio. It is also the state lead for the National Farm to School Network and is listed as a lead organization by the USDA Farm to School Program. According to an OSU Extension press release, the Ohio Farm to School Program transferred leadership from the Ohio Department of Agriculture to OSU Extension in September 2011 (The Ohio State University Extension, 2011). Through in-depth interviews with Extension professionals and Farm to School program partners, I learned that this transfer primarily occurred because of change in state leadership (*i.e.*, the governor and his administration). This change in state leadership prompted the Ohio Department of Agriculture to focus on food and agriculture regulatory issues and transfer leadership of the Ohio Farm to School Program to OSU Extension. A meeting between leaders of the two organizations helped complete this transfer.

The OSU Extension Farm to School Program is led by a state program director (officially listed as a field specialist) part of the Community Development program team.⁴ She is located in a regional district office approximately 70 miles south of OSU. Her primary responsibilities are as a program director for the Ohio Direct Marketing Team. Ohio Farm to School Program coordination duties fall under these responsibilities. The Extension Farm to School program coordinator is assisted by a program assistant (officially an AmeriCorps VISTA) who supports Farm to School through program planning, research, curriculum development, and resource

⁴ Since completion of the study, leadership of the OSU Extension Farm to School Program has been transferred to a different Extension professional.

development. The program assistant's office is located in Columbus, Ohio on the campus of OSU. The OSU Extension Farm to School Program coordinates a Farm to School advisory board made up of approximately 50 individuals from numerous diverse agriculture, food, health, nutrition, and community development agencies and organizations. Participants include representatives from the Ohio Department of Agriculture, Ohio Department of Education, Ohio Department of Health, Ohio Farm Bureau, different Ohio-based colleges and universities, farmer groups, foundations, and non-profit organizations. The OSU Extension Farm to School Program is also guided by a small group of OSU Extension professionals with interest and past participation in Farm to School activities.

In Ohio, local and regional Farm to School programs have been supported through a number of different grant programs and local/pilot Farm to School projects. In 2010, the Ohio Department of Education awarded five grants for \$2,000 each to schools located in the Appalachian part of Ohio to pilot Farm to School (Ohio Department of Agriculture, 2010). Following these awards, in 2011, six schools throughout Ohio were awarded grants from the Ohio Department of Agriculture ranging from \$500 to \$2,000 to support Farm to School in Ohio (Ohio Department of Agriculture, 2011). These first few pilot initiatives helped lay a strong foundation for a statewide Ohio Farm to School Program. Following this, during 2012, the Ohio Department of Education awarded grants for \$2,000 each to seven Ohio schools and educational facilities to support Farm to School development in Ohio. Additionally, during 2013, the Ohio Department of Education awarded grants for \$5,000 each to 23 Ohio schools and educational facilities to support Farm to School development in Ohio (Ohio Department of Education, 2013).

In December 2012, leadership of OSU Extension classified local foods as an OSU Extension 'signature program.' Signature programs are designed to address broader, current

critical needs of Ohio and complement the impacts of OSU Extension's existing portfolio of core programs. One of the stated goals of the local foods signature program is to “help coordinate strategies to get more food choices from producers to retail outlets to consumers efficiently, safely, and cost-effectively” (The Ohio State University Extension, 2012b). Signature programs are designed to last approximately three years. It was explained to me through in-depth interviews with an Extension administrator that each of the educators providing leadership to the local foods signature program receives state funding (12.5 percent of FTE) in lieu of county funding to support their involvement in a statewide effort. The local foods signature program area received \$10,000 in startup funds to work with the technology and communication groups to create marketing materials for the program and to develop an in-service professional development training. On January 23, 2013, OSU Extension coordinated its first local foods signature program in-service professional development training. The training included topics related to food production, food and family, food and business, and food and community. The training was offered to Extension professional’s part of each OSU Extension program area including 4-H Youth Development, Agriculture and Natural Resources, Community Development, and Family and Consumer Sciences. Topics discussed during the in-service training were related to urban agricultural production, food safety, food preservation, worksite wellness, food hub development, expanding farmers markets, food policy councils, and food pantries. Additionally, three presentations were given related to Farm to School including an overview of the Ohio Farm to School Program, information about how to develop Farm to School in urban school systems, and information about how to develop Farm to School farm tours for school food service providers and other local leaders.

In January 2013, I traveled to Ohio to conduct interviews with OSU Extension professionals currently coordinating activities and programs supporting the Ohio Farm to School Program. I also traveled to Ohio to conduct interviews with OSU Extension Farm to School program partners. In total, I conducted 21 interviews, which included interviews with 15 OSU Extension professionals supporting the Farm to School movement. Participants were five Extension educators, four program assistants, five field specialists, program coordinators, or program directors, and one administrator. Eleven interviews took place in-person and four interviews took place over the telephone. I also spoke with six Farm to School program partners including four individuals from three different state agencies and two individuals from non-profit organizations specializing in local food systems and Farm to School. This included interviews with two individuals at the Ohio Department of Health, one individual with the Ohio Department of Agriculture, one individual with the Ohio Department of Education, one individual from a prominent Ohio agriculture and food-based non-profit, and one individual from a national Farm to School non-profit organization. Three interviews took place in-person and three interviews took place over the telephone. OSU Extension participants represented each of the four Extension program areas, as well as from the Expanded Food and Nutrition Education Program. Table twenty six (below) describes those individuals who participated in interviews.

Table 26

Qualitative Data Collection for the Case Study

Type of Participant	Data Collection Method	Number of Participants
OSU Extension Professional	Interview	15
Ohio Farm to School Program Partner	Interview	6
<i>Total</i>		<i>21</i>

Local foods signature program in-service training. During my trip to Ohio, I attended the local foods signature program kick-off in-service professional development training for OSU Extension professionals. The in-service training began at 10 AM and adjourned at approximately 3 PM. In total, 70 Extension professionals attended the training., which included 57 female participants and 13 male participants. Representation from each of the four Extension program areas attended, as well as the Expanded Food and Nutrition Education Program. One of the co-leaders remarked that the 4-H Youth Development program had slightly less representation at the in-service training. The local foods signature program is co-managed by two Extension educators, one educator representing the Agriculture and Natural Resources program and one educator representing the Family and Consumer Sciences program. At the beginning of the local foods signature program area in-service, introductory speakers included both state program leaders (Assistant Directors) from the Agriculture and Natural Resources program and Family and Consumer Sciences program. Both co-leaders of the local foods signature program also provided introductory remarks. Each speaker described aspects of local food systems and spoke about local food systems potential impact. One of the Assistant Directors made it clear that OSU Extension was not deciding on one definition of 'local food.' Additionally, introductory speakers emphasized the interdisciplinary nature of local food system programs and also emphasized the need for collaboration and team work among OSU Extension. One of the program leaders suggested three criteria for a program to be considered a local foods signature program which included that it was research-based, would utilize OSU Extension signature program branding, and activities would be reported to one of the local food signature program leaders for overall impact reporting. Additionally, a program leader also suggested that there was no set curriculum

for local food system programming and encouraged participants to share their resources with each other throughout Extension.

During the in-service training, speakers provided an overview of their work in local food systems and discussed future areas of interest and next steps. The final three subject area presentations were all specifically about Farm to School in Ohio. The first Farm to School presentation was completed by the OSU Extension Farm to School Program director. She introduced the topic to the audience, described the programs focus, and talked about the transition of Farm to School from the Ohio Department of Agriculture to OSU Extension. The next Farm to School presentation was completed by a local program coordinator who had just received a USDA Farm to School Program grant. She described her past experiences in Farm to School and several goals of the Farm to School grant project. She also described the role of Extension in Farm to School programming and stated that Extension's role was to act as a convener, to develop partnerships, to build capacity, to leverage resources and opportunities, to connect producers and food businesses, to offer agricultural expertise to school gardening projects, and to provide nutrition education classes. The third Farm to School speaker was a local Extension educator who described her experiences coordinating a Farm to School farm tour bus trip. This program provided an opportunity for school food stakeholders to tour local farms and learn more about how local and regional farmers can connect to school cafeterias as a new market for their products. Throughout the day, Farm to School was continually brought up as a key area within the local foods signature program area. Additionally, the OSU Extension Farm to School Program director was often referred to as a leader within the Ohio local food movement.

Farm to School activities. While conducting in-depth interviews with OSU Extension professionals supporting the Ohio Farm to School Program, participants were asked to explain

the Farm to School activities and programs that they were involved with. Participants described a wide variety of Farm to School activities and programs, some of which were directly related to Farm to School, and some of which were more broadly related to enhancing Ohio's local and regional food systems. The most common activities described included conducting research studies and projects related to local and regional food systems and Farm to School, facilitating strategic planning processes to help organizations and businesses support local food systems and Farm to School in Ohio, acting as an educator to support school gardens and local foods-based cooking demonstrations with K-12 students, helping small and medium-sized growers and producers form business cooperatives and food hubs to scale up agricultural supply for institutional markets, writing grants to acquire funding to support Farm to School programming, and distributing resources about Farm to School so other individuals and organizations could increase their support of Farm to School in Ohio. Extension administration publicly supported these activities and the passion that the Extension professionals maintained for these activities and programs came through during each of the interviews.

Farm to School professional development needs. OSU Extension professionals were also asked about professional development training needs for increased knowledge and support of Farm to School in Ohio. A number of different training topics were identified and related to connecting local foods to school meals, developing school gardens, and developing other types of Farm to School experiential learning programs for K-12 students. OSU Extension professionals pointed out the need to understand both the production and distribution part of Farm to School. OSU Extension professional's also explained the need to learn more about the food preparation and consumption part of Farm to School. The most common activities identified by OSU Extension professionals for further training and professional development in Farm to

School programming were related to the school food procurement/contracting process and different methods for assessment or evaluation of Farm to School opportunities. When asked about what types of training areas are needed for their involvement in Farm to School an OSU Extension educator stated, “I think understanding contract language. This will vary by district but there is some kind of things that cut across all districts.” An OSU Extension director stated, “Another piece that might be helpful is for educators to understand how to do a thorough assessment of the opportunities for our local producer in terms of time, money, profit, and return on investment.” Participants also suggested the need for Extension professionals to understand how the food system works and how Extension can help re-localize food systems through Farm to School programming. An OSU Extension educator suggested that it would be helpful for Extension professionals to attend a national conference on Farm to School where participants discussed common challenges and possible solutions to Farm to School programming. An OSU Extension program assistant stated that she would find it very beneficial if Extension could develop a ‘how to’ toolkit to help interested individuals get started in Farm to School.

Attitudes towards public policy. Furthermore, OSU Extension professionals were asked about their attitudes towards public policy impacting Farm to School programming. Ohio is a state that has not enacted state-based Farm to School legislation, however, OSU Extension professionals had a variety of responses about Federal legislation impacting Farm to School programming. Overall, OSU Extension professionals stated that the recent changes in Federal legislation supporting healthier school meals and national initiatives such as the first lady’s *Let’s Move* campaign and the USDA’s *Know Your Farmer, Know Your Food* initiative were beneficial to further developing Farm to School in Ohio. An OSU Extension educator summed-up his view on these initiatives supporting Farm to School in Ohio by stating, “The USDA has made a

commitment. They've actually hired a specialist on Farm to School. I think those kinds of changes, *Know Your Farmer, Know Your Food*, have galvanized support and said that USDA supports this." Similarly, another OSU Extension educator stated that the passage of 'geographic preference' legislation and the USDA's support for local food has helped develop Farm to School in Ohio. The educator stated, "I think that [the USDA's] blessing has kind of opened doors for the conversation about Farm to School." In addition to this, many Extension professionals described the important role that local, state, and national grant programs have played in strengthening Farm to School in Ohio. At the national level, specialty crop funding supported OSU Extension's ability to assume leadership of the Ohio Farm to School Program. In addition to current funding mechanisms, an OSU Extension program director stated that he believed additional funding at the state level to support food hub development would be beneficial to strengthening Farm to School in Ohio.

Experiences of Ohio Farm to School Program partners. OSU Extension Farm to School program partners were also interviewed to provide their perspective on OSU Extension involvement in the Ohio Farm to School Program. Each of the Ohio Farm to School Program partners was extremely supportive and complementary of OSU Extension's work to promote and develop the Ohio Farm to School Program. Each of the program partners were part of the Ohio Farm to School Program advisory board and were found to be supporting Farm to School in their own unique way. Representatives from the Ohio Department of Health and Ohio Department of Education were working more closely with schools, whereas representatives from the Ohio Department of Agriculture and Ohio non-profits were more closely working with farmers and food distributors. Two of the most common themes that program partners described was 1) how thankful they were to have the OSU Extension Farm to School program director assume

leadership of the Ohio Farm to School Program in Ohio, and 2) how OSU Extension was well positioned as a statewide organization to lead the Ohio Farm to School Program.

Regarding the OSU Extension Farm to School program director, participants commented about the director's contagious personality and passionate work ethic. Specifically, program partners were complimentary about the program director's ability to bring diverse stakeholders together around Farm to School in Ohio and her ability to connect to regional and national resources for improving the Ohio Farm to School Program. A representative from the Ohio Department of Agriculture stated, "Since [name remove] has taken over the Farm to School program, she's done a really great job." A program partner from the Ohio Department of Health felt similarly about the role of the OSU Extension Farm to School program director and expressed that she is continually impressed with how much work and effort the Extension Farm to School program director puts into supporting the Ohio Farm to School Program. She stated, "She'll be at conferences. She'll be on a plane. She's still keeping this stuff going. Her personality is just extremely contagious. It's like, 'I'll do whatever you say,' because she's just a ball of fire. To me, I don't know where it [the Ohio Farm to School Program] would be without her."

Many of the Farm to School program partners commented about how OSU Extension was well positioned as an organization to lead the Ohio Farm to School Program. A regional Farm to School program partner reflected on how OSU Extension was a good organization to lead Farm to School in Ohio because of its statewide reach and coordination. She stated,

"Extension has the benefit of being a statewide organization that does outreach to a lot of different community groups and a lot of different stakeholders. They can reach producers; they have, and know about, education around nutrition, food,

family, and home. I think it makes overly great access for working on Farm to School.”

A representative from the Ohio Department of Agriculture felt similarly and stated, “Because Extension is spread out throughout the state of Ohio, and they’re working with farmers in the communities. They really know what’s going on more so than anyone in those areas of the state. So I think it’s a really good fit and they have been able to make a lot of good connections.” I did not collect any data that was negative about OSU Extension’s involvement and leadership of the Ohio Farm to School Program.

Research Question 3: Extension Professional’s Goals and Strategies for the Farm to School Movement

I analyzed interview transcripts to determine the goals and strategies of OSU Extension professionals for programming related to the Farm to School movement. To answer this research question, the transcripts that were analyzed included in-depth interviews with OSU Extension professionals from each of the four program areas including 4-H Youth Development, Agriculture and Natural Resources, Community Development, and Family and Consumer Sciences. Interview participants also included individuals from several different OSU Extension positions including Extension program assistants, Extension educators, Extension specialists, Extension program directors/coordinators, and a high-level senior Extension administrator. I asked participants about their goals and strategies for Farm to School programming.

*Goal #1: Agrifood System Transformation through Farm to School.*⁵ The primary goal of Cooperative Extension professional’s participation in the Farm to School movement was related

⁵ In addition to the statements included in the text, I located 20 additional statements that reflect this theme. The following three statements are additional examples that support this theme: 1) “I think with the Farm to School program, schools are to get more specialty crops into schools, more healthy foods into schools.” (OSU Extension program assistant); 2) “Overall, we hope to increase fruit and vegetable consumption.” (OSU Extension program

to developing a new agriculture and food system through the Farm to School movement. This relates back to the goal of agrifood system transformation as described by Stevenson, Ruhf, Lezberg, and Clancy (2007). Transformation of the agrifood system means fundamentally changing the agrifood system through developing qualitatively different paradigms. Many of the participants framed this in terms of using research-based information/education to change an individual's knowledge and behavior towards Farm to School. Interview participants also described educational programs as their primary way to create change within the agrifood system. When asked about his goal for Farm to School, an Extension program coordinator stated, "To raise the overall awareness of Farm to School opportunities and to try to begin by removing some of the myths and biases. To help people see a complete frame, the cafeteria, classroom, and community aspect of Farm to School." Similarly, an Extension educator stated, "Our goals are really for all the age groups to see how we can make that behavior change." Furthermore, another Extension educator stated, "At that point, as [name removed] says, we look initially, that change in knowledge, that change in awareness...then we hope to see behavior changes."

When asked about his goal for Farm to School programming, an Extension administrator connected OSU Extension's involvement in Farm to School programming to their larger effort to create local and regional food systems, and the need to develop more agricultural production for global food security as the world's population is expected to rise over the coming decades. He stated,

"We have a lot of interest in local food system work, working with local producers whether it be a specialty crop farmer or whether it be folks that just have a couple of acres or a part of an acre and they wanted to produce something

assistant); 3) "Our goals are about using research-based education, that's our primary goal." (OSU Extension educator).

for a local farmers market. We've been supporting local farmer's market initiatives through education and programming for quite some time. And when the Farm to School connection came, it was logical for us to include that in our local food system effort."

The College of Food, Agricultural, and Environmental Sciences has chosen food production, security, and human health as one of its signature focus areas and OSU has chosen food security and production as one of its university-based discovery themes. This administrator connected the work OSU Extension is doing in local food systems and Farm to School and stated,

"A lot of this is being driven by the demand for food in the world that we've been hearing about. Two billion more people in the next 30 to 40 years. How are we going to feed them? ...When you talk about food security, it becomes a factor locally. If you're dependent on your food from external sources solely, you can be vulnerable. Whereas if you have a local food system you have less vulnerability to that, you have more control over your local food system. In a lot of ways this all fits together."

An Extension program coordinator stated her goals for participation in the Farm to School movement were also related to food security and increasing local food production. She stated, "As far as the projects we work on, we're all working on projects that help increase food production in the Greater [removed] area." Extension educators saw developing new farmers and developing schools as a new market as one method for creating a new agrifood system.

Although the participant believed that he was part of the Farm to School movement in Ohio, an Extension program coordinator remarked that he did not have a specific Farm to School goal but that he saw Farm to School as a pathway to agrifood system transformation. He stated

that his primary goal was to help create a new agrifood system where local and regional foods were easily distributed to institutions through new marketing and distribution channels such as food hubs. This goal connected him to the Farm to School movement because schools represent a new market opportunity for food hubs and other types of food aggregation and distribution models. He stated, “I can say that my overall goal is to provide local foods to institutions and the community through food hub development. And continue to do that...I guess I don’t see any end in sight.”

*Goal #2: Inclusion of New Agrifood Stakeholders as Change Agents in the Farm to School Movement.*⁶ In addition to the primary goal of transformation, many of the goals for Cooperative Extension professionals participating in the Farm to School movement were related to the goal of inclusion. This relates back to the goal of getting marginalized stakeholders and groups into the agrifood system as described by Stevenson, Ruhf, Lezberg, and Clancy (2007). Within this strategic goal, individuals and groups work to increase participation in the agrifood system. Extension professionals related the goal of inclusion to developing new farmers, developing new student’s interested and knowledgeable about food and agriculture, and engaging residents and communities to become actively engaged in agrifood system issues. Extension professionals believed the Farm to School movement was one method for helping them achieve these goals.

Cooperative Extension professionals saw the Farm to School movement as a way of developing and including new farmers into agriculture and food systems work. Extension

⁶ In addition to the statements included in the text, I located eight additional statements that reflect this theme. The following three statements are additional examples that support this theme which are related to the inclusion of students as food system stakeholders/ participants : 1) “I really thought about the idea of these kids actually participating in direct marketing and how fun it would be and how exciting [it would be] to see them at a farmers market.” (OSU Extension educator); 2) “...to take the existing Farm to School projects a step further and try to get the kids some exposure to direct marketing.” (OSU Extension educator); 3) “Slowly over time, we really tried to nurture the relationship and put together different forums highlighting how youth can engage in food systems work.” (OSU Extension educator).

professional's described their goals of including new farmers into the Farm to School movement as another way for them to increase production and economic development opportunities. An Agriculture and Natural Resources Extension educator stated, "I really see Farm to School as an opportunity for local farmers to maintain production and increase their production. And really create opportunities for economic stimulus within that field." An Extension field specialist also commented how s/he felt the Farm to School movement was a way to develop new farmers and stated, "I think you build good strong growers. You [can] get some of the middle-size growers in, but grow new growers. Build new systems, and then invite some of the smaller ones in, and let them expand and grow and take advantage of it." An Extension program assistant described the trend of youth not wanting to remain part of their family's agricultural history and saw the Farm to School movement was a way of continuing their family farm. She stated,

"And the family farms. There's a lot of people that have, they don't have huge farms, but they're not getting their children to stay or express any interest. And I think there's some—the advantage to local foods and value added agriculture is the opportunity to interact with the person to whom you're selling your product. It instills a different kind of attitude and pride in what you're doing."

Extension professionals also saw the Farm to School movement as a way of including students as part of agriculture and food system work. An Extension field specialist saw Farm to School as a way to help students learn about food production and where their food comes from. She stated, "The goal was to get the kids to know where the food came from." An Extension field specialist had this goal as well, and said, "The goal was to introduce them or make them aware of where that food came from." Additionally, an Extension administrator described this goal for the Farm to School movement in Ohio as well, and said,

“You often hear people talking about the fact that our youth today don’t know where their food comes from. There is probably some truth to that in different variations. By supporting Farm to School type programs, it opens the door for educational opportunities. Not only through just outright education but also through experiential learning; the students can get involved in that as well.”

Extension professionals hoped that through this goal, they could eventually change students’ behavior and help students eat more fresh fruits and vegetables.

Extension educators were also working to include more students in agrifood systems work through school greenhouse and school gardening projects. When describing this goal, a new Extension educator stated, “If I had the time, I would try and get as many Farm to School programs going as possible. And once I have my Master Gardeners established, hopefully I can send them out and to these various projects.” Extension educators connected school greenhouse and gardening work to teaching student’s business management and marketing skills. When describing their involvement in the Farm to School movement and including students in agrifood systems work, another educator stated, “So I think that a goal would be to definitely do more Farm to School projects in my counties. But also to take the existing Farm to School projects a step farther and try to get the kids some exposure to direct marketing.” This educator went on to say,

“And I think that as a nation, our farmers are aging. We need to excite the kids. They’re going to go home and say, “Hey, I grew lettuce today.” And, “What did you learn today? Oh, you grew lettuce.” Even if they plant one pot of lettuce, one little flower pot of lettuce; then that’s starting something at home. It’s just kind of re-inspiring agriculture in these [kids]. We’re losing our farmers and we

need to start from the ground up again. It's exciting to work with them, it's inspirational for me and I think it's inspirational for them too."

Extension professionals also connected the inclusion of the youth as part of the Farm to School movement as one way to help promote and increase healthy behaviors. An educator stated, "I also see it as a great way for the youth of our community to once again start looking at ways to mitigate lifestyle diseases that are becoming so prevalent particular to urban areas and make those connections about where their food comes from." Furthermore, an Extension field specialist also connected the Farm to School movement as a way to training students to cook and become comfortable preparing fresh fruits and vegetables. He said, "And I think even a bigger part is training people how to cook." An Extension program assistant felt similarly, and said, "The goals are to sort of educate youth for the purposes of promoting healthier lifestyles in terms of nutrition. But also for the purposes of educating them on the environmental impacts, the larger consequences of what they eat."

Finally, Cooperative Extension professionals also saw the Farm to School movement as a way of including community residents in agriculture and food system work. When describing a colleagues Farm to School work, an Extension educator said, "[Name remove] has put together this forum to really kind of activate the larger community, educate them, and find ways for them to get involved." Another Extension educator connected her goals for Farm to School in terms of bringing more schools and community members into the local foods movement. She stated, "Our goal is to try to get more of our schools and our community members to get onboard. To see what's in their backyard or how they can really take part in local foods." Overall, Extension professionals saw the Farm to School movement as a pathway for achieving their goal of inclusion of new agrifood stakeholders.

Strategy #1: Weaving Connections between Stakeholders in the Farm to School

*Movement.*⁷ The primary strategy of Cooperative Extension professionals supporting the Farm to School movement was weaving connections between different agrifood stakeholders. As described by Stevenson, Ruhf, Lezberg, and Clancy (2007), this relates back to the idea of connecting food system warriors and builders through the development of strategic and conceptual linkages. Weaving connections among agrifood stakeholders can come in the form of coalition building and new communication strategies to build a food system change movement. This strategy was described by each Extension position including Extension educators, program assistants, field specialists, program coordinators, and administrators. It was also described by individuals from each of the program areas including 4-H Youth Development, Agriculture and Natural Resources, the Expanded Food and Nutrition Education Program, Community Development, and Family and Consumer Sciences. The Farm to School program director described her strategy as a weaver from a statewide perspective whereas many of the Extension educators described their strategy as a weaver from a local or community-based perspective. The Farm to School program director began by describing her role in the Ohio Farm to School Program and stated, “My role is at the statewide level and so I connect OSU Extension and our partners to the National Farm to School Network and pull together advisory groups so that together we can bring resources to Ohio.” The Farm to School program director went on to say, “I’m in the position to try to give them [Ohio Farm to School Program partners] the tools, resources, and opportunities to help them move forward with their own community efforts.”

⁷ In addition to the statements included in the text, I located 35 additional statements that reflect this theme. The following three statements are additional examples that support the theme that Extension professionals are acting as weavers, connecting diverse Farm to School stakeholders: 1) “Extension’s role can be, we can help connect [schools] to the farmers.” (OSU Extension program assistant); 2) “We’re just trying to bring together existing resources and not reinvent the wheel.” (OSU Extension program assistant); 3) “I think that in a lot of ways, we are trying to bring all of these resources together and programs under one umbrella.” (OSU Extension program assistant).

When asked about the primary strategies she employed to develop the Ohio Farm to School program, the program director talked about weaving different Farm to School stakeholders together. She stated, “The primary one [strategy] is to bring together different players from Farm to School. We talk to the Department of Education groups. We talk to the producer groups. We talk to the local policy groups. This [Farm to School] brings them all under one roof.” One of the other field specialists described the role of the Farm to School program director by stating, “I don’t think [name removed] has really done any grassroots Farm to School programs. I know she has talked to a lot of organizations and kind of been on a speaker’s bureau out there talking about it [Farm to School].” Both Cooperative Extension professionals and Ohio Farm to School Program partners saw this strategy of weaving individuals and groups together as a benefit to their work supporting the Farm to School movement in Ohio.

Extension educators also pursued a weaver role locally when connecting Farm to School stakeholder groups together. An Agriculture and Natural Resource Extension educator who has been with Extension less than six months but supported schools developing local food gardens stated, “So one of my strategies has definitely been to just show my face within the community, shaking hands with people from the Farm Bureau, with the Farm Service Agency, with the NRCS, with ODA; with as many agencies that we work with the better. It’s been helpful.” She went on to say that this strategy has allowed her to share information about what she is doing to support Farm to School and learn about what these organizations are doing to support Farm to School in Ohio. A Community Development educator echoed this sentiment and described his approach as, “I see it as a way of kind of connecting the dots.” One of the program assistants summed up her strategy of connecting diverse Farm to School stakeholders together by stating, “One strategy would be trying to just connect those people with others in the community that can

be helpful...So connecting other players would be one piece.” A community development program coordinator who has been heavily involved with the broader local foods movement and beginning more work in Farm to School stated,

“I think we, as somebody with food system expertise built up over the time, that we’ve been doing all of our different programming, became really well positioned to help lead, facilitate, advocate, help make those connections as an office or as a program to help catalyze the momentum happening statewide, the interest locally.”

Pursuing weaver work has allowed OSU Extension to listen too many of its stakeholders needs in Farm to School and develop tailored programs and methods for providing educational assistance. Weaving a network of Farm to School resources has also taken place internally among different program areas. A Family and Consumer Sciences educator described her strategy to weave a network of Extension educators internally, all collaborating to support the Ohio Farm to School Program. She stated, “It’s a team approach...I couldn’t have done the programming without our Agriculture and Natural Resource Extension educator [name removed] who’s been very much involved. We also have a Master Gardener coordinator that was also very involved in our programs.”

Administration of OSU Extension summed up the organizations role in the Farm to School movement by describing one if its strategy to weave individuals and groups together both locally and across Ohio for educational and networking purposes to strengthen economic activity and promote health and wellness. He stated,

“For people working in local foods, [Farm to School] is just another quiver. Now we’ve got another resource that we can promote and this involves schools and

local producers, employment and income opportunities, [and] health and wellness for our kids. A good relationship at the local level between producers, the local economy, and our school system.”

He went on to say,

“I think convening interesting parties [and] creating networks is a good first step to approach this opportunity. It makes it a little easier when people kind of get a general snapshot or picture of what are we talking about when we talk about Farm to School. The school certainly would benefit from a network of producers ultimately because as they plan their purchases, they can know where to go to get what it is they’re looking for.”

OSU Extension administration saw this strategy of weaving Farm to School stakeholders together primarily benefiting Ohio schools ability to source local and regional foods from Ohio farmers. Because Farm to School often goes around traditional school food supply chains, weaving a network of interested parties is an essential step to sourcing more local and regional foods for school meals.

Research Question 4: Knowledge Production by Extension Professional’s within the Farm to School Movement

I analyzed the interview transcripts to determine knowledge production by OSU Extension professionals for development of the Farm to School movement. To answer this research question, the transcripts that were analyzed included in-depth interviews with OSU Extension professionals from each of the four program areas. Participants also included individuals from several different Extension positions such as program assistants, Extension educators, Extension specialists and program directors/coordinators, and a high-level Extension administrator. I identified themes among the passages within the transcripts.

*Theme #1: Cooperative Extension Professionals as Producers of Organizational Knowledge in the Farm to School movement.*⁸ The primary type of knowledge production of Cooperative Extension professionals participating in the Farm to School movement was organizational knowledge. This type of knowledge was produced by each of the Extension professionals interviewed. Eyerman and Jamison (1991) describe organizational knowledge as the framework or method through which a social movement disseminates its message.

I observed that organizational knowledge was an important interest of OSU Extension and that the administrators placed a high premium on developing organizational frameworks that allowed for Extension professionals to be successful in their program efforts. The Extension director summed up this way of thinking by stating,

“One of the points [that I make with them] is that we encourage entrepreneurial thinking. I would say things aren’t prescribed in terms of what we do in Extension. The whole model is based on getting the educator out into the community. Identifying what are the needs, what are the issues, what are the opportunities, where we can make a difference with research based programming.”

He went on to say, “We also encourage educators to be entrepreneurial. You don’t need to do what has always been done, you should be looking for new opportunities that make sense for you and the community to engage in this partnership for education and outreach and resources.” These two statements shed light onto why Extension develops signature program

⁸ In addition to the statements included in the text, I located 37 additional statements that reflect this theme. The following three statements are other examples that support this theme: 1) “[Our programs are] very heavily discussion-based. So even though we sort of have a lecture, we try to encourage questions and discussion. There is always a demonstration.” (OSU Extension program assistant); 2) “And then occasionally, . . . we’ll put together panels of people at different events. . . We went to this event called Farm Science Review this year, . . . and the audience was all producers so we had a lot of school food buyers come with us and talk about how they buy food. . .” (OSU Extension program assistant); 3) “So with the [Farm to School] expansion in particular, by producing that [tool]kit, look, there are resources. You don’t have to come up with all this stuff on your own.” (OSU Extension specialist).

areas in addition to their four permanent program areas. These statements also help articulate why OSU Extension is engaged in and places an importance on Extension professionals being involved in the local foods movement. This form of entrepreneurial thinking helped Extension acquire leadership of the Ohio Farm to School Program and has helped them develop strategies for facilitating the local foods movement through Farm to School. This way of thinking provides an organizational framework for Extension involvement in the Farm to School movement.

Extension educators, program assistants, field specialists, and program coordinators are also producing organizational knowledge through their participation in the Farm to School movement. Producing this organizational knowledge allowed these Extension professionals to get their message across about Farm to School. Through interviews, results indicate that Extension professionals are producing organizational knowledge through a variety of different methods which include through a Farm to School advisory board, Extension Farm to School working group, OSU Extension Farm to School website, online webinars about Farm to School, educational programs and conferences about Farm to School, and through their many Extension offices and research centers scattered throughout Ohio. Table twenty seven summarizes the forms of organizational knowledge being produced by OSU Extension through participation in the Farm to School movement.

Table 27

Organizational Knowledge Production by The Ohio State University Extension

Types of Organizational Knowledge Production
Ohio Farm to School Program Advisory Board
Extension Farm to School Working Group
Extension Farm to School Website
Online Farm to School Webinars
Extension Offices and Research Centers
Farm to School Programs
Ohio Farm to School Program Resource Toolkit

When an Extension field specialist was asked about how OSU Extension is facilitating the Farm to School movement in Ohio, the specialist described the coordination of the Ohio Farm to School advisory board and upcoming statewide Farm to School conference. She stated, “It’s the Extension Farm to School state team. And we meet...every other month via a web call. We’re planning a Farm to School conference in March.” Another Extension specialist described the advantage of the Farm to School advisory board as one great way to get information out about Farm to School. She stated, “So that has its advantages because we already have great statewide partners and relationships with people.”

The Farm to School program assistant described a wide variety of educational programs as one form of organizational knowledge production. The programs described were specifically related to Farm to School programming, as well as other agrifood educational programs. She described one program as ‘Meet the Buyers’ where school food buyers were brought together with school food producers to help foster the sale of local and regional foods to schools. She stated, “The buyers and the schools are brought together in the same spot. And they sort of each have their sales pitch. They each say what they are looking for and what they can deliver.” The Ohio Farm to School Program director refers to this as speed dating for Ohio farmers and school food buyers. Another educational program supporting the Farm to School movement in Ohio is ‘MarketReady.’ MarketReady is an educational program that prepares food producers to sell directly to consumers and wholesale buyers. OSU Extension is developing a MarketReady program specifically related to Farm to School. The Ohio Farm to School Program assistant stated that developing this type of training would allow producers to understand the basics that go along with marketing and selling their product to wholesale buyers and also receive tailored information related to selling to schools.

In addition to face-to-face programs, OSU Extension is producing organizational knowledge through online learning opportunities. Through Extension's involvement, the Ohio Farm to School Program has held online webinars to share information about selling local and regional foods to schools. Webinars have been held for Ohio producers/growers and for OSU Extension professionals interested in learning more about the Ohio Farm to School program. During the local foods signature program in-service training, the Ohio Farm to School Program director told the audience about an upcoming Farm to School webinar for OSU Extension professionals and emphasized that she prioritized Farm to School trainings that were targeted to Extension. An Extension educator described this webinar as being a good opportunity to learn more about the Ohio Farm to School Program. She stated, "The webinar was good. I learned a lot of basic information...But what was important was Extension educators from across the state had a networking experience. [We could] talk about how we're getting funding and what projects are going on...It was definitely really good." The Ohio Farm to School Program assistant stated that OSU Farm to School program staff members are planning to develop and host a future webinar for school food buyers. The Ohio Farm to School Program website managed by OSU Extension was also listed as an online resource and form of organizational knowledge production. An Extension field specialist described the website by stating, "There is a wealth of information on the website."

Theme #2: Cooperative Extension Professionals as Farm to School Movement

*Intellectuals.*⁹ Results of the interviews with Farm to School stakeholders reveal that a few

⁹ In addition to the statements included in the text, I located six additional statements that reflect this theme. The following statement is another example that supports this theme and demonstrates that the Ohio Farm to School Program director is acting as a movement intellectual: 1) "Obviously [name removed] would be one person." (OSU Extension specialist). The following two statements are additional examples that support this theme and demonstrate that other Extension professionals in addition to the Ohio Farm to School Program director are acting as movement intellectuals: 1) "[Name removed], he's a statewide horticulture specialist." (OSU Extension specialist); 2) "There is a handful of people. [Name removed], you heard her yesterday. She's very involved." (OSU Extension specialist).

Cooperative Extension professionals in Ohio are acting as Farm to School movement intellectuals. Eyerman and Jamison (1991) describe movement intellectuals as those individuals who combine their skill set and tasks with a social role to articulate the movement's identity. Farm to School movement intellectuals can be thought of those individuals who help give the Farm to School movement its identity and who carry out their tasks within the Farm to School movement (Eyerman & Jamison, 1991). OSU Extension Farm to School movement intellectuals are working at both the local and regional scales and maintain a major emphasis on conducting different types of Farm to School training programs and helping diverse individuals and organizations become involved in the Ohio Farm to School Program. The most frequently described movement intellectual working for OSU Extension was the Ohio Farm to School Program director. The Ohio Farm to School Program director was described as a movement intellectual by each group of Extension professionals interviewed including Extension educators, program assistants, field specialists, and administrators. The Extension administrator who was interviewed described the Ohio Farm to School Program director as "a live wire" and stated,

"I would just say that [name removed] is a go-getter. She is enthusiastic. She is very willing to partner and share at the same time. In a lot of ways she is the ideal person to head up these efforts because of her enthusiasm and the way she is. She is not a self-promoter at all; she is a promoter of the programs that she represents and Extension's involvement in that."

Extension educators echoed these comments and described the Ohio Farm to School Program director as "awesome" and a "dynamo at this point." A Community Development educator described the Farm to School program director as an inspiration to those part of the Farm to School movement in Ohio and stated, "And [name removed] has abilities that are just off the

charts from what she's able to get done.” This Extension educator described how the program director has been able to bring people together around Farm to School and give legitimacy to the program and Farm to School movement. He stated, “I think anytime you formalize something then it helps with legitimacy, with promotion, and with marketing... You know, there's got to be an official seal of approval by the Ohio State University so I think that's a big deal.” An Extension program assistant stated that she liked having the Ohio Farm to School Program director work for Extension because it allowed her to more easily connect to a knowledgeable Farm to School expert. She stated, “So being able to say, Okay, well I can bring in the Director now of the Ohio Farm to School Program who is within Extension.” An Extension educator had a similar feeling about the Ohio Farm to School Program director and stated, “Having that designated person within a huge group like Extension, I think it is really helpful to have someone who can kind of connect the dots.”

In addition to the Ohio Farm to School Program director, a variety of other Extension professionals were also described as Farm to School movement intellectuals. Extension professionals were described as being movement intellectuals because of their contribution to establishing Farm to School programming in Ohio and because of the cosmological knowledge that they produced while working in the Farm to School movement. These other Farm to School movement intellectuals included Extension educators and field specialist from both the 4-H Youth Development program and the Agriculture and Natural Resources program. The Ohio Farm to School Program director explained these supporting intellectuals as Farm to School champions. She said, “Farm to School takes champions... And so it's those people who are like, Yup, this is the right thing to do, and bring it on and I'll spend the extra time in addition to my regular job.” Many of these Extension professionals were working together to create change

within the Ohio agrifood system and had experiences collaborating with one another. One of the Extension program assistants stated that an Extension educator from the Agriculture and Natural Resources program who is supporting Farm to School was a movement intellectual because of her commitment to collaboration and connecting agriculture and food. She stated, “I think what’s great about [name removed] is that she encourages that partnership within the different departments...I admire her because she sees those opportunities for collaboration and encourages the nutrition educators to come on board and work with her gardening.” She went on to say, “She sees the value in having the collaboration. So if we’re talking about food, it’s not just about consumption, it’s about growing it as well.”

Summary

I analyzed data collected through the quantitative and qualitative research strands to address the four research questions. The quantitative data strand included the implementation of an online survey of eight Cooperative Extension Systems and was implemented to determine the behavioral intentions/behaviors of Extension professionals towards the Farm to School movement. Survey results found that over half of the respondents had never attended a training or educational program about Farm to School. Survey results also found that almost a quarter of the respondents had no knowledge of Farm to School. The number one Farm to School activity that respondents were found to currently be coordinating or interested in coordinating were school gardens or community garden programs. Respondents were found to be currently coordinating an average of one Farm to School activity and interested in coordinating four Farm to School activities. Overall respondents were found to have a slightly positive attitude towards Farm to School. Multiple regression models found that past participation in a Farm to School training program, knowledge of Farm to School, attitude towards Farm to School, perceived

social norms, and perceived behavioral controls are positively associated with participation in the Farm to School movement.

The qualitative strand included a case study of OSU Extension involvement and leadership of the Ohio Farm to School Program. Data was collected through in-depth interviews to determine the goals, strategies, and knowledge production by Extension professionals involved in the Farm to School movement. Participants included twenty one individuals including fifteen Extension professionals and six Farm to School program partners. Drawing on Stevenson, Ruhf, Lezberg, and Clancy (2007), results from the in-depth interviews indicate that Cooperative Extension professional's goals towards Farm to School programming were primarily related to *transformation*, changing the agrifood system, as well as *inclusion*, including new farmers, students, and community residents in agrifood activities. Drawing on Eyerman and Jamison (1991), results from the in-depth interviews also found that Extension was primarily producing organizational knowledge through their participation in the Farm to School movement. Interview results also indicated that there were several movement intellectuals in OSU Extension supporting the Farm to School movement throughout Ohio.

CHAPTER 5: CONCLUSIONS

The findings from this study will now be explored in terms of a discussion of the results, the limitations of the study, recommendations for practice, and areas for future research. The discussion of the results will describe the research findings with respect to each of the four research questions. The discussion of the study limitations will explore how the findings of this study can be applied to other populations and contexts. Recommendations for practice will provide suggestions for practice in terms of Cooperative Extension's role in the Farm to School movement and Extension Farm to School program partner's role in the Farm to School movement. Finally, the section on future research will explore how the findings from this study could be further investigated in future research studies.

Discussion of Results

The researcher utilized data collected through an online survey and in-depth interviews to answer the four research questions. Research question one asked what are the behavioral intentions/behaviors of Cooperative Extension professionals towards educational programs and/or policy initiatives that support the Farm to School movement. Survey results found that over half of the respondents had never attended a training or educational program about Farm to School. Survey results also found that almost a quarter of the respondents had no knowledge of Farm to School. The number one Farm to School activity that respondents were found to currently be coordinating was school gardens or community garden programs. The number two, three, four, and five current Farm to School activities were farm-based field trips for youth/students, market opportunities for farmers, farm/farmer-based presentations in schools, and community economic development, respectively. The number one Farm to School activity that respondents were found to be interested in coordinating was also school gardens or

community garden programs. The number two, three, four, and five interested Farm to School activities were farm-based field trips for youth/students, farm/farmer-based presentations in schools, market opportunities for farmers, and local food and farm curriculum development for schools, respectively. Respondents were found to currently be coordinating an average of one Farm to School activity and interested in coordinating four Farm to School activities. When examining Farm to School activities of Extension professionals by Extension program area, school gardens or community garden programs was in the top three current Farm to School activities for each Extension program area. This finding suggests that school gardens or community garden programs is one area in which interdisciplinary collaboration can occur across Extension program areas to support the Farm to School movement. Overall, the results show that Extension professionals support the Farm to School movement through a variety of activities and are partnering with a diverse group of food system and school system stakeholder groups. Overall, respondents were found to have a slightly positive attitude towards Farm to School programs and to slightly disagree that they had the necessary resources to help farmers sell local and regional food to school cafeterias. Additionally, respondents agreed that Extension administrator's value programs that help farmers sell local and regional food to school cafeterias but respondents were neutral about whether or not their colleagues expected them to be involved in these types of programs. The findings from the first research question provide insight into Extension professional's attitudes, knowledge, and experiences related to Farm to School programming.

Research question two asked about the relationship between Extension professional's participation in Farm to School programming and their behaviors towards educational programs and/or policy initiatives that support the Farm to School movement. Survey results indicate that

knowledge about Farm to School, past participation in Farm to School training programs, attitude towards Farm to School, perceived norms of Farm to School programming, and perceived behavioral control towards Farm to School programming are statistically significant variables in explaining an Extension professionals participation in the Farm to School movement. Each of these variables was found to be positively related to an Extension professional's participation in the Farm to School movement. These findings are expected and support the theory of reasoned action as a good model for explaining human behavior (Fishbein & Ajzen, 2010). Additionally, female Extension professionals and non-white Extension professionals were also found to be more likely involved in Farm to School activities compared to male Extension professionals and white Extension professionals, respectively. These results show that Extension participation in Farm to School programs can be increased by introducing Extension professionals to Farm to School topics through training programs that improve their knowledge, attitude, perceived norms, and perceived behavioral control towards Farm to School.

Through the multiple regression analysis, survey results also demonstrate that the variables which represent an Extension professional's position, program area, and area of service are not statistically significant in explaining an Extension professional's participation in the Farm to School movement. In other words, Extension professionals from each different Extension program area, position type, and service region support Farm to School activities equally. This finding is important because it demonstrates that Extension professionals can support Farm to School programming the same way no matter their program area, position type, or responsible service area. Additionally, this finding also demonstrates that Extension Farm to School program partners can invite every Extension professional to become involved in the Farm to School movement and that different Extension professionals have the same likelihood of becoming

involved with the Farm to School movement. Furthermore, the age of an Extension professional was found to not be statistically significant in determining an Extension professional's level of involvement in the Farm to School movement. This finding is somewhat unexpected because practice suggests that younger Extension professionals may be more likely to be involved with Farm to School programming. However, this finding demonstrates that both young and old Extension professionals participate in the number of Farm to School programs similarly.

The multiple regression model that included only the reasoned action variables accounted for 19 percent of the variation in an Extension professional's participation in Farm to School programming. This result indicates that there are a number of other variables that account for an Extension professional's involvement in Farm to School programming. Additional explanatory variables may be related socio-demographic variables, Extension demographic variables, or related to variables that represent the larger food system in which Farm to School is embedded in. These results indicate that it is likely that future research which includes additional variables related to socio-demographics, Extension demographics, or related to the food system would find that these variables account for factors that help explain an Extension professional's participation in Farm to School programming.

A comparison of the results of this study to other studies that employed the theory of reasoned action to explain human behavior can provide a useful contrast. Through this contrast, we can understand how well the theory of reasoned action explains an Extension professional's participation in Farm to School programming. Thrasher, Andrew, and Mahony (2007) used the theory of reasoned action to examine gambling behavior of college students. The models that these researches developed accounted for between 2 percent and 5 percent of the variation. In a study by Moore and Ohtsuka (1997) that explores gambling activities of young Australians, the

theory of reasoned action accounted for between 24 percent and 36 percent of the variation. Additionally, Strader and Kutz (1990) employed the theory of reasoned action to explore the impact that a persuasive communication campaign had on college students registering to become a nurse. Results of this study found that the theory of reasoned action accounted for 49 percent of the variation in behavior. While each of these studies examined different human behaviors, each study employed the theory of reasoned action to assess its overall effectiveness in analyzing human behavior change.

Research question three asked what goals and strategies do Extension professionals maintain while participating in the Farm to School movement. Drawing on Stevenson, Ruhf, Lezberg, and Clancy (2007), results from the case study of OSU Extension involvement in the Ohio Farm to School Program and in-depth interviews with Cooperative Extension professionals reveal that Extension professional's primary goals for involvement in the Farm to School movement were related to *transformation* and *inclusion*. Cooperative Extension professionals saw participating in the Farm to School movement as a way to transform the current food system by developing new agrifood systems. Additionally, Extension professionals saw Farm to School programs as a way to engage new stakeholders including farmers, students, and community residents into the food system for increased participation and the development of a more democratic food system. Drawing on Stevenson, Ruhf, Lezberg, and Clancy (2007), results from in-depth interviews with Cooperative Extension professionals also reveal that Extension professional's primary strategy for achieving these goals was through *connection* by developing strategic and conceptual linkages among diverse agrifood system stakeholder groups. Examples of these connections included linking agricultural producers to schools, community-based capacity and coalition building, and using educational programs and networking events to share

information and knowledge about Farm to School. This finding confirms the assertion by Stevenson, Ruhf, Lezberg, and Clancy (2007) that Cooperative Extension professionals primarily act as *weavers* while cultivating food system change. Additionally, these results add to the work of Stevenson, Ruhf, Lezberg, and Clancy (2007) by identifying the primary goals of Extension professionals who are involved in food system change through participation and involvement in the Farm to School movement. The results of this study also demonstrate how Extension professionals are helping to pursue an agenda of food systems change through social organizing as described by Stevenson, Ruhf, Lezberg, and Clancy (2007).

Research question four asked what types of knowledge is being produced by Cooperative Extension professionals through their involvement in the Farm to School movement. Drawing on Eyerman and Jamison (1991), results from the case study of OSU Extension involvement in the Ohio Farm to School Program and in-depth interviews with Cooperative Extension professionals indicate that OSU Extension professionals are primarily producing *organizational* knowledge. Different types of organizational knowledge production include face-to-face educational programs, online webinars, advisory boards and working groups, and the Ohio Farm to School Program website. Drawing on Eyerman and Jamison (1991), in-depth interviews also revealed that OSU Extension is home to a number of Farm to School *movement intellectuals* who are combining social roles and competences to cultivate the Farm to School movement in Ohio and beyond. The primary movement intellectual was the Ohio Farm to School Program director; however, there were also several other local and regional Extension educators and field specialists described as movement intellectuals. Each of these Extension professionals was found to play an important role collaborating with Extension colleagues and other Farm to School program partners to act as catalysts for the Farm to School movement. Furthermore, each of

these Extension professionals was found to help give the Farm to School movement its identity in Ohio. These results confirm the assertion by Holford (1995) that adult and non-formal educators can play a role in social movements and that the field of education should be more concerned with social movements as a space for learning and knowledge production.

Each of the goals, strategies, and knowledge production of Extension professionals participating in the Farm to School movement complimented each other and provided OSU Extension with an overall approach to leading the Ohio Farm to School Program. Other Cooperative Extension Systems can examine the results of this case study to determine their role in the Farm to School movement. Cooperative Extension Systems with the goals of transforming agrifood systems or including marginalized stakeholders in the agrifood system through Farm to School programs can look to OSU Extension and the Ohio Farm to School Program for best practices. Additionally, Cooperative Extension Systems which believe that it is important to connect diverse agrifood stakeholders together to achieve food system-related goals can look to OSU Extension and the Ohio Farm to School Program for valuable strategies. Furthermore, Cooperative Extension Systems that are exploring how best to disseminate information about Farm to School can look to this case study for potential methods. This case study of OSU Extension involvement in Farm to School programming demonstrates the opportunity that Extension has to fulfill its organizational mission through participation in the Farm to School movement.

Limitations of the Study

The limitations of this study involve the population used in the quantitative research strand and the participants selected for the qualitative research strand. The findings from the survey represent the perceptions and experiences of the respondents. The survey respondents

represent 48 percent of the population. The survey population consisted of 1,953 Extension professionals in eight U.S. states. Therefore, the survey results do not represent the perceptions and experiences of all Extension professionals working in the eight states. Additionally, the survey population represents a convenient sample of Extension professionals from across the U.S. Selecting a convenient sample of Extension professional's limits the generalizability of results. Therefore, the researcher cannot say that the survey results represent the views of all Extension professionals across the U.S. Likewise, the case study results represent the views of the individuals who agreed to participate in the case study of OSU Extension involvement in the Ohio Farm to School program. The findings from the case study only represent the perceptions and experiences of the participants. Therefore, the case study findings are limited to the individuals who participated in the study and do not represent the views of all Extension professional's associated with the Ohio Farm to School Program.

Recommendations for Practice

A number of recommendations have been derived from the results of this study that can guide practice. These recommendations are geared toward Cooperative Extension Systems and Cooperative Extension professionals that are currently involved in or may be exploring involvement in the Farm to School movement. Additionally, these recommendations are also geared towards other individuals, groups, organizations, and agencies that are part of the Farm to School movement but do not work for Cooperative Extension.

Recommendations for Cooperative Extension Systems

The first set of recommendations are geared toward Cooperative Extension Systems and Extension professionals that are currently involved in, or may be exploring involvement in, the Farm to School movement. First, if Cooperative Extension Systems are exploring involvement in

local and regional food system programming, I recommend for these Extension systems to include Farm to School as part of their effort. The survey of eight Extension systems and case study of OSU Extension involvement in the Ohio Farm to School Program show that Extension professionals are supporting the Farm to School movement in a wide variety of ways. The survey and case study results also show that each Extension program area and position type can be involved in Farm to School and that as an organization; Cooperative Extension is well positioned to support the Farm to School movement.

The ability of Extension to support Farm to School comes from their mission that emphasizes non-formal education and research to improve the lives of individuals. Extensions ability to impact the Farm to School movement also comes from Extensions statewide organizational framework that directs resources to local and regional needs through educational programming efforts and directs resources to statewide needs through research-funded positions primarily at the Land-Grant University. Farm to School programs help farmers connect to local and regional markets and help teach students about gardening and eating healthy fresh fruits and vegetables through experiential learning programs. These two areas are places where Extension can support Farm to School and constitute an area for Extension to focus on. The results of the case study show that Extension professionals are active in connecting diverse Farm to School stakeholders together. This result further demonstrates the important role that Extension professionals can play in the Farm to School movement.

Second, as a result of this study, I recommend for Cooperative Extension to support Farm to School through interdisciplinary program teams. The results of the survey and case study show that Extension professionals from each of the Extension program areas including 4-H Youth Development, Agriculture and Natural Resources, Family and Consumer Sciences, and

Community Development are currently supporting Farm to School. Results of the survey demonstrate that as an Extension professionals perceived norms and perceived behavioral controls increase, their involvement in Farm to School programming increases. Through the development of interdisciplinary program teams focused on Farm to School, an Extension professional may believe that it is more socially acceptable to develop Farm to School programs or feel that they have a greater ability of completing successful Farm to School programs. Results of the case study of the Ohio Farm to School Program also demonstrate that Extension local food system efforts are more likely to be successful when interdisciplinary program teams are developed around a topic such as Farm to School. With each program area having expertise to lend in the area of Farm to School, I recommend for Cooperative Extension Systems to bring this expertise together through a structured organizational framework such as a Farm to School program team.

Third, as a result of this study, I recommend for state legislatures and other state governing organizations to at least explore the opportunity for Cooperative Extension to be the state lead organization in Farm to School. Specifically, the results of the case study which explored OSU Extension involvement in Farm to School demonstrate that Extension systems have the potential to be successful in leading state-based Farm to School programs. Many states have developed formal state-based Farm to School programs, and most often, these programs are led by the state Department of Agriculture and/or state Department of Education. While research has not explored the impact of these agencies leading state-based Farm to School efforts, this research does show that Cooperative Extension can be a viable alternative to leading a state-based Farm to School program.

Fourth, as a result of this study, I recommend for Cooperative Extension Systems that are currently engaged in Farm to School programming, or interested in becoming engaged in Farm to School programming, to conduct a professional development in-service training about Farm to School for Extension professionals. Results of the survey demonstrate that an Extension professional's past attendance at a Farm to School training program resulted in higher levels participation in Farm to School programming. The survey also found that Extension professionals with higher levels of knowledge of Farm to School and better overall attitudes about Farm to School completed more Farm to School activities. Furthermore, results show that Extension professionals with higher perceived norms and higher perceived behavioral controls towards Farm to School completed more Farm to School programming. By hosting a Farm to School professional development in-service training that discusses connecting local foods to schools, developing school gardens, and developing other types of Farm to School experiential learning programs, it's likely that Extension professionals will complete more Farm to School programs. Additionally, this professional development training program may also allow for internal connections to be made that foster and improve interdisciplinary program opportunities or raise Extension professional's perceived norms about Farm to School. This in-service training could be developed as a stand along training program or as part of a broader training program focused on local and regional food systems.

Recommendations for Farm to School Program Partners

The second set of recommendations are geared toward other individuals, groups, organizations, and agencies that are part of the Farm to School movement. First, I recommend that individuals and organizations involved in the Farm to School movement to reach out to Cooperative Extension professionals as a resource to support Farm to School work. The results

of this study describe which type of Extension professional to target for which types of activities. The results of this study demonstrate that Extension has educational programs and research expertise to support local, regional, and statewide Farm to School programs and initiatives. These resources may be able to assist organization's involved in Farm to School by acting as an educator, convener, facilitator, program evaluator, or simply as an organization that helps link a program partner to additional Farm to School resources and expertise. I recommend for Farm to School program partners to look for those Extension professionals that are knowledgeable and open-minded to community food systems work and encourage these Extension professionals to become involved with Farm to School programming.

Second, I recommend that individuals and organizations involved in the Farm to School movement invite Cooperative Extension professionals to Farm to School programs either as a participant to learn more about Farm to School or as a resource speaker to share information about their work and area of expertise. The results of this study show that Extension professionals who have attended a training program in Farm to School complete more Farm to School activities than those Extension professionals who have not attended a Farm to School training program. Inviting Extension professionals to a Farm to School training is one strategy to get Extension to increase their support and involvement in the Farm to School movement. Additionally, Extension professionals have many skills and expertise that may be transferable to Farm to School initiatives. Cooperative Extension professionals have expertise in agricultural production methods, food safety regulations, marketing and distribution, health and nutrition and many other areas that can assist the Farm to School movement. Because of this, Extension professionals may make a good resource speaker at educational programs related to Farm to

School. Extension professionals may be able to share a wide variety of information that can help strengthen or enhance an organization's involvement in the Farm to School movement.

Third, I recommend that individuals and organizations involved in the Farm to School movement develop relationships with Cooperative Extension administrators. I recommend for non-profits, state agencies, and other community-based organizations involved in Farm to School cultivate a dialogue about the importance of Extension involvement in Farm to School programming. I recommend that this relationship building be done through informal and formal meetings and networking events. Results from the survey demonstrate that as an Extension professional's knowledge and attitude about Farm to School increases, their participation in Farm to School activities also increases. State Extension directors have a tremendous platform to help engage and encourage Extension professionals in Farm to School programming. Farm to School program partners have the opportunity to influence an Extension administrators knowledge and attitude about Farm to School. The results of this study also show that those individuals who believe that it is socially acceptable to develop Farm to School programs complete more Farm to School programs compared to those individuals who do not believe that it is socially acceptable to develop and complete Farm to School programs. Extension directors have the opportunity to create a culture throughout the organization in which Farm to School programs are seen as valuable. By developing a strong relationship with Extension directors, Farm to School program partners may be able to influence the Extension director's support of Farm to School programming.

Recommendations for Future Research

The purpose of this study was to explore food system change through an analysis of the role Cooperative Extension is playing in the Farm to School movement. Future research can

investigate a number of different areas related to Extension involvement in the Farm to School movement. First, additional research can be conducted that further explores the results of this study. For example, results of the online survey reveal that additional variables explain the variation in Extension professional's involvement in Farm to School programs. Additional research may be able to determine new variables for inclusion into the regression models and explore other reasons that impact Extension involvement in the Farm to School movement. Second, additional research can be conducted in states that did not participate in the online survey that explores Cooperative Extension professional's behavioral intentions/behaviors towards educational programs and/or policy initiatives that support the Farm to School movement. This would allow the results of this study to be compared to the results of other state Extension systems. Third, additional research can be conducted in the form of a second state-based case study that explores Extension professional's goals, strategies, and knowledge production within the Farm to School movement. This would allow for the results of the Ohio Farm to School Program case study to be compared to results of another case study. Fourth, future research can employ new theoretical and methodological approaches to additional studies of selected Cooperative Extension Systems participating in this study. This can allow for new and additional information to be gathered about Extension's role in the Farm to School movement with the selected study population. Fifth, future research can investigate other agrifood service providers and non-formal educator's roles in the Farm to School movement. This can provide new or additional information about how other groups are supporting the Farm to School movement and about how Extension could best position its resources to further enhance local and regional Farm to School programs.

Future research is also needed to help understand if Cooperative Extension should be involved in the Farm to School movement. First, continued research is needed that examines the economic impact and/or potential economic impact of local and regional Farm to School programs. By continuing to document the economic impact of Farm to School, individuals will better understand if Farm to School programs support the goals of farm viability and community economic development. Second, continued research is needed that examines the health impact of local and regional Farm to School programs. By continuing to document the health impact of Farm to School, individuals will better understand if Farm to School programs support improved public health and wellness goals, and can be part of the solution to lowering childhood obesity rates. Third, continued research is needed that examines the social and cultural impacts of local and regional Farm to School programs. By continuing to document the social and cultural impacts of Farm to School, individuals will better understand if Farm to School programs impact student learning and achievement. Fourth, continued research is needed that examines the role public policy plays in the Farm to School movement. With the majority of states having state-based Farm to School legislation, and with more Federal laws supporting Farm to School program development, continued research is needed to determine which types of legislation is most effective in supporting local and regional Farm to School programs. This research could examine local, state, and Federal legislation related to Farm to School, as well as the role of the USDA *Know Your Farmer, Know Your Food* program and USDA Farm to School grant program. With additional research that explores the economic, health, social, and cultural impacts of Farm to School programs, Cooperative Extension administrators can better determine if their Extension system should be involved with Farm to School programming.

Conclusion

Like Allen (2004), Guptill, Copelton, and Lucal (2013) proclaim food as part of a U.S. social movement organizing to change society and culture. Guptill, Copelton, and Lucal (2013) assert that despite the diverse emphasizes of the local food movement, “food movement activists share the desire for a food system that provides healthier diets, more satisfying livelihoods, more robust agroecologies, and more opportunities to forge and renew social ties” (p. 162). These authors affirm that these individuals are concerned with “constructing new alternative foodways and working to change government policies that privilege industrial ones” (p. 162). Many individuals continue to argue that individuals working towards these goals as part of the local food movement are not needed (Desrochers & Shimizu, 2012; Hurst, 2009; Kenny, 2011). Together, Desrochers and Shimizu (2012), Hurst (2009), and Kenny (2011) argue that society in general should not be concerned with re-localizing food systems. Karst (2012) is specific about which local food programs society should not be concerned with and argues against supporting Farm to School programs. This author asserts that Farm to School programs such as the USDA Farm to School Program have yet to show much promise and that more research is needed to determine if this program is a good use of scarce public dollars. This author worries about the opportunity cost of these funds, and what other funding opportunities will be missed by supporting Farm to School (Karst, 2012). I agree that more research is needed which examines the benefits and public impacts of local and regional food systems and Farm to School programs. However, I disagree that Land-Grant Universities and other organizations should wait to engage in food system work until the research is complete or conclusive. I also disagree that Land-Grant Universities should not continue this work and should not be engaged in Farm to School programs unless the benefit-cost ratio looks promising. I believe that local and regional food

system programs, particularly Farm to School programs, are of central importance to the Land-Grant mission and to the mission of the Cooperative Extension Service because the potential that Farm to School programs provide to help address pressing social issues related to the economic viability of agriculture and public health.

Holford (1995) proclaims that social movements like the local food movement matter to the fields of adult and non-formal education. He asserts that adult educators can play a role in social movements as movement intellectuals and in the creation of organizational knowledge. This study explores if and how non-formal educators working for Cooperative Extension are supporting a hallmark program of the local food movement, Farm to School. This study explores the types of behaviors, goals, strategies, and knowledge Cooperative Extension professionals maintain towards the Farm to School movement. This study also explores if and how Cooperative Extension can work with other agrifood organizations to support and enhance local and regional food systems through Farm to School programming. My hope is that state Extension directors take a close examination of the results described in this study and implement steps to include Farm to School programming as part of an interdisciplinary approach to address pressing social issues through community food systems. The results of this study shed light on how Extension directors should position their organization to engage in Farm to School programming. Additionally, I suggest that other organizations involved in the Farm to School movement take a close examination of the results of this study to see which Farm to School programs their organization can partner with Extension professionals on to support the continued growth and development of the Farm to School movement.

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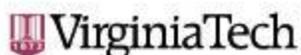
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APPENDICES

Appendix A: IRB Approval Letter



Office of Research Compliance
Institutional Review Board
2000 Kraft Drive, Suite 2000 (Q497)
Blacksburg, VA 24060
540/231-4606 Fax 540/231-0969
email irb@ut.edu
website <http://www.irb.ut.edu>

MEMORANDUM

DATE: October 17, 2012
TO: Kim Niewolny, Matthew Carl Benson
FROM: Virginia Tech Institutional Review Board (FWA00000572, expires May 31, 2014)
PROTOCOL TITLE: Exploring the Role of Extension in the Farm to School Movement
IRB NUMBER: 12-898

Effective October 17, 2012, the Virginia Tech Institutional 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) 6,7**
Protocol Approval Date: **October 17, 2012**
Protocol Expiration Date: **October 16, 2013**
Continuing Review Due Date*: **October 2, 2013**

*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 B: Email Letter to Extension Directors

Dear colleagues,

A doctoral student, Matthew Benson, working on his dissertation in the Department of Agricultural and Extension Education at Virginia Tech is exploring the role of Cooperative Extension in supporting 'Farm to School' programs and activities. As I am sure many of you know, Farm to School programs include activities which connect local and regional foods to school cafeterias, develop garden-based learning programs, or implement other types of experiential local agriculture or food-based learning opportunities for K-12 students. To complete his dissertation, Matt is asking for your assistance.

Matt would like to distribute a short online survey to Extension administration, faculty, and staff in different state Extension systems. The purpose of this survey is to explore the behaviors of Extension related to Farm to School. Following this survey, Matt would like to complete a qualitative case study by conducting interviews and/or focus groups with Extension administration, faculty, and staff involved with Farm to School programs, as well as Farm to School program partners. Together, Matt hopes this survey and case study will help important stakeholders, such as the USDA and other funders, understand how Extension is impacting Farm to School.

I believe this research is a valuable study and Matt would be very grateful for your assistance in helping him complete this project. Matt would like your help to identify potential Extension systems that are willing to partner on this research. If you believe your state would be an appropriate Extension System to participate in the study, please let me know. If your state is included in the study, Matt would also like your assistance to communicate with your Extension System by sending out correspondence about the project and a web link to the online survey to personnel.

If you would like to help Matt complete this research project, please email me at your earliest convenience. We know how busy you and your professionals are, and sincerely appreciate your support and assistance. You can also contact Matt directly at mcbenson@vt.edu.

Sincerely,

Ed

Edwin J. Jones, Ph.D.
Director, Virginia Cooperative Extension
Associate Dean, College of Agriculture and Life Sciences
101 Hutcheson Hall (0402)
Virginia Tech
Blacksburg, VA 24061
540-231-5299
ejones1@vt.edu

Appendix C: Pre-notice of Questionnaire

Dear Colleagues:

In the next couple of days, you will be receiving an invitation to participate in an online survey being conducted by Matt Benson, a doctoral student at Virginia Tech and former Extension professional. His current research is exploring the role of Extension in supporting programs that connect local and regional farm products to school cafeterias, develop school garden-based learning programs, and develop other Farm to School experiential learning programs.

I encourage your timely participation in this study as the findings may be useful to our state.

Please contact Matt directly if you have any questions regarding his research at mcbenson@vt.edu or (540) 522-0762.

Sincerely,

Director of Extension

Appendix D: Questionnaire Email Invitation

Dear Extension Professional:

You have been selected for participation in an online survey. As a doctoral student and former Extension professional, I am requesting assistance with my current research that explores the role of Extension in supporting programs that connect local and regional farm products to school cafeterias, develop school garden-based learning programs, and develop other Farm to School experiential learning programs.

The survey is available at [\[survey link\]](#).

Your participation in this study is completely voluntary and does not impact your position in any form. All responses will be kept strictly confidential. By completing the survey your consent to participate is implied. As a former Extension professional, I know many of you can appreciate the importance of participating. The study will take less than 15 minutes from start to finish.

Thank you in advance for your time and efforts with this important study. Please let me know if you have any additional questions regarding my research at mcbenson@vt.edu or (540) 522-0762. You may also contact my advisor, Dr. Kim Niewolny, at niewolny@vt.edu or (540) 231-5784.

I look forward to receiving your responses to the survey, available at [\[survey link\]](#).

Sincerely,

Matthew Benson
PhD Candidate
Virginia Tech

Kim Niewolny
Assistant Professor & Extension Specialist
Virginia Tech

Appendix E: Survey Questionnaire

INTRODUCTION & PURPOSE

Hello, this survey is being conducted by Matt Benson, a PhD Candidate in the Department of Agricultural and Extension Education at Virginia Tech (mcbenson@vt.edu) under the guidance of Dr. Kim Niewolny, an Assistant Professor and Extension Specialist in the Department of Agricultural and Extension Education at Virginia Tech (niewolny@vt.edu).

The overall purpose of this study is to describe the role of Extension in connecting local and regional foods to school cafeterias, developing school gardens, and developing other Farm to School experiential (i.e. hands on) learning programs.

This survey has four sections.

Section one will ask about your Extension position and program responsibilities.

Section two will explore your knowledge about Farm to School.

Section three will explore your attitudes and perceptions towards Farm to School programming.

Section four will ask a series of demographic questions.

TIME TO COMPLETE THE SURVEY

This survey will take approximately 15 MINUTES or less to complete.

CONFIDENTIALITY

Your participation in this survey is entirely voluntary. There are no wrong answers. You may choose not to participate or you may refuse to answer certain questions. You can choose to discontinue your participation at any time. Completion of this survey will constitute informed consent. All information collected as part of this survey will remain confidential. Access to the surveys will be restricted to investigators approved through the Virginia Tech Human Subjects Review procedure. There are no anticipated risks to you for participating.

THANK YOU VERY MUCH FOR YOUR PARTICIPATION!

Section 1

Please tell us a little information about your position and program area in Extension.

1. What state Extension System do you work for? *

_____ [State]

2. What is your primary program area within Extension? *Please check the program area that is most applicable to your focus area.* *

_____ 4-H Youth Development

_____ Agriculture & Natural Resources

_____ Community Development

_____ Family & Consumer Sciences

_____ Other (Please Specify) _____

3. What is your position with Extension? *Please check the position that most closely resembles your responsibilities.* *

_____ Extension Agent/Educator

_____ Extension Program Assistant or Program Associate

_____ Extension Specialist

_____ Extension Administration (i.e. County, Region, State, or Program Coordinator/Director)

_____ Other (Please Specify) _____

4. What is your region or service area for providing education, training, or support?

_____ Statewide

_____ Regional (Multi-county)

_____ Local (County or City)

_____ Other (Please Specify) _____

5. How many years have you worked for Extension? *Please only type the numeric number of years.* *

Number of Years: _____

* *A required question to complete.*

Section 2

6. Please answer the following statements based on your knowledge of Farm to School.

Item	Yes	No	I don't know
There is a national Farm to School month.			
Federal legislation supports schools buying local and regionally grown/ raised foods.			
Many states have state based/ sponsored Farm to School programs.			
There is an organization known as the National Farm to School Network supporting Farm to School programs across the U.S.			
Farm to School can involve more than just serving local and regionally grown/ raised food in school cafeterias.			
The USDA has a national grant program to support schools buying local and regionally grown/ raised food.			
The USDA has a national grant program to support school garden based learning programs.			
The USDA has a national grant program to support Farm to School experiential learning programs.			
The goals of the USDA Know Your Farmer, Know Your Food program support the goals of the national Farm to School program.			
The goals of the First Lady's Let's Move initiative support the goals of the national Farm to School program.			

Please answer the following questions based on your level of involvement with Farm to School.

7. Have you ever attended an educational training or program about connecting local and regional farm products to school cafeterias?

- Yes
- No
- I don't know.

8. Have you ever attended an educational training or program about developing school gardens?

- Yes
- No
- I don't know.

9. Have you ever attended an educational training or program about developing Farm to School experiential learning programs?

- Yes
- No
- I don't know.

10. If you are CURRENTLY coordinating Farm to School activities, what types of activities are you completing or involved with? *Please check all that apply.*

- Community economic development
 - Composting programs at schools
 - Farmers markets at schools
 - Farm-based field trips for youth/students
 - Farm/farmer-based presentations in schools
 - Grant-writing to support Farm to School programs or activities
 - Local food aggregation and distribution development for schools
 - Local food and farm curriculum development for schools
 - Local food, agriculture, or health policy development
 - Local food cooking in schools
 - Local food recipe development in schools
 - Local food coordination/procurement for schools
 - Local food coordination/procurement for pre-K programs or daycare facilities
 - Market opportunities for farmers
 - School gardens or community garden programs
 - Tastings with local food in schools
 - Training about insurance regulations for selling to institutional markets
 - Training about on-farm food safety regulations for selling to institutional markets
 - Training and technical assistance for farmers to sell products to schools
 - USDA Fresh Fruit & Vegetable Program presentations in schools
 - Volunteer recruitment and development for Farm to School activities
 - Other (Please Specify) _____
-

11. What types of Farm to School activities WOULD YOU LIKE TO COMPLETE or become involved with? *Please check all that apply.*

- Community economic development
 - Composting programs at schools
 - Farmers markets at schools
 - Farm-based field trips for youth/students
 - Farm/farmer-based presentations in schools
 - Grant-writing to support Farm to School programs or activities
 - Local food aggregation and distribution development for schools
 - Local food and farm curriculum development for schools
 - Local food, agriculture, or health policy development
 - Local food cooking in schools
 - Local food recipe development in schools
 - Local food coordination/procurement for schools
 - Local food coordination/procurement for pre-K programs or daycare facilities
 - Market opportunities for farmers
 - School gardens or community garden programs
 - Tastings with local food in schools
 - Training about insurance regulations for selling to institutional markets
 - Training about on-farm food safety regulations for selling to institutional markets
 - Training and technical assistance for farmers to sell products to schools
 - USDA Fresh Fruit & Vegetable Program presentations in schools
 - Volunteer recruitment and development for Farm to School activities
 - Other (Please Specify) _____
-

Section 3

12. Please rate the following statement by placing an “X” on the dash that most closely reflects your attitudes towards the statement below. There are no correct answers. Some of the scales may seem to make more sense than others. Don't worry about it. Please don't leave any scales blank. On each scale, rate your feelings toward the following statement.

Overall, Farm to School programs that connect local and regional food to school cafeterias, develop school gardens, and develop other Farm to School experiential learning programs are:

Good (3) | ____ | ____ | ____ | ____ | ____ | ____ | ____ | Bad (-3)

Negative (-3) | ____ | ____ | ____ | ____ | ____ | ____ | ____ | Positive (3)

Pleasant (3) | ____ | ____ | ____ | ____ | ____ | ____ | ____ | Unpleasant (-3)

Worthless (-3) | ____ | ____ | ____ | ____ | ____ | ____ | ____ | Valuable (3)

Strong (3) | ____ | ____ | ____ | ____ | ____ | ____ | ____ | Weak (-3)

Soft (3) | ____ | ____ | ____ | ____ | ____ | ____ | ____ | Hard (-3)

Complex (-3) | ____ | ____ | ____ | ____ | ____ | ____ | ____ | Simple (3)

Difficult (-3) | ____ | ____ | ____ | ____ | ____ | ____ | ____ | Easy (3)

Passive (3) | ____ | ____ | ____ | ____ | ____ | ____ | ____ | Active (-3)

Exciting (-3) | ____ | ____ | ____ | ____ | ____ | ____ | ____ | Calm (3)

Tense (-3) | ____ | ____ | ____ | ____ | ____ | ____ | ____ | Relaxing (3)

Quiet (3) | ____ | ____ | ____ | ____ | ____ | ____ | ____ | Loud (-3)

13. Please rate the following statements.

Item	Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree
I believe that I have the skills and knowledge to help farmers sell local and regional food to school cafeterias.							
I believe that I have the necessary resources to help farmers sell local and regional food to school cafeterias.							
I believe that if I coordinate programs that help farmers sell local and regional food to school cafeterias the program will be successful.							
I believe that programs that help farmers sell local and regional food to school cafeterias can be educational and impactful for participants.							
I believe that I can help schools develop school garden-based Learning programs.							
I believe that I can help schools develop Farm to School experiential learning programs.							
I believe that I can inform my stakeholders about the importance of programs that help farmers sell local and regional food to school cafeterias.							
There are few external barriers to Extension supporting programs that help farmers sell local and regional food to school cafeterias.							
There are few external barriers to Extension supporting school garden- based learning programs.							
There are few external barriers to Extension supporting Farm to School experiential learning programs.							

14. Please rate the following statements.

Item	Strongly Agree	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree	Strongly Disagree
I believe that I will be positively acknowledged for supporting programs that help farmers sell local and regionally food to school cafeterias.							
Extension administrations value programs that help farmers sell local and regional food to school cafeterias.							
Extension administrations believe that I should support programs that help farmers sell local and regional food to school cafeterias.							
Extension colleagues expect for me to assist with school garden based learning programs.							
Extension colleagues expect for me to assist with programs that help farmers sell local and regional food to school cafeterias.							
Extension colleagues expect for me to assist with Farm to School experiential learning programs.							
School personnel expect Extension to assist with school garden-based learning programs.							
School personnel expect Extension to assist with Farm to School experiential learning programs.							
School personnel expect Extension to assist with programs that help farmers sell local and regional food to school cafeterias.							
Extension partners such as schools, local Farm Bureaus, and community groups support my involvement in programs that help farmers sell local and regional food to school cafeterias.							

Section 4

15. How would you identify yourself?

- Male
- Female

16. Please select the ethnic group that best describes you. (Select only one.)

- Hispanic or Latino: A person of Cuban, Mexican, Puerto Rican, South or Central American or other Spanish culture or origin, regardless of race.
- Not Hispanic or Latino

17. Please choose the racial category that best describes you. (Select one or more, as applicable.)

- American Indian or Alaska Native: A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.
- Asian: A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including for example Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
- Black or African American: A person having origins in any of the black racial groups of Africa.
- Native Hawaiian or Other Pacific Islander: A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
- White: A person having origins in any of the original peoples of Europe, the middle East, or North Africa.
- Other (Please Specify) _____

18. How old are you? Please only type the numeric number of years.

19. Please share any additional thoughts or information about the role of Extension in connecting local farm products to school cafeterias, developing school gardens, or developing Farm to School experiential learning programs.

THANK YOU VERY MUCH FOR COMPLETING THIS SURVEY!

FOLLOWUP INVITATION:

If you are willing to participate in an interview or focus group about your involvement in Farm to School programming, please go to the webpage below and provide your contact information. We are genuinely grateful for your support and interest in this project.

https://www.research.net/s/FarmtoSchool_Survey

If you are willing to participate in an interview or focus group about your involvement in connecting local farm products to school cafeterias, developing school gardens, or developing other types of Farm to School experiential learning programs, please provide your contact information.

Name _____

Position _____

Email _____

Phone _____

Appendix F: Follow-up Reminder Email

Dear Extension Professional:

Last week, I sent you an email requesting your participation in a survey that explores the role of Extension in supporting programs that connect local and regional farm products to school cafeterias, develop school garden-based learning programs, and develop other Farm to School experiential learning programs. Thank you so much to those of you who have already completed the survey. If you have not yet completed the survey, please take 10 to 15 minutes now to provide your responses to the questions.

The survey is available at [\[survey link\]](#).

The feedback we are receiving is insightful, and we look forward to gaining a complete picture of experiences of Extension agents/educators like you. To ensure an accurate representation, we need as many responses as possible.

As a reminder, your participation in this study is completely voluntary and does not impact your position in any form. All responses will be kept strictly confidential. By completing the survey your consent to participate is implied. As a former Extension professional, I know many of you can appreciate the importance of participating.

Thank you in advance for your time and efforts with this important study. Please let me know if you have any additional questions regarding my research at mcbenson@vt.edu or (540) 522-0762. You may also contact my advisor, Dr. Kim Niewolny, at niewolny@vt.edu or (540) 231-5784.

I look forward to receiving your responses to the survey, available at [\[survey link\]](#).

Sincerely,

Matthew Benson
PhD Candidate
Virginia Tech

Kim Niewolny
Assistant Professor & Extension Specialist
Virginia Tech

Appendix G: Second Follow-up Reminder Email

Dear Extension Professional:

Two weeks ago, I sent you an email requesting your participation in a survey that explores the role of Extension in supporting programs that connect local and regional farm products to school cafeterias, develop school garden-based learning programs, and develop other Farm to School experiential learning programs. Thank you so much to those of you who have already completed the survey. If you have not yet completed the survey, please take 10 to 15 minutes now to provide your responses to the questions.

The survey will close on [\[insert date\]](#). The survey is available at [\[survey link\]](#).

The feedback we are receiving is insightful, and we look forward to gaining a complete picture of experiences of Extension educators like you. To ensure an accurate representation, we need as many responses as possible.

As a reminder, your participation in this study is completely voluntary and does not impact your position in any form. All responses will be kept strictly confidential. By completing the survey your consent to participate is implied. As a former Extension professional, I know many of you can appreciate the importance of participating.

Thank you in advance for your time and efforts with this important study. Please let me know if you have any additional questions regarding my research at mcbenson@vt.edu or (540) 522-0762. You may also contact my advisor, Dr. Kim Niewolny, at niewolny@vt.edu or (540) 231-5784.

I look forward to receiving your responses to the survey, available at [\[survey link\]](#).

Sincerely,

Matthew Benson
PhD Candidate
Virginia Tech

Kim Niewolny
Assistant Professor & Extension Specialist
Virginia Tech

Appendix H: Qualitative Strand Participant Consent Form

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

Title of Research Project:

Exploring the Role of Extension in the Farm to School Movement

Principal Investigator:

Kim L. Niewolny, Agricultural & Extension Education, Virginia Tech (PI)
Matthew C. Benson, Agricultural & Extension Education, Virginia Tech (Co-PI)

I. Purpose of this Research/Project

This study involves research, and its purpose is to explore the role of Extension in the Farm to School movement. The study will consist of an online survey of several Extension Systems followed by a case study of Extension in at least one state. During the case study portion of the research project, several focus groups and interviews will be completed with Extension administration, faculty, and staff as well as their Farm to School program partners.

II. Procedures

You are being asked to participate in an interview or focus group session that may take place with other professionals supporting Farm to School programs or activities. The focus group session or interview will last no more than 90 minutes. If you agree, this focus group session or interview will be audio taped. At no time will the audiotape be released to anyone other than the researchers involved with the project without your written consent.

III. Risks

The risks associated with participating in this study are considered to be minimal.

IV. Benefits

There are no known benefits to participants. The data collected from participants during this research will be developed for inclusion into a doctoral dissertation, as well as into one or more papers for publication in academic journals or public reports. Data may also be presented at regional and national conferences. No promise or guarantee of benefits has been made to encourage you to participate.

V. Extent of Anonymity and Confidentiality

Your identity, and that of any individuals who you mention, will be kept confidential at all times and will be known only to your interviewers. The above-mentioned interviews will be audio recorded and later transcribed by a member of the research team. When transcribing the interview recordings, pseudonyms (i.e., false names) will be used for your name and for the names of any other people who you mention. These pseudonyms will also be used in preparing all written reports of the research. Any details in the interview recordings that could identify you, or anyone who you mention, will also be altered during the transcription process. After the transcribing is complete, the interview recordings will be stored in locked offices used by the research team. The

audio recordings will be destroyed after the analysis is complete, but the transcriptions will be stored indefinitely.

It is possible that the Institutional Review Board (IRB) at Virginia Tech will view this study's collected data for auditing purposes. The IRB is responsible for overseeing the protection of human subjects who are involved in research.

VI. Compensation

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

VII. Freedom to Withdraw

My participation in this study is entirely voluntary, and my refusal to participate will involve no penalty or loss of benefits to which I am otherwise entitled. Similarly, I am free to withdraw from this study at any time without penalty or loss of benefits to which I am otherwise entitled. If I choose to withdraw from the study, any information about me and any data that I have provided will be destroyed. I am also free to choose to not answer any question, or to not complete any activity, and this choice will result in no penalty or loss of benefits to which I am otherwise entitled.

VIII. Participant's Responsibilities

As a participant you are responsible for completing a focus group session or interview that will last no more than 90 minutes.

IX. Participant's Permission

I have read and understand the *Informed Consent* and the conditions of this study. I have also had all of my questions answered. I hereby acknowledge the above and give my voluntary consent:

_____ Date _____
Signature of Participant

Printed Name

_____ Date _____
Signature of Principal Investigator

Printed Name

Should I have any questions about this study or its conduct, or participants' rights, I may contact:

Principal Investigator:

Kim L. Niewolny
Department of Agricultural & Extension Education, Virginia Tech
(540) 231-5784
niewolny@vt.edu

Co-Investigator:

Matthew C. Benson
Department of Agricultural and Extension Education, Virginia Tech
(540) 522-0762
mcbenson@vt.edu

Virginia Tech Institutional Review Board:

David Moore
Virginia Tech Institutional Review Board
(540) 231-4991
moored@vt.edu

Appendix I: Qualitative Data Collection Guide

[Interviews and/or Focus Groups with Extension]

Greeting:

Thank you for participating in this research study about the role of Extension in Farm to School programming. My name is Matt Benson and I will be leading this interview [focus group]. The purpose of this interview [focus group] is to gain insight into the role of Extension in supporting programs that help farmers sell local and regional food to school cafeterias, develop school gardens, or develop Farm to School experiential learning programs.

1. To begin with, can you tell me about your position and role working for Extension?
 - a. Probes: What is your position or role with Extension? What Extension programs do you coordinate or develop? How long have you worked for Extension? What region or service territory do you cover?
2. Can you tell me about the role you are playing to support programs that help (a) farmer's sell local and regional food to school cafeterias, (b) schools develop local food gardens, or (c) schools develop other Farm to School experiential learning programs?
 - a. Probes: What types of programs or activities are you coordinating? How many people from Extension are supporting these programs or activities? Who are you working with or partnering with on these initiatives?

Now, I would like to turn our conversation to talking about your goals and strategies for programs that help farmers sell local and regional food to school cafeterias, schools develop gardens, or develop other Farm to School experiential learning programs.

3. What are your goals for programs that help (a) farmers sell local and regional food to school cafeterias, (b) schools develop gardens, or (c) schools develop other Farm to School experiential learning programs?
4. What types of strategies are you developing or employing to support programs that help (a) farmers sell local and regional food to school cafeterias, (b) schools develop gardens, or (c) schools develop other Farm to School experiential learning programs?

I would also like for us to talk about the topics covered or discussed in your Extension training programs that help farmers sell local and regional food to school cafeterias, schools develop gardens, or schools develop other Farm to School experiential learning programs?

5. What types of topics are your programs talking about or discussing when they involve programs that help (a) farmers sell local and regional food to school cafeterias, (b) schools develop gardens, or (c) schools develop other Farm to School experiential learning programs?

6. What types of educational processes, programs, or activities are you coordinating to support (a) farmers selling local and regional food to school cafeterias, (b) schools developing gardens, or (c) schools developing other Farm to School experiential learning programs?
 - a. Probes: Are you hosting conferences, workshops, or seminars about these topics? Are you coordinating meetings, networking opportunities, or working groups to support these topics? How about are developing any sorts of online programs?
7. Is there anyone working for Extension who is enthusiastically supporting programs that help (a) farmers sell local and regional food to school cafeterias, (b) schools develop gardens, or (c) schools develop other Farm to School experiential learning programs?
 - a. Probes: What types of information, ideas, or values are they sharing? Can you think of any local or state Farm to School leaders working for Cooperative Extension?

I would like to now ask you about your familiarity with different Farm to School policies or regulations.

8. How have different state or federal regulations or policies affected the growth and development of programs that help (a) farmers sell local and regional food to school cafeterias, (b) schools develop gardens, or (c) schools develop other Farm to School experiential learning programs?
 - a. Have these policies or regulations impacted Extension work in Farm to School at all?

Lastly, I would like for us to discuss what you think would help grow or strengthen Cooperative Extension's involvement in Farm to School activities and programs.

9. What types of topics would you like to learn more about that assist (a) farmers sell local and regional food to school cafeterias, (b) schools develop gardens, or (c) schools develop other Farm to School experiential learning programs?
10. Can you recommend anyone else I should speak with about the role of Extension in supporting programs that help (a) farmers sell local and regional food to school cafeterias, (b) schools develop gardens, or (c) schools develop other Farm to School experiential learning programs?
 - a. Probes: Inside or outside of Extension?

**Thank you very much for participating in this interview [focus group]!
We are sincerely grateful for your time and support!**

[Interviews and/or Focus Groups with Extension Partners]

Greeting:

Thank you for participating in this research study about the role of Extension in Farm to School programming. My name is Matt Benson and I will be leading this interview [focus group discussion]. The purpose of this interview [focus group discussion] is to gain insight into the role of Extension in supporting programs that help farmers sell local and regional food to school cafeterias, develop school gardens, or develop Farm to School experiential learning programs.

1. To begin with, can you tell me about your position and role working with Extension?
 - a. Probes: What is your position? What Extension programs do you work with? How long have you been working with Extension? What region or service territory do you cover or work with Extension?
2. Can you tell me about the role you are playing to support programs that help (a) farmer's sell local and regional food to school cafeterias, (b) schools develop local food gardens, or (c) schools develop other Farm to School experiential learning programs?
 - a. Probes: What types of programs or activities are you coordinating? How many people from Extension are supporting these programs or activities? Who are you working with or partnering with on these initiatives?

Now, I would like to turn our conversation to talking about your perception of Extension's goals and strategies for programs that help farmers sell local and regional food to school cafeterias, schools develop gardens, or develop other Farm to School experiential learning programs.

3. What are Extension goals for programs that help (a) farmers sell local and regional food to school cafeterias, (b) schools develop gardens, or (c) schools develop other Farm to School experiential learning programs?
4. What types of strategies are Extension developing or employing to support programs that help (a) farmers sell local and regional food to school cafeterias, (b) schools develop gardens, or (c) schools develop other Farm to School experiential learning programs?

I would also like for us to talk about the topics covered or discussed in Extension training programs that help farmers sell local and regional food to school cafeterias, schools develop gardens, or schools develop other Farm to School experiential learning programs?

5. What types of topics are Extension programs talking about or discussing when they involve programs that help (a) farmers sell local and regional food to school cafeterias, (b) schools develop gardens, or (c) schools develop other Farm to School experiential learning programs?

6. What types of educational processes, programs, or activities is Extension coordinating to support (a) farmers selling local and regional food to school cafeterias, (b) schools developing gardens, or (c) schools developing other Farm to School experiential learning programs?
 - a. Probes: Are they hosting conferences, workshops, or seminars about these topics? Are they coordinating meetings, networking opportunities, or working groups to support these topics? How about are they developing any sorts of online programs?
7. Is there anyone working for Extension who is enthusiastically supporting programs that help (a) farmers sell local and regional food to school cafeterias, (b) schools develop gardens, or (c) schools develop other Farm to School experiential learning programs?
 - a. Probes: What types of information, ideas, or values are they sharing? Can you think of any local or state Farm to School leaders working for Cooperative Extension?

I would like to now ask you about your familiarity with different Farm to School policies or regulations.

8. How have different state or federal regulations or policies affected the growth and development of programs that help (a) farmers sell local and regional food to school cafeterias, (b) schools develop gardens, or (c) schools develop other Farm to School experiential learning programs?
 - a. Probes: Have these policies or regulations impacted Extension work in Farm to School at all?

Lastly, I would like for us to discuss what you think would help grow or strengthen Cooperative Extension's involvement in Farm to School activities and programs.

9. What types of information or topic areas do you think would help Extension better assist (a) farmers sell local and regional food to school cafeterias, (b) schools develop gardens, or (c) schools develop other Farm to School experiential learning programs?
10. Can you recommend anyone else I should speak with about the role of Extension in supporting programs that help (a) farmers sell local and regional food to school cafeterias, (b) schools develop gardens, or (c) schools develop other Farm to School experiential learning programs?
 - a. Probes: Inside or outside of Extension?

**Thank you very much for participating in this interview [focus group]!
We are sincerely grateful for your time and support!**

Appendix J: Permission to Use Figure One

Benson, Matthew

From: Price, Kim Paul <KimPaul.Price@informa.com>
Sent: Thursday, April 11, 2013 4:22 AM
To: Benson, Matthew
Subject: Permissions

Our Ref: KP/WHEN/P8235

11th April 2013

Dear Matthew Benson,

Thank you for your correspondence requesting permission to reproduce the following material from our Journal in your thesis:

David S. Conner, Ben King, Christopher Koliba, Jane Kolodinsky & Amy Trubek, 'Mapping Farm-to-School Networks Implications for Research and Practice', *Journal of Hunger & Environmental Nutrition*, Volume 6, Issue 2, 2011: 142, figure 1.

We will be pleased to grant entirely free permission on the condition that you acknowledge the original source of publication and insert a reference to the Journal's web site:

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Appendix K: Permission to Use Figure Three



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Appendix L: Permission to Use Table Four

Benson, Matthew

From: Gstevenson@mhub.facstaff.wisc.edu Gstevenson@mhub.facstaff.wisc.edu
<gstevenson@mailplus.wisc.edu>
Sent: Tuesday, March 05, 2013 9:31 AM
To: Benson, Matthew
Subject: Re: Use of chart for dissertation

Matt,
You have permission to use the chart with attribution. We're glad you found it helpful.

Be well,
Steve

On 03/04/13, "Benson, Matthew" wrote:

>
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>
>
> Dear Dr. Stevenson,
>
>
>
> I am currently finishing my dissertation at Virginia Tech that explores Cooperative Extension's role in
the Farm to School movement. As part of my study, I am looking at the different goals and strategies Extension
professionals maintain while supporting Farm to School programming.
>
>
>
> My email is to ask your permission to include a chart in my dissertation that you developed in partnership
with colleagues when you published the chapter "Warrior, Builder, Weaver Work: Strategies for
Changing the Food System" in "Remaking the North American Food System: Strategies for
Sustainability" by C. Clare Hinrichs and Thomas A. Lyson. The chart appears on pages 42-43 and I would
sincerely grateful to have your permission to include this in my dissertation.
>
>
>
> Thank you so much for considering this request.
>
>
>
> Best regards,
>
> Matt Benson
>
>
>