MEETING THE EDUCATIONAL NEEDS OF FARM WOMEN: A CASE STUDY OF ANNIE'S PROJECT

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KARISHA DEVLIN

Dr. Jeni Hart, Dissertation Supervisor

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The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

MEETING THE EDUCATIONAL NEEDS OF FARM WOMEN:
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presented by Karisha Devlin,

a candidate for the degree of Doctor of Education,

and hereby certify that, in their opinion, it is worthy of acceptance.

Professor Jeni Hart, Advisor

Professor Jennifer Fellabaum-Toston

Professor Scott Brown

Professor Mary Leuci

Professor Lori Wilcox

DEDICATION

To Bob Wells (1945-2013), my friend, colleague, and mentor. Bob took me under his wing when I started with MU Extension fifteen years ago. He was a great mentor and introduced me to a group who would become a big part of my life. It was through Bob that I learned about Annie's Project and was able to become involved in the program, the ANNIES leadership team, and eventually the APEFW board of directors. Bob was passionate about agriculture, and became a relentless advocate for education for farm women. His legacy lives on through the Annie's Project program and the many lives he has impacted.

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TABLE OF CONTENTS

List of Charts

List of Tables

List of Figures

Abstract

Women farm operators continue to be underserved by traditional models of agricultural education and training. In addition, limited research exists on the specific content and format of educational programs that addresses the needs and roles of farm women. In order to effectively address the needs of farm women, it is necessary to evaluate and study existing agricultural educational programs for women. This qualitative intrinsic case study evaluated the effectiveness of Annie's Project in meeting the educational needs of farm women. Interviews were conducted with 18 past Annie's Project participants in Missouri, Iowa, and Illinois to study the influence of Annie's Project on their lives. Audiovisual materials and documents were also used in the data analysis.

The findings of this case study show that Annie's Project helped participants find their voice and agency on the farm, as well as strengthen farm relationships. This led participants to feel empowered to become better business partners and owners, seek additional education, increase their satisfaction with their farm role and/or lifestyle, and contribute to their rural communities. This study supports the current research that women respond to women only programs, a network of other women is important, and education empowers women. Additionally, this study substantiates the need for assisting women in all stages of their farming identities so they can be an equitable partner or the farmer in their farming operation. As we move forward, the need for educational programs for farm women will continue to be in high demand. Annie's Project, coupled with the implications from this study, can serve as a guide for development of future programming for farm women.

Chapter One

Introduction

Women play a large role in agriculture. In this role, they work alongside their families raising crops, livestock, and children. Sachs (1988) noted that women contribute substantially to farming operations, although the role of women in agriculture has not been adequately addressed. In fact, women's contribution to agriculture is largely unnoticed by scholars (Alston, 1998; Alston, 2003; Bock & Shortall, 2006; Inhetveen, 1998; Rosenfeld, 1985).

Historically in agriculture, farmer and man have been interchangeable (Alston, 2003). From the start, men and women traditionally prepare for different roles in farming. While men tend to inherit farms, women's main point of entry to farming has been traditionally through marriage (Shortall, 1996; Whatmore, 1991). Law and custom give U.S. agriculture a solid patriarchal base (Haney & Knowles, 1988; Pilgeram, 2007; Shortall, 1996). The rural patriarchy maintains strength by ensuring both the knowledge base and land base of agricultural production passes primarily to other men (Leckie, 1996). Often women are excluded from the occupational inheritance of farming, and discouraged from learning anything further about it other than the minimal amount their male counterpart believes they need to know (Leckie, 1996; Pilgeram, 2007; Pini, 2005). In addition, a lack of agricultural education opportunities exists for women, unless they happen to attend college and choose an agricultural major (Schmitt, 1998; Trauger et al., 2008). This knowledge gap hinders women from being successful in agriculture.

Agricultural information is conveyed by utilizing tacit and explicit knowledge. This knowledge may be gained through mentors; university extension services; peer groups; and with private businesses such as input suppliers, industry, and service providers. These resources of agricultural information exist within a socially constructed agricultural system. Private and

public agricultural services are usually promoted to a decidedly male audience, without regard of female farmers/partners (Liepins & Schick, 1998; Shortall, 1996; Trauger et al., 2008).

Agriculture training opportunities are structured toward the male learner, who, it is assumed, will be the one to enter the occupation of farming (Shortall, 1996; Trauger et al., 2010). This is problematic because the learning styles and thinking processes of men and women are different. The male learner tends to be individualistic and competitive (Belenky, Clinchy, Goldberger, & Tarule, 1986) and learns the best in a formalized, structured learning setting (Rogers, as cited in Parsons, 2009). In contrast, Belenky et al. (1986) concluded that female learners prefer cooperation, acknowledging and building on each other's ideas to define meanings over individual contributions, and understanding over assessment. According to Boverie et al. (as cited in Parsons, 2009) traditional education is directed toward and appeals to males because it is primarily abstract and reflective. Agricultural curricula and courses are developed to meet the needs of men, who are perceived as the authentic farmers (Trauger et al., 2010). The structural inequality and access to resources between men and women are blatantly clear, and lead to the invisibility of women in agriculture (Alston, 2003; Haney & Knowles, 1988; Pilgeram, 2007; Rosenfeld, 1985).

During the last 3 decades, agriculture has undergone many changes. The 1980s ushered in the farm crisis, the worst since the Great Depression. Both men and women sought off-farm employment in order to subsidize the declining farm income. This put a spotlight on the important role of farm women in the survival and economic well-being of farming operations (Rosenfeld & Tigges, 1988). In some heterosexual couples, the wives became the primary farmers as their husbands went to work in town. Other wives contributed earnings from off-farm

employment and still assisted with the running of the farm. In addition, women activists started to push for equality in the agriculture sector (Alston, 2000; Carpenter, 2010; Pini, 2005).

The U.S. Census of Agriculture began collecting data on women as primary farm operators in 1978; since then, the census has recorded a steady increase in women operators (Korb, 1997). The 2012 Census of Agriculture has shown that women have a growing presence in U.S. agriculture, and are now the principal operators of 14% of the nation's 2.1 million farms (U.S. Department of Agriculture, 2015). In the Midwest, the percentage of women principal operators is slightly less than the national average. The 2012 Census of Agriculture recorded 8% of women as the principle operators of 87,500 farms in Iowa; 10% of women as the principle operators of 73,600 farms in Illinois; and 12.6% of women as the principle operators of 97,100 farms in Missouri (U.S. Department of Agriculture, 2015). These factors, coupled with a growing research interest in farm women, have led to the increase in the visibility of women in agriculture and highlight the growing need for agricultural training for women.

Statement of Problem

The history of agricultural education in the United States is closely tied to the development of agricultural science in the land-grant university system (Trauger et al., 2008). The land-grant universities, established by the Morrill Act of 1862, were developed to foster scientific agriculture and reach its industrial classes. The Smith-Lever Act of 1914 created extension to distribute agricultural knowledge in rural communities. In its early years, extension focused on demonstrations of new technology and innovations for the farm and home. Agricultural education targeted men, while home economics education targeted women (Trauger et al., 2010). Despite widespread changes, many extension programs still adhere to the agrarian

ideal of family farming (Brandth, 2002; Little & Panelli, 2003; Trauger et al., 2010; Whatmore, 1991).

Although limited data exist on the extension needs of farm women, it is well documented that women farm operators and partners continue to be underserved by traditional models of agricultural education and training (Liepins & Schick, 1998; Ogawa, 2004; Rivera & Corning, 1990; Trauger et al., 2008; Trauger et al., 2010). While university extension agriculture efforts are geared toward adult learners and are open to all, the content is understood as being for men. The orientation toward men discourages women's participation (Gilles, 1981). The general composition of the classes (predominantly men), and the gender specific way of addressing information, often creates an uncomfortable environment for women who attend the meetings (Shortall, 1996). Women often feel intimidated and are reluctant to ask questions. Leckie (1996) states that:

> . . . access to knowledge and information resources is constrained because, within the environment of a gendered agricultural system, gaining such access is a socially mediated process . . . female farmers frequently experience the underlying suspicion of the legitimacy of their non-traditional role, and hence the legitimacy of their information needs. (p. 225)

This can result in women feeling unheard and alienated (Belenky et al., 1986).

In the past, few extension programs addressed the preferred educational approaches of women farmers or their specific needs (Ogawa, 2004). Rivera and Corning (1990) suggested specific strategies to reach women farmers with educational programming. However, more than 20 years later, there is limited research on the specific content, format, and context of extension programming that will meet the needs of farm women (Barbercheck et al., 2009). Today, women

in agricultural conferences and workshops are developing across the United States. These programs are a first step, but there is little data to confirm whether they are effectively identifying and addressing the needs and roles of agricultural women (Albright, 2006). In order to effectively meet the needs of farm women, it is necessary to evaluate and study existing agricultural educational programs for women.

History of Annie's Project

One program specifically developed for farm women is Annie's Project. Annie's Project —Education for Farm Women is a program designed around specific educational and social needs of farm women. Annie's Project was developed in 2003 by University of Illinois Farm Business Management and Marketing educator, Ruth Hambleton. Ms. Hambleton grew up on a farm in northern Illinois. Her mother, Annie, grew up in town and learned about the farm business through trial and error. She spent her lifetime learning how to be an involved business partner with her husband. During her 30-year extension career, Hambleton observed and experienced firsthand the informational and educational needs of farm women. Farm women's desire for education, along with the memory of her mother's experiences, was the catalyst for Annie's Project (Annie's Project, 2016).

In 2004, Ms. Hambleton met with five Extension educators from Missouri and Iowa. During this meeting, the Annie's Project core curriculum was established utilizing research based information focusing on the five areas of risk management: marketing, production, financial, human resource, and legal. The length of the program was set for 6 weeks so each night could emphasize one area of risk management. On the last night, the participants select the topics of discussion. The curriculum was established to be flexible and adaptable to the diverse agricultural areas of the country and different types of agricultural operations.

Additionally, a teaching methodology was developed for Annie's Project. The program was set up to be conducted in small groups. This was to provide women a safe harbor to learn in a stress-free and open environment. The methodology strongly encouraged facilitators to provide networking time, activities, and local instructors in the classes. In addition to learning from guest speakers and educators, participants would be encouraged to contribute their life experiences to facilitate learning from each other (APEFW, 2017).

In 2010, Annie's Project Education for Farm Women (APEFW), an IRS designated 501(c)(3) organization, was established for the purpose of providing educational and other opportunities to women farmers and ranchers to enable women to become effective owners and partners in farm businesses. APEFW's mission statement is "to empower farm women to be better business partners through networks and by managing and organizing critical information" (APEFW, 2017). The primary program offered through APEFW is Annie's Project, although two Level II curriculums have been developed for nationwide use. Level II curriculums are considered to be "next level" Annie's Project courses and focus on a variety of issues confronted by female farmers and ranchers (APEFW, 2017). Each state has a coordinator who serves as a liaison between APEFW and local Annie's Project program facilitators and instructors. APEFW conducts facilitator training programs to train new educators and ensure consistency in the delivery of Annie's Project programs for farm women and ranchers. To date, the Annie's Project program has been delivered in 33 states and educated a total of 12,000 farm women. Of those women, 1066 are from Missouri, 1752 are from Iowa, and 750 are from Illinois.

Purpose of the Study

The purpose of this qualitative intrinsic case study is to evaluate the effectiveness of Annie's Project in meeting the educational needs of farm women. Annie's Project is well

received by farm women, but the efficacy of the program has not yet been determined in detail. As noted earlier, studies show that women often lack the knowledge, skills, and training to be successful in agriculture (Leckie, 1996; Schmitt, 1998). However, little research has looked at agricultural training programs for women and investigated the influence of these programs on the lives of the participants.

Conceptual Framework

Feminist methodology incorporates a variety of methods, approaches, and research strategies (Naples, 2007). In feminist methodology, women are both subjects of study and reciprocals of knowledge (Trauger et al., 2008). Additionally, feminist methodology involves a commitment to action, giving voice to marginalized knowledge and experience, and decentering power relations (Trauger et al., 2008, p. 435). This feminist project study is interested in equality work, particularly within agricultural training opportunities and programs.

Guided by literature on issues of gender and educational inequality, Shortall (1996) analyzed agricultural education and training for farm women. She argued that education, as a particular instance of wider social and cultural institutions, provides a medium for processes and structures that support different experiences and opportunities for men and women in agriculture. Liepins and Schick (1998) extended Shortall's analysis of the gendering of agricultural training by proposing a framework for developing a critical gender analysis of agricultural training. They suggested using two conceptual tools, along with a framework for analysis to evaluate agricultural training programs. The authors proposed their framework to be complementary to other feminist action methodologies and that the conceptual tools of seriality and agency would support a theoretically robust analysis of gender and education in agricultural training.

Seriality explores the variety of social categories that combine in agricultural training. Instead of treating "woman, farmer, and learner" as distinct categories, seriality allows us to consider participants as serial collectives produced by their experiences in agricultural training (Liepins & Schick, 1998). Trauger et al., (2008) builds upon this theoretical approach by including the concept of intersectionality with seriality. Thus, the concept of seriality focuses on how women may prioritize different aspects of their interconnected identities including gender, race, class, and professional position (Trauger et al., 2008). Intersectionality suggests that gender, race, class, ethnicity, and sexuality form systems of power that shape women's lives (Collins, 2006). For women farmers, multiple identity locations shape women's involvement in agriculture and how they are perceived by others (Trauger et al., 2008), consistent with notions of how women learn best (Belenky et al., 1986).

Agency acknowledges the capacity for action or change. Osterud (1988) describes agency as women's sense of ability to shape their own lives. Liepins and Schick (1998) indicate the importance of exploring the degree to which subjects of discourse (e.g., participants in an agricultural training system) are simultaneously agents capable of changing and engaging the system. Trauger et al., (2008) expand upon the concept of agency by focusing on how social networks give rise to agency for individuals. Social networks arise from the desire for new modes of information exchange. This allows individuals to learn from each other through the exchange of tacit knowledge (Trauger et al., 2008).

Researchers have used seriality, intersectionality, agency, and social networks to frame evaluations of agricultural training programs (Liepins & Schick, 1998; Trauger et al., 2008). The framework involves a detailed study of the program itself, in which the tools of seriality and agency are used to analyze the four aspects of training: contexts, operations, participation, and

outcomes. The first aspect, contexts, refers to the education environment and social and economic terrain of the training system and participants. The second, operations, refers to the structures, content, and processes involved in training. This includes inter-organizational relationships, mechanisms for distributing resources, and the formal roles and responsibilities of participants. The third aspect, participants, includes a detailed assessment of all those engaged in an agricultural education program. The fourth aspect, outcomes, focuses on dropout or program completion, level of program satisfaction, and the degree to which the program met participants' goals (Liepins & Schick, 1998). Like in Liepins and Schick's study, I used the concepts of seriality and agency, along with the addition of Trauger et al.'s concepts of intersectionality and social networks, to guide and inform the overall analysis of the four aforementioned aspects of Annie's Project.

Logic Model

In my evaluation of Annie's Project, I will use program development theory, as it is often used to guide evaluation of programs (Rogers, et al., 2000; Savaya & Waysman, 2005). Evaluators have long recognized the importance of program theory as a basis for formulating and prioritizing evaluation questions, designing evaluation research, and interpreting evaluation findings (Bickman, Chen & Rossi, Weiss, & Wholey, as cited in Rossi, Lipsey, & Freeman, 2004, p. 94). A common depiction of program theory is in the form of the logic model (Rossi et al., 2004; Savaya & Waysman, 2005).

The logic model framework helps to structure and focus the process of articulating program theory by dividing it up into discrete units (inputs, outputs, outcomes) that can be readily by examined for logic and feasibility (Savaya & Waysman, 2005). Program authors accomplish this by articulating their understanding of the current situation, the changes they hope

to bring about through their program effort, with and/for whom, the activities planned to contribute toward this change, the resources needed to put into the effort, assumptions they are making, and external factors that could influence results (University of Wisconsin-Extension, 2017). Consequently, logic models are a helpful tool that can be used in program planning and evaluation. In evaluating a program, the logic model can provide the hypothesis of how the program is supposed to work in order to achieve the intended results (McLaughlin & Jordan, 1999).

Iowa educators developed a logic model to aid in the program development and evaluation of Annie's Project (see Appendix D for Annie's Project logic model). I utilized the Annie's Project program logic model to focus my study's evaluation with particular interest being given to the long-term outcomes (Taylor-Powell & Henert, 2008). Additionally, I used the Annie's Project program logic model in planning and implementing the interview process.

Research Questions

The research questions guiding this study are:

1. How does Annie's Project influence the experiences of farm women who participate in its training?
2. What factors contribute to farm women's participation in the program?

Methods

I evaluated Annie's Project using an intrinsic case study design. Former Annie's Project participants from Iowa, Illinois, and Missouri comprised the population sample. The Annie's Project logic model and conceptual framework guided the protocol in developing interview questions and conducting the interviews. The data collection methods included interviews,

documents, and autovisual materials. I reviewed baseline demographic data, surveys, and audiovisual materials as part of the document analysis.

Data analysis was an ongoing process. The steps in the data analysis process included organizing and preparing the data; initial reading of all information; coding the data; developing themes and descriptions from codes; interpreting data; and representing the findings in narrative, tables, and figures. The data analysis concluded when there was an emergence of regularities.

Several strategies were used to ensure the quality of data and data analysis. These strategies included triangulating data, conducting member checking, detailed description, creating a qualitative code book, checking transcripts, peer review, and clarifying researcher positionality.

Limitations and Assumptions

There were several potential limitations to this study. Three states, Iowa, Illinois, and Missouri, were included in the study to obtain a broader perspective of the influence of Annie's Project. The states chosen were those that have successful programs as determined by the Annie's Project – Education for Farm Women (APEFW) national office. It is possible that the inclusion of states that I did not know as well may have offered a different representation of the program. Thus, choosing the three strongest Annie's Project states may limit the transferability of the findings.

In qualitative research, the role of the researcher as the primary data collection instrument necessitates the identification of personal values, assumptions, and biases at the outset of the study (Creswell, 2009). My personal experiences have shaped they way I view education for women and agriculture. I possess a Bachelor's and Master's degree in agriculture. After college, I accepted a position with University of Missouri Extension and married a farmer. I have

personally experienced the gender bias towards women in agriculture and the frustrations that arise from it.

In 2004, I joined a group of colleagues from Illinois and Iowa to work on a curriculum for farm women. We established the Annie's Project curriculum and began teaching classes. I am the co-coordinator of Annie's Project for Missouri and a member of the APEFW board of directors. My closeness to the program may be seen as a limitation to this study. However, I believe that my passion toward the program is a strength rather than a weakness. In an interview about evaluation, Fetterman remarked on the pros and cons of being an internal evaluator (as cited in Fitzpatrick, Christie, & Mark, 2009). Individual evaluators close to a program may just tinker around the edges instead of suggesting bold and fundamental changes to the program. But they may also be better at seeing some of the detailed findings more clearly. Fetterman continued by defending bias:

> Being in favor of something can make you more critical. If you're in favor of a concept, you take it personally if the program isn't working . . . you're more sensitive to the nuances and realities when you live the life you are evaluating. When put to the test, you're better prepared to confront fundamental program issues because you have a better insight to what people think and believe. (p. 108-109)

Although these biases may shape the way I view, understand, collect, and interpret the data, every effort was made to ensure the credibility of the study.

Definition of Key Terms

Agricultural training — Educational programs and classes conducted by extension.

APEFW — Acronym standing for Annie's Project-Education for Farm Women. This is an IRS designated 501(c)(3) organization established for purpose of providing education and other opportunities for farm and ranch women.

Census of Agriculture — The leading source of facts and figures about American agriculture. Conducted every 5 years, the Census provides a detailed picture of U.S. farms and ranches and the people who operate them. It is the only source of uniform, comprehensive agricultural data for every state and county in the United States.

Department of Agriculture — The U.S. Department of Agriculture (USDA), an executive, cabinet-level department in the Federal government, is directed by the Secretary of Agriculture, who reports to the President of the United States. Its primary concern is the nation's agriculture and food industry.

Extension — Extension was created by the Smith-Lever Act of 1914. For the purposes of this study, this refers to the educational opportunities provided by colleges and universities to people who are not enrolled as full-time or part-time students. These individuals, usually working adults, participate in non-degree career training in order to gain knowledge and hands-on experience.

Extension educators — Instructors of Extension programs, classes, and services.

Farm — An area of land and its buildings used for growing crops and rearing animals, typically under the control of one owner or manager.

Farmer — A person who farms.

Farm crisis — A time of agricultural recession, low crop prices, and low farm income. In this study, the term is used to describe the period during the 1980s in the United States that led to farm bankruptcy, family breakups, and an increased rate of farmer suicide.

Family farm — Multiple generations in a family who are engaged in farming as a family business. Family members run, work, and own the farm.

Farm women — Women who are farm operators, farm owners, or farm partners.

Farm wives — Women who are married, in a heterosexual relationship, to a farmer.

Land-grant university — Land-grant universities were created by the Morrill Act of 1862. For the purposes of this study, this phrase refers to the land-grant universities in Iowa, Missouri, and Illinois. As land-grant universities, the University of Missouri, Iowa State University, and University of Illinois are part of a federally mandated mission to carry the benefits of university research beyond campus.

Risk management — Dealing with uncertainties in agriculture. The uncertainties of weather, crop yields, pests, prices, government policies, and global markets can cause wide swings in farm income. Risk management involves choosing among alternatives that reduce the financial effects of such uncertainties.

RISE —Acronym standing for Research Institute for Studies in Education. RISE is a unit of Iowa State University School of Education, and conducts comprehensive integrated research and evaluation studies to enhance K-20 education nationally and globally.

Significance of the Study

There has been little research on agricultural training for women in the United States. My study fills a literature gap in the United States, and adds to worldwide literature concerning gender and agriculture. Education can be the catalyst that transforms not only a woman's world, but her children and her community as well (Klugman, et al., 2014). Extension agriculture educational programs focused specifically on women are needed to assist in breaking stereotypical gender barriers and enable women to succeed in agriculture (Barbercheck et al.,

2009; Gilles, 1981; Rivera & Corning, 1990; Trauger et al., 2008; Trauger et al., 2010). If I find that Annie's Project has made a positive difference in the lives of the farm women who have participated, it may lead to the adoption of programs like Annie's Project by agricultural extension programs throughout the United States. This information will aid extension educators in the planning, delivery, and recruiting methods for future programs. In turn, a variety of programs can be developed to best address the educational needs of agriculture women.

Additionally, if the program is found efficacious, it is feasible that the program could be modeled by other countries. As a researcher, my responsibility will be to provide sufficient detail to inform readers. By using thick description, readers may see how similar their own agricultural training conditions are relative to those in the United States. The findings may prove beneficial to other organizations and countries in establishing a learning culture to better serve agricultural women.

Summary

Farming is generally a high risk business in which to be involved. Women farmers face additional risk by being poorly prepared and educated to operate a farm business. A lack of agricultural education opportunities exists for women, unless they happen to attend college and choose an agricultural major (Schmitt, 1998; Trauger et al., 2008). However, Annie's Project is an exception. It is an opportunity for women designed around specific educational and social needs of farm women. While Annie's Project is perceived to be a successful program, the actual efficacy of the program has not yet been determined in detail. Guided by the concepts of seriality, agency, intersectionality, and social networks, the purpose of this qualitative intrinsic case study was to evaluate the effectiveness of the Annie's Project program in meeting the

educational needs of farm women. Additionally, I discussed the use of program development theory and program logic models in the evaluation of Annie's Project.

Educational programs and opportunities empower women and provide them with the knowledge, skills, and training to be successful in agriculture. In addition, these programs provide a mechanism to recognize women's roles and reacting to the work they perform on farms (Shortall, 1996). Educational programs, such as Annie's Project, can be essential to help women succeed in agriculture. However, unless we have a comprehensive understanding of how such programs influence the lives of women farmers, these programs may fall short of what they could ultimately accomplish.

Chapter 2

Review of Related Literature

This chapter presents a review of existing research on gender and its relationship with work, agriculture, agriculture information transfer, agriculture education, and training. These five broad research domains provided the scholarly context that supports this study. I give particular attention to the role that agricultural extension programs and gender-specific training have in the education of farm women. In this chapter, I reviewed the extant literature. As I present particular scholarly perspectives, I use the language researchers used at the time they published their scholarship. Consequently, I recognize that at times the literature conflates the concepts of gender and sex.

Gender and Work

Women's roles in the workplace have changed dramatically in the last few decades. However, women still face negative stereotypes and biases in fields that are historically masculine (Deutsch, 2007; Heilman & Eagly, 2008; Heilman, Wallen, Fuchs, & Tamkins, 2004; Ibarra, Ely, & Kolb, 2013; Pilgeram, 2007; Schmitt, 1998). For example, there continues to be a striking disparity between the numbers of men and women in science, technology, engineering, and mathematics (STEM) fields (Hill, Corbett, & St. Rose, 2010). A substantial amount of academic research has been conducted on the under-representation of women in STEM, focusing on the factors and barriers that influence women's occupational aspirations.

Blaisdell (1995) highlighted the societal norms and familial influences that keep women from entering STEM fields. Women are often steered away from quantitative interests at an early age, and parents, friends, and teachers often dissuade girls from pursuing math and science. In addition, the socialization of women provides them with less access to sources of information

necessary to develop career self-efficacy (Blaisdell, 1995). Gist and Mitchell (1992) define self-efficacy as the estimate of an individual's capacity to orchestrate performance on a specific task. Blaisdell (1995) and others (e.g., Frome, Alfeld, Eccles, & Barber, 2006) suggested a link between low self-efficacy and women's selection of career options. They hypothesize that women's perception of lack of ability in mathematics and science is correlated with not choosing careers in male-dominated fields. Moreover, the lack of support and encouragement from others, especially those in authority positions such as parents and teachers, can hinder women from realizing their career goals and full potential (Blaisdell, 1995; Miller & Halpern, 2013; Phoenix, 2004; Sax, 2006).

Negative attitudes and stereotypes are additional impediments to women making nontraditional career choices (Bernstein, Reilly, & Cote-Bonnano, 1992). Occupational choices are made within a general cultural context of gender stereotypes (Oswald, 2008). For example, the negative stereotypes about women's and girls' abilities in mathematics and science affect their aspirations and performance (Hill et al., 2010). These gender stereotypes often stem from a non-conscious sex role ideology (Bem & Bem, 1970). These unconscious beliefs, or implicit biases, may be more powerful than explicitly held beliefs and values because individuals are not aware of them (Hill et al., 2010; Nosek, Banaji, & Greenwood, 2002a). Therefore, people who consciously reject stereotypes may nevertheless practice the accompanying prejudices (Hofstadter, as cited in Wells, 1998). This paradox in belief systems is illustrated by Nosek, Banaji, and Greenwald (2002b):

> A widespread belief in American culture suggests that group membership should not constrain the choices and preferences of group members. Being a girl need not prevent one from becoming a police officer, senator, or

> mathematician. Being a boy need not prevent one from becoming a nurse, kindergarten teacher, or primary caregiver. In fact, all programs promoting equal opportunity seek the removal of external constraints for individual pursuits. Yet until the internal, mental constraints that link group identity with preferences are removed, the patterns for self-imposed segregation may not change. (p. 74)

Gender stereotypes can prompt bias in evaluative judgments of women in male-dominated environments, even when women have proven themselves to be successful and demonstrated their competence (Heilman et al., 2004). This gender bias can affect the behavior of everyone, from the employers to coworkers (England & Folbre, 2003). When a woman has shown herself to be competent and successful in a male-type field, she often pays the price of social rejection in the form of being disliked (Heilman et al., 2004). In addition to being disliked, women are often labeled as unfeminine, conniving, pushy, and cold. These negative social reactions can adversely influence overall evaluations and recommendations in the workplace. This in turn, affects potential pay increases and career advancement. In order to manage the competence-likability tradeoff, women are taught to downplay femininity, soften a hard-charging style, or try to strike a balance between the two. However, the time and energy spent on managing a balance can be self-defeating (Ibarra et al., 2013).

Further, implicit biases against women in male-dominated fields may prevent girls and women from pursuing a career in those fields, influence parents' decisions on encouraging or discouraging their daughters towards science and engineering careers, and influence employers' hiring decisions and evaluations of female employees (Hill et al., 2010). However, implicit biases come from the culture, and can be changed (Nosek et al., 2002a). If the unconscious

beliefs are brought to light, the holder can change the belief if they so desire. Beliefs have changed in the last few decades, and fields viewed as stereotypically male have narrowed. Nonetheless, many fields are still considered masculine domains (Farenga & Joyce, 1999), and old biases still exist. In particular, stereotypical ideologies seem especially robust and embedded in agriculture (Staudt, 1990).

Gender and Agriculture

Women and agriculture have had a long relationship. In ancient Mesopotamia, women were in charge of the fields and gardens where cereals were grown ("The Plough," 2011). Some historians attribute the invention of the plow as the turning point for women in agriculture. The plow was heavier than the tools formerly used by farmers, and demanded more body strength. Thus, farming becoming the work of men ("The Plough," 2011). Over time, advances in technology led to farmers becoming dependent on machinery. This further diminished the need for women to be used as field labor. The expectation became that farm women's work was based inside the home, which influenced the public perception of what women on farms do (Beach, 2013; Rissing, 2013).

Unfortunately, the extent of women's contributions to agriculture is unknown, mostly because the evidence comes from 2-century old letters or personal diaries (Alston, as cited in Heins et al., 2010). In addition, women's contributions to agriculture have been downplayed. The minimization of women's history in agriculture has distorted the way agricultural production is viewed and has led to their invisibility (Alston, 1998; Alston, 2003, Annes & Wright, 2015; Chayal & Dhaka, 2010; Pini & Shortall, 2006; Sharma, Singh, & Solanki, 2014). However, more recently, research has been conducted on women's role in agriculture, exposing that women are, indeed, pioneers of agriculture (Alston, 2000).

For example, Inhetveen (1998) highlighted the significant role women have played in the dissemination and development of agricultural knowledge throughout history. When women married, they moved to join their husbands and his family. If they came from countries or regions in which agriculture was progressive, they passed on, both by means of their dowry as well as existing family network, material and immaterial innovation potentials to their new home (Inhetveen, 1998). As a result, women became important initiators and intermediaries of progressive impulses and technology transfer. Inhetveen also emphasized early European women's contributions in plant cultivation, botany, and farm estate management. Similarly, Alston (1998) examined the critical role women have played in the development of Australian agriculture. Unfortunately, their contributions are still viewed as secondary to the work of their husbands in the eyes of traditional Australian agriculture industry (Alston, 1998; Alston, 2003; Pini, 2005).

Several authors have conducted studies on gender equality in agriculture, and the role of women in farming (Annes & Wright, 2015; Beach, 2013; Heggem, 2014; Pini, 2005; Pini, 2007; Pini & Shortall, 2006; Shortall, 2002; Shortall, 2003; Shortall, 2014; Trauger, 2004; Trauger et al., 2008). Women's role in farming is often shaped by inheritance and their entry to farming (Clayton, 2009; Cocheo, 2007; Doering, 2013; McCammon, 2012; Shortall, 2002; Shortall, 2003). The most typical way women gain entrance into farming is marriage (Shortall, 2002; Pini & Shortall, 2006). This factor and an adherence to patriarchal inheritance practices, means that women usually have less access to farming land than do men (Alston, 1998; Brandth, 2002; Cassidy & McGrath, 2014; Heggem, 2014; Shortall, 1999; Shortall, 2002; Shortall, 2014). Traditionally, land has been transferred inter-generationally within families, from fathers to sons (Shortall, 2003). This forms the very foundation of different positions for men and women on

farms, constituting men as the constant family line to which land is passed, while women come and go. A clear patrilineal line of inheritance is consistent across the family farms of Europe, Canada, Australia, and the United States (Pini, 2007). Not only are women largely overlooked as future inheritors and farmers, but they are often left with little to no access to the resources of agriculture (Alston, 1998; Cassidy & McGrath, 2014; Leckie, 1996). Along with inheriting land, these resources include agricultural training, obtaining credit to farm, and assuming positions in agricultural leadership (Cassidy & McGrath, 2014; Pini, 2005). Thus, like women in STEM, the women who do choose to engage in farming as a profession often encounter various gender-specific barriers and resistance to their legitimacy as farmers (Alston, 2003; Leckie, 1996).

In the United States, as in many other countries, the exodus from farming also contributed toward dramatic changes in agriculture. In the early 1900s, more than one of every three Americans lived on farms, a number greater than at any other point in our country's history. However, at the century's end, the farm population stood at fewer than 2%, and even for those who remained in farming, almost 90% of household income came from nonfarm sources (Lobao & Meyer, 2001).

Women experienced this agricultural transition differently than men. Women's work on the farm was essential to the viability of the farming operation; and their paid work off the farm kept the farm alive (Alston, 2000; Beach, 2013; Brandth, 2002; Shortall, 2002). In addition, the roles women play directly in farming continue to increase. Between 2002 and 2007, the number of farms owned and operated by women increased by 29%, reaching a total of 14% of all farms (United States Department of Agriculture, 2010). In the 2012 Census of Agriculture, the number of women as principal farm operators increased by 8%, 10%, and 12.6%, respectively, in the Midwestern states of Iowa, Illinois, and Missouri (United States Department of Agriculture,

2015). Women are finally starting to become more visible in farming, but they face a grass ceiling (Doering, 2013).

Gender Performance

West and Zimmerman (1987) contend that the "doing" of gender is undertaken by men and women whose competence as members of society is hostage to its production. This involves complex socially guided activities that "cast particular pursuits as expressions of a masculine or feminine nature" (p. 126). Consequently, gender is a performance rather than a set of inherent and essential characteristics (Pilgeram, 2007).

Amy Trauger and her colleagues concluded that farming women are subject to discourses about who can be a farmer and whose bodies belong in the spaces of agriculture (Heggem, 2014; Trauger, 2004; Trauger et al., 2008). In addition, the aforementioned patriarchal base in agriculture has led women to adopt strategies to negotiate the tension between being a woman and being a farmer (Pilgeram, 2007). Pilgeram explored the ways female farm operators are both doing and undoing gender in a livestock auction facility. The author concluded that "women's success is tied to their ability to reproduce a performance of hegemonic masculinity" (p. 592). In order for women to be seen as capable, they must "undo" their femininity and embody the masculine competencies that are attributed to being successful in agriculture (Pilgeram, 2007; Schmitt, 1998). This reproduction of the status quo serves to further reify the ties between masculinity and agriculture (Pilgeram, 2007, p. 592).

Pini (2005) and Trauger et al. (2010) further the discussion about farm women "doing gender." Pini examined women's contributions in the Australian sugar industry. The women on Australian cane farms were involved in the on-farm work, including physical labor and operating large machinery. On-farm physical work is usually viewed as men's work. By pursuing this

work, the women crossed the traditional gender division of labor, doing gender that is understood as less feminine.

Likewise, Trauger et al. (2010) found that women farmers negotiated their femininity and masculinity, positioning themselves in hybrid performances. Maintaining a hybrid position required some women to compromise their performance on both ends of the gender binary and perform an identity that is unique, and not without challenges. For example, women who operated farm machinery and identified themselves as active and equal farm partners obtained respect and authority by being different (Brandth, 2002; Shortall, 2014). However, this occupational hybrid served as a double-edged sword. Although they gained respect, they risked having their femininity questioned if they did not also perform traditional women's tasks and responsibilities (Brandth, 2002). As such, the fine line that farm women walk is precarious. They cannot be seen as too feminine, or be seen as too masculine (Pini, 2005).

In addition to gender, other factors contribute to the oppression and discrimination of women because of who they are as women, and who they are as women in the workplace (Congues, 2015). When it comes to social inequality, people's lives and the organization of power in a given society are better understood as being shaped not by a single axis of social division, but by many axes working together (Collins & Bilge, 2016). West and Fenstermaker (1995) described this intersection of systems as interlocking rings, where the motion of any one of them would be constrained by the others.

A considerable amount of scholarly literature exists on intersectionality. Crenshaw coined the term in her analysis of the multidimensionality of Black women's experiences (Crenshaw, 1989; Nash, 2008). Phoenix and Pattynama (2006) described intersectionality as a phrase to make "visible the multiple positioning that constitutes everyday life and the power

relations that are central to it" (p. 187). Farm women have multiple identity locations that shape their engagement with agriculture and how they are perceived by others (Trauger et al., 2008). The authors explained how "gender identities and other mutually constitutive systems intersect to define women's position in agriculture" (p. 433). As a result, martial status, class, sexuality, expertise, age, and geopolitical location work together to shape who is perceived as and who identifies as a farmer or a farm wife (Fletcher, 2016; Trauger et al., 2008).

In agriculture, the terms "farm women" or "women who farm" typically serve as the label or definition for women who live and work on the farm. Congues (2015) argues that the concept of "women who farm" challenges both how society defines the term "woman" and the patriarchal order of what constitutes the role and work of the "farmer." Congues (2015) continues:

> …the terms "women who farm" denotes intersectionality. This is because the term "women" is being female within a patriarchal society and also because women are rendered invisible within the term and image of 'farmer', as is their work and contribution within the agricultural sector. (p. 17)

Women who farm have different backgrounds, involvement levels in the farm, challenges, and lifestyles. Intersectionality reminds us to consider women as whole beings and recognize that women experience things in different ways (Samuels & Ross-Sheriff, 2008). This serves as a reminder for educators to acknowledge all aspects of a woman's identity when planning, developing, and teaching an educational program (Peterson, 2006).

Gender and Agriculture Information Transfer

Because farm work is gendered, it stands to reason that the process of learning about farming is also gendered (Leckie, 1996). Globally, gender influences the transfer of agriculture

information and knowledge in a family farming operation. Gendered assumptions about competence and the division of labor on family farms have shaped the ideas about the kind of work that women and men do on farms. Adherence with traditional patriarchal inheritance practices, and the masculine designation of the occupation farmer, has led to farm knowledge and expertise being passed from man to man (Heggem, 2014).

Women are usually discouraged from learning about farming, especially if it falls into the category of men's work. This lack of encouragement and education hinders them from entering agriculture as a profession (Leckie, 1996). Adult women who own and operate their own farms lose valuable time, money, and self-esteem trying to discover the knowledge not passed to them when they were younger. This leaves them ill-prepared to face the task of running and managing a farm, often leading them to pursue agricultural training (Leckie, 1996). Despite these barriers, the Central Bureau of Statistics in Norway (1972) found an increase in women's attendance at the State College of Agriculture from 5% to 48% within a period of 20 years (as cited in Haugen & Brandth, 1994). This increase reflects not only a thirst for knowledge but a conscious choice of occupation.

The Food and Agriculture Organization (FAO) of the United Nations stated that giving women the same access as men to agricultural resources could increase production on women's farms in developing countries by 20-30%. However, gender gaps were reported in the access of land, livestock, farm labor, education, credit, fertilizers, and mechanical equipment. Closing these gaps in agriculture would put more income in the hands of women, which would improve health, nutrition, and education for children (Food and Agriculture Organization, 2013). Moreover, it would raise total agricultural production in developing countries by 2.5 to 4%. In

turn, this could reduce the number of hungry people in the world by 12 to 17%. Terri Raney, editor of The State of Food and Agriculture report states:

> One of the best investments we can make is in building the human capital of women and girls – basic education, market information and agricultural extension services are essential building blocks for agricultural productivity and economic growth. (Food and Agriculture Organization, 2013)

In the United States, women farmers also face obstacles in reaching their potential as producers of food. Wells (1998) stated that the status/position of rural and agricultural women in the United States continues to be marginal and secondary to men in nearly all aspects. Hladik (2012) agreed women are handicapped compared to men farmers when it comes to accessing information, government support, programs, and loans through financial institutions. In the past few years, stronger efforts have been made to increase the access of funding and government programs to minority farmers, which include women. However, there is still a ways to go before there is equality between men and women agricultural producers (Alston, 2000; Alston, 2006; Pini, 2005; Pini & Shortall, 2006; Schmitt, 1998; Wells, 1998).

When women are engaged in farming, they have taken an active role in the restructuring of agriculture (Trauger, 2001). Women are moving away from industrialized agriculture to sustainable farming systems, often due to others who believe women should not farm in that manner. In fact, women tend to operate smaller and more diversified farming operations (Annes & Wright, 2015; Doering, 2013; Micik, 2011). This shift allows women to move away from some of the biases in agriculture. When women have attempted to assert the identity of the "traditional" farmer, their legitimacy and ability continues to be challenged (Alston, 2000; Leckie, 1996; Pini, 2005; Trauger, 2001).

In light of societal norms about women in agriculture, whether they operate a traditional operation or sustainable agriculture operation, women often need guidance. Some women have a mentor or network with other agricultural women (McCammon, 2012; Trauger et al., 2008). Others have family members who are progressive and are breaking patriarchal traditions (Beach, 2013; Micik, 2011; Runyon, 2014). Yet, in cases when women are recognized in the role of farmer, they continually confront an educational system that has not been attuned to their talents, needs, or viewpoints (Leckie, 1996). Women who farm need the agricultural information they have typically been denied due to attributes about who "should" farm.

Gender and Education

Agriculture education has tended to be gender specific (Van der Burg, as cited in Shortall, 1996). Because, as previously mentioned, men are the ones who usually inherit the farm; they typically undertake agricultural training (Delphy & Leonard, Shortall, as cited in Shortall, 2003). Research on women who farm has advanced understanding of women's farm work and their low participation in agricultural education and training (McCammon, 2012; Shortall, 2005). During the last several decades, the number of women studying at agricultural universities has increased (Alston, 2000; Schmitt, 1998). However, women in these programs tend to enroll only if they know they will work on a farm. Because women typically enter farming through marriage or inheritance, adult learning, which is learning undertaken as an adult after leaving initial education and training, is the most relevant form of education for them (Clayton, 2009; Cocheo, 2007; Doering, 2013; McCammon, 2012; Shortall, 2003).

Further, mainstream agricultural education and training does not relate to the work that women do on farms, and cannot accommodate the complexity of their work roles (Shortall, 1996). For example, despite a well-developed agricultural education program in Northern

Ireland, Shortall found limited participation by women who farm. When asked why they did not participate, the women replied:

> They felt that courses were for men, they were not invited to attend, or women do not see any future for themselves in farming: they are male dominated- you would be lucky if there was one other woman at a talk, or you find it's your husband who gets the invite. (Shortall, 1996, p. 276)

Much of the training in the United States is often provided by University agricultural extension. However, agricultural extension orients most of its educational efforts towards adult men (Trauger et al., 2008; Trede & Whitaker, 1998). Rural women are rarely considered the primary clientele of agricultural research and development programs, or users of technology. Thus, women are largely denied an opportunity to improve their skills and access to resources (Gilles, 1981; Satyavathi et al., 2010). While women are free to attend agricultural extension programs, field days, and trainings, the attendance is most often predominately male (Barbercheck et al., 2009; Gilles, 1981; Rivera & Corning, 1990; Trauger et al., 2008; Trauger et al., 2010).

Because agricultural extension educational efforts are typically oriented toward the adult male learner (Trauger et al., 2008), female participation is discouraged, unless special efforts are made to recruit them (Gilles, 1981). Rivera and Corning (1990) and Barbercheck et al., (2009) proposed several recommendations for extension and agricultural professionals to develop programs for women who farm. They stressed the importance of providing workshops and hands-on education opportunities designed specifically for women. Additionally, they encouraged extension professionals to involve women farmers in the development and planning process.

Rissing (2013) stressed the need for organizations and programs targeted at women because they provided mentoring, networking, education, and camaraderie for women who farm who often find traditional sources of agricultural community lacking. Trauger et al. (2008) examined the relevance of gender to agricultural education and the importance of networks for women farmers. They found that women's farming identities vary over time and agricultural education must be flexible to adapt to these shifting identities. The authors also noted the importance of education on a variety of agricultural topics and the need for the establishment of networks. Women tend to trust other women farmers, so networks can provide on-going opportunities to build trust, increase participation, share information, and build agency (Shortall, 1996; Trauger et al., 2008).

Education is a basic requirement for women to empower themselves (Deka & Borbora, 2017). Since Mezirow's (1978) theory of perspective transformation, the concept of transformative learning has become increasingly important in the field of adult education (Brooks, 2002). Of particular interest to this study is how women experience transformative learning (Brooks, 2002). Unfortunately, there is little research that connects gender and transformative learning, thus creating a gap in the literature (English & Irving, 2012). Brooks (2002) explores women's transformative experiences in adult education and shares studies from adult educators who accounted for women's experiences in their research. Louglin (as cited in Brooks, 2002) "theorized that transformative learning for the women she interviewed involved the movement from alienation to agency, and from inauthenticity to being true to oneself" (p. 144). Similarly, Elias (as cited in Brooks, 2002) stated that women often describe their personal transformations in terms of coming to understand the limitations on their lives, and as they

develop awareness, they begin not only to author their own lives but also to act in order to change society.

Furthermore, Brooks (2002) suggests transformative learning through a narrative process. By sharing stories and experiences, women can claim their voice and transform. English and Irving (2012) supported this, stressing the importance of relationships and mentoring as a part of transformative learning for women. The authors encouraged adult educators "to continue to build relationships and supportive conditions in which women's transformation might occur" (p. 251).

Extension educators often find themselves at a loss as to how to accommodate the needs of those who fall outside their definition of authentic farmers, such as females (Trauger et al., 2010). Moreover, students are often required to adapt to the educational settings rather than revising the educational programming to meet the needs of the students. Trauger et al. (2010) likened this instruction to oppressive pedagogy (Freire, 1973). In *Pedagogy of the Oppressed*, Freire asserts that underrepresented groups are categorized as inauthentic humans and as not being fully capable of participating in society, either because of their alleged ignorance or their inherent inferiority (as cited in Trauger et al., 2010, p. 89). In addition, he contends that oppressive pedagogies require the student, and in the case of agriculture training, women, to adapt and change to the context of education, rather than the education adapting to their identities and needs. Liberation requires education that states the truth of their own humanity, on their own merits and in their own terms, thus legitimizing the value and potential contribution of oppressed groups to a changed social system (Freire, as cited in Trauger et al., 2010, p. 89). Thus for extension education to benefit more women, liberation is necessary. In this way, education provides individuals with a greater sense of control over their lives. Adult women have often found emancipation through education, and extension has the potential to play a role in

advancing women's empowerment (Rivera & Corning, 1990; Shortall, 1996; Trauger et al., 2010).

Gender Specific Training

Changing cultural norms and roles for women, coupled with social and economic factors, have led to tremendous growth in the number of adult women who are participating in educational programs (Hayes, Flannery, Brooks, Tisdell, & Hugo, 2002). It has become increasingly important to educators in adult and continuing education settings to improve learning opportunities for women. However, in order to improve learning opportunities, it is essential to understand how women learn.

The scholarly literature on gender and learning is much divided. Some scholars suggest that there are differences between the "male brain" and "female brain" and these differences influence the learning styles of each gender (Kaufmann, 2007; Parsons, 2009; Philbin, Meier, Huffman, & Boverie, 1995; Phoenix, 2004; Sax, 2006). Furthermore, scholars argue that these findings are basis for the need of single sex education (Mael, Alonso, Gibson, Rogers, & Smith, 2005; Karpiak, Buchanan, Hosey, & Smith, 2007; Kaufmann, 2007; Sax, 2006).

It has been documented that the brains of females and males process information, listen, read, and experience emotion in different ways (Sax, 2006). This in turn can affect learning styles. Adult learning theory and feminist theory maintain the proposition that adult women may have distinctive needs and preferences as learners (Flannery & Hayes, 2000). Philbin et al. (1995) found that traditional education was directed toward and appeals more to males. Subsequently, women in traditional classroom cultures often feel alienated, talk less, and are uncomfortable expressing their ideas in a similar manner as men (Belenky et al., 1986; Crawford & MacLeod, 1990; Hayes et al., 2002). DePape (2006) suggested that the utilization of gender

specific classrooms would allow educators to tailor the learning environment to fit the needs of women learners.

However, some scholars refute the notion of a difference in "male brain" and "female brain" and share a different perspective regarding learning styles. These scholars point to existing neuroscience research that has not identified substantial enough differences between boys' and girls' brains to justify different educational methods (Eliot, 2011; Halpern et al., 2011; Hayes, 2001). Phoenix (2004) and Stahl (1999) concluded that learning styles are different for everyone regardless of gender. However, Hayes (2001) cautioned against completely ignoring gender in the context of learning. She stated, "Ignoring gender can make us blind to the significant impact that it can have on our learners, and to ways that we can improve learning experiences for all learners" (p. 40).

Overall, gender specific programs are a topic that has been heavily debated. "Within feminist studies, it is argued that women-only programs frequently represent a marginal provision, reinforce stereotypes, and pose little questioning of social structures and achieve limited if any social change" (Shortall, 1996, p. 273). Miller and Halpern (2013) argued that the removal of stereotypes can lead to improvement in both men's and women's academic achievement, while having a well-designed curriculum can improve the educational outcomes of both genders. The authors, along with Mael et al., (2005), concluded that there was no clear academic advantage for single-sex or mixed-sex schools. Nevertheless, some continue to argue that women-only programs are positive because women feel more comfortable. Women have a place to take risks with their thinking, gain confidence in trying ideas, and help each other (Hayes et al., 2002). For example, Sax, Riggers, and Eagan (2013) found that single-sex high schools predicted higher levels of academic engagement for female students. Additionally,

researchers point to single-sex education leading to an increased probability of choosing non-traditional majors, assuming leadership roles, and participating in political and civic activities (Karpiak et al., 2007; Lee & Marks, 1990; Riordan, 1994; Sax et al., 2013; Sullivan, 2009). There is no conclusive evidence to support either side. However, one of the strongest arguments for women-only programs/classrooms is the preference of the participants, many of whom say they feel most comfortable and non-threatened in this kind of environment (McGivney, 1993; Shortall, 1996).

While awareness has prompted the development of women-only programs, few have addressed preferred educational approaches of women farmers (Shortall, 1996; Trauger et al., 2010). Today, women in agriculture conferences and workshops are developing across the United States. These programs are a first step, but there are little data to confirm whether they are effectively identifying and addressing the needs and roles of agriculture women (Albright, 2006). In order to effectively meet the needs of women who farm, it is necessary to evaluate and study existing agricultural educational programs for women. One program that merits further study is Annie's Project.

Annie's Project

Annie's Project – Education for Farm Women is a 6-week risk management education program for women. Heins et al. (2010) conducted a quantitative study on Annie's Project. The study assessed the effectiveness of Annie's Project by considering the extent to which Illinois women's skill sets in risk management improved as a result of participation in the program. The results of the study indicated a significant increase in women's skill sets in all areas of risk and in total. While the results were positive, they are limited to a condensed geographic representation of women who farm. There remains a need to study the effectiveness of women only educational

programs on a broader scale, in particular Annie's Project as it has expanded to several states. As such, my study will focus on Annie's Project in three Midwestern states.

Summary

In this chapter, I reviewed the literature most relevant to my study: gender and work, gender in agriculture, gender and agriculture information transfer, gender and education, and gender specific training. The first section on gender and work introduced the biases and challenges that women face in fields traditionally dominated by men, the second section about gender and agriculture provided background on women's role in agriculture, why they are called the invisible farmers, and how they negotiate gender in the agriculture world. The gender and agriculture information transfer section explained how patriarchy affects the transfer of knowledge in farming and lays the foundation as to why women need education. The third section, gender and education, accounted for the lack of agriculture educational opportunities for women who farm and the ways some educators are addressing those needs. The final section, gender specific training, introduced perspectives about utilizing gender exclusive teaching environments, such as those used in Annie's Project, the focus of this study. The next chapter provides the framework for the research design and methodology of this study.

Chapter Three

Research and Methodology

The purpose of this study was to evaluate the effectiveness of Annie's Project in meeting the educational needs of women who farm. Anne's Project is well received by women who farm, but the efficacy of the program had not yet been determined in detail. This chapter again introduces the research questions. In addition, I described the methodology and study design, including participant selection, data collection and analysis, and strategies used to address issues of quality.

Research Questions

The research questions guiding this study are:

1. How does Annie's Project influence the experiences of farm women who participate in its training?
2. What factors contribute to farm women's participation in the program?

Methodology and Design

Qualitative procedures demonstrate a different approach to scholarly inquiry than methods of quantitative research (Creswell, 2009). Qualitative research is conducted because a human or social problem needs to be explored, and there is a need for a complex, detailed understanding of the issue (Creswell, 2007). Qualitative methods used in research are designed to provide an in-depth description of a particular program, practice, or setting (Mertens, 2005). This allows a researcher to see the full spectrum of a program. The approach to inquiry used in this study is program evaluation, utilizing an intrinsic case study design. Case study research involves the study of an issue explored through one or more cases in a natural setting sensitive to the people and places under study (Creswell, 2007). In an intrinsic case study design, the focus is

on the case itself, because the case presents an unusual or unique situation (Creswell, 2007). When fully in the role of program evaluator, the case study researcher chooses specific criteria or a set of interpretations by which the program's strength and weaknesses, successes, and failures, will become apparent (Stake, 1995). Based on the research questions, an intrinsic case study was the most appropriate design for this study.

Simons (2009) defines the primary purpose of a case study as generating in-depth understanding of a specific topic, program, or system to generate knowledge and/or inform policy development, professional practice and civil or community action. This level of depth was necessary in order to get a complete understanding of the impact of Annie's Project on the lives of women who farm. Prior to this study, evaluations of the program have consisted of pre/post testing, surveys, and one graduate thesis focused on the effectiveness of Annie's Project in improving the skill sets of Illinois farm women.

Focusing on pre/post testing or surveys as the sole indicator of the worth of a program, clearly falls short in representing a program in action. It is not sufficient to indicate what learning gains were achieved by testing learning outcomes, because it can give a false perception of the quality of a program (Fitzpatrick, Christie, & Mark, 2009). Stakeholders, developers, and other audiences need to know how results were achieved, why the program succeeded where others did not, and what key factors in the particular setting led to precise outcomes (Simons, 2009). Utilizing a case study approach enables a greater understanding of the merits and shortcoming of the program (Stake, 1995); as well as give women who farm an opportunity to speak about their educational wants and needs. Thus, this design was chosen as the approach to evaluate Annie's Project.

Population

The population in this study was former Annie's Project participants from three states in the Midwest. The states include Illinois, Iowa, and Missouri. These states were chosen due to geographic proximity, similarity in agricultural operations, high participation rates in Annie's Project, and program history. A small group of university extension specialists and educators from these states started the Annie's Project program and they serve as gatekeepers to the program participants. A strong rapport exists with these instructors, so the gatekeeper's access was easily granted.

Selection of Participants

Creswell (2007) stated that researchers can sample at the site level, event or process level, and at the participant level. This study sampled at the participant level. The participant level was comprised of women who participated in the Annie's Project program in 2010. The sample population was 18 women of different ages, backgrounds, and socio/economic levels. One common thread among those in the sample population is the farm. Everyone was involved or attached to an agricultural operation. The size of the sample (or "enough") was initially 15 women. I planned to select five women from each of the three states represented in the study. Seidman (2006) stated that "enough" is different for each study and each researcher. He highlighted two criteria for "enough" that I used in this study. The first one is sufficiency. Did the sample size provide sufficient information so that others outside the sample could connect to experiences of those within it? The second criterion is saturation of information, or the point of the study, where the interviewer begins to hear redundant information and is no longer learning anything new (Seidman, 2006; Weiss, 1994). I achieved saturation at 15 participants. However,

three more women contacted me and wanted to participate in the study. I decided to go ahead and interview them to see if any new information emerged.

Participant selection for this study occurred utilizing purposeful sampling. This type of sampling works best in case studies where the aim is to understand or gain insight into the case (Simons, 2009). Purposeful sampling allows researchers to select individuals and sites for study because they can purposefully inform an understanding of the research problem and phenomenon in the study (Creswell, 2007). Patton (1990) identifies several different purposeful sampling techniques, one of which is convenience sampling. Patton states that convenience sampling is the most common sampling strategy. A sample of convenience relies on choosing individuals who are readily available and willing to participate in the study (Mertens, 2005; Weiss, 1994). Access, timeliness, location, cost, and availability of sites are also factored into convenience sampling. For this study, convenience sampling was used to select potential participants.

The names of participants were compiled with assistance from Annie's Project state coordinators and the Annie's Project-Education for Farm Women (APEFW) office. The state coordinators have a master list of all the former Annie's Project participants from their state. The APEFW office also has a master list from all of the states. For Missouri and Iowa, I contacted the state coordinators due to their close relationships with state instructors and greater understanding of the geographic and diverse difference of the classes within their state. For Illinois, I contacted the APEFW office. I requested participant rosters from 2010 from the state coordinators and APEFW office. Once I received the rosters, I deleted the names of participants with whom I have had contact through my Annie's Project classes or conferences. I compiled the remaining names and contact information into an excel spreadsheet. Next, I sent an email message to all potential participants on the lists to inquire about their interest in participating in the study. In addition, I

sent two follow up letters to the emails. Those inquiries were followed up with telephone calls. The telephone calls were used as a way to assess the appropriateness of participants for the study, and narrow my participant pool. When I received a no from a participant, I moved on to the next person on the list. I followed Weiss's (1994) suggestions of snares to avoid when choosing participants: avoid those too reluctant, too eager, and pay attention to details of access and contact.

Data Collection

The data collection in case study research is extensive and draws on multiple sources of information (Creswell, 2007). Data collection occurred through interviews, demographic surveys, documents, and autovisual materials. Researchers identified these data sources as the preferred data for qualitative case study research (Krueger & Casey, 2009; Seidman, 2006; Weiss, 1994). For this case study, I conducted interviews with women who completed the Annie's Project program, reviewed documents, and autovisual materials.

Individual Interviews

Individual interviews can provide a greater understanding of participants' experiences in Annie's Project. Interviews are more personal and allow the development of a closer relationship between interviewer and participant (Adler & Adler, 1994). Building rapport with the participants can help them to feel more relaxed in their disclosures, and in turn, share more details with the interviewer.

I conducted individual interviews with 18 women who participated in the Annie's Project program in Missouri, Iowa, and Illinois. These three states were the initial pilot states for the Annie's Project, and they have the largest number of participants. Geographic proximity was a factor in the choice of location sites for face-to-face or telephone interviews. The telephone

interviews were conducted in locations that were further away from me, while the face-to-face interviews were conducted in closer locations. I tried to conduct as many interviews as possible face-to-face. In the end, I conducted nine face-to-face and nine via telephone.

The Annie's Project program logic model and conceptual framework guided the protocol in developing interview questions and conducting the interviews (see Appendix B for interview protocol). The meeting sites of the one-on-one interviews included two University Extension offices, two restaurants, a farm office, and participants' homes. I asked each participant to identify the place that was most comfortable for them. The length of the interviews was no longer than 1.5 hours, and no follow up interviews were needed. I recorded the interview data through handwritten notes and digital audio. Audio recordings were made only with consent of the participant. I utilized a professional transcriptionist to transcribe all of the audio recordings.

Demographic Surveys

I reviewed baseline demographic survey data from the individuals that were interviewed for this study (see Appendix C for survey). The information in these documents established a set of characteristics, which provided an overview of the demographic composition of the participants.

Document Analysis

I reviewed documents and audiovisual materials. The documents and materials were obtained from Annie's Project state coordinators. During my research, I was surprised at the lack of documentation held by the APEFW office, so I contacted state coordinators. The documents reviewed included survey data from Missouri Annie's Project past participants and Annie's Project evaluation/impact data from Iowa State University and RISE. These documents aided in assessing changes in knowledge, farm involvement, and confidence as a result of participation in

Annie's Project. Audiovisual materials included YouTube and Vimeo videos. Several university extension Annie's Project state coordinators have utilized social media and video to capture Annie's Project participant's stories and experiences. The videos provided testimonials and program impacts from past Annie's Project participants. The audiovisual materials utilized were from all Annie's Project states, not just Iowa, Missouri, and Illinois. Not every state had videos, but I felt the inclusion of videos from other states provided a larger context for Annie's Project.

Yin (1989) states that field notes are the fundamental database of case studies and qualitative research. My fieldnotes were essential to me during my research. I described experiences and observations, quotations from study participants, and field-generated insights and interpretations. I used the process of turning my jottings to fieldnotes as a preliminary analysis of the data that have been observed.

Human Subjects Protection and Other Ethical Considerations

This study was approved by the Campus Institutional Review Board at the University of Missouri-Columbia. An information letter and consent form for invitation to be interviewed was sent out to the participants. This letter was approved by the IRB and informed participants that their participation was voluntary and they could withdraw at any time. Prior to the interviews, I distributed (by handing out or email) the waiver of documentation of consent (see Appendix A). In addition, to ensure that participant identities remained confidential, I used pseudonyms throughout the presentation of findings and discussion.

Data Analysis

I analyzed data during and after the data collection process. I used the same data analysis procedures for all data in this study. To manage my data, I created an inventory of the entire data set utilizing a mix of manual and computer management. I utilized an organization system to

organize and label all data. This allowed me to quickly and easily access my data. Additionally, I saved the data set in an electronic and hard copy format.

Stake (1995) suggests four forms of data analysis and interpretation in case study research. Those forms include: categorical aggregation, direct interpretation, establishing patterns, and developing naturalistic generalizations (Stake, 1995). Case study relies on direct interpretation and aggregation of instances to reach new meanings about cases. Stake (1995) cautions researchers on devoting too much time to formal aggregation of categorical data in an intrinsic case study. He encourages spending most of the time in direct interpretation. In direct interpretation, the case study researcher looks at a single instance and draws meaning from it without looking for multiple instances (Creswell, 2007).

I began my content analysis by reviewing all data and adding general thoughts and margin notes. I used a coding process to find patterns and correspondence between two or more categories. Coding organizes the material into segments before bringing meaning to information. It involves taking data gathered during data collection, segmenting sentences into categories, and labeling categories with a term (Creswell, 2009). I allowed the codes to emerge from information collected from participants' interviews, documents, and audiovisual data. While analyzing the data, I looked for perspectives held by subjects, relationship and social structure codes, and codes that were surprising and unusual. I grouped words or phrases that were comparable into the same category. During this analysis, similar codes developed across all of my data. In analyzing the audiovisual data, I used a part-to-whole or deductive approach suggested by Erickson (2006). This approach relies on pre-established coding schemes and looks for certain communicative and pedagogical functions of research interest (Barron & Engle, 2007; Erickson, 2006). I utilized the pre-established codes that developed from analyzing the other data, and

tabulated the frequency of occurrences of those codes in the video data. I utilized a peer debriefer to review and code the data to see if the same codes emerged. The coding process aided in the development of themes and generated a description of the setting or people. The three themes that developed from all of my data sources appear as major findings in my study (Creswell, 2009).

The next step in data analysis involves interpretation, or making sense, of the data (Creswell, 2007). Interpretation is a highly skilled cognitive and intuitive process, involving total immersion in the data, re-reading transcripts, field notes, observations, and other forms of data in the data set. For many authors, interpretation is the key process for making sense about what has been learned (Simons, 2009). I organized my analyses and interpretations to provide input into the reader's naturalistic generalizations. These generalizations enable readers either to learn from the case for themselves or to apply to a population of cases (Stake, 1995). After interpretation, I prepared an in-depth picture of the case using narrative, tables, and figures (Creswell, 2009).

I used my theoretical framework to guide me in the data collection, interpretation, and explanation of the case. Once the data was collected and analyzed, the theoretical framework was used as a mirror to check whether the findings agreed with the framework or whether there were some discrepancies (Imenda, 2014). This guided me in responding to the research questions in this case study.

Trustworthiness

It is important for researchers to ensure the quality of data and data analysis. Criteria for judging the quality or trustworthiness of qualitative research has been outlined by a number of writers. The criteria to evaluate quality or trustworthiness of qualitative research include

credibility, transferability, dependability, confirmability, and authenticity (Creswell, 2009; Mertens, 2005).

Credibility is a major criterion in evaluation case study (Simons, 2009). The credibility test asks if correspondence exists between the way the participants actually perceive social constructs and the way the researcher portrays their viewpoints (Mertens, 2005). Member checking is the most important decisive factor in establishing credibility. I sent a copy of the interview transcripts to the interview participants so they could judge the accuracy and credibility of the account (Mertens, 2005). According to Stake (1995) participants should:

> . . . play a major role directing as well as acting in case study research. They should be asked to examine rough drafts of the researchers work and to provide alternative language, critical observations, or interpretations. (p. 115)

None of the participants contacted me with concerns about an inaccurate statement or account.

Triangulation was used to establish credibility. Triangulation involves cross checking information collected from different sources, methods, or perspectives for consistency of evidence across the sources (Mertens, 2005; Simons, 2009). It can also be used to build a coherent justification for themes. If themes are established based on converging several sources of data or perspectives from participants, then this process can be claimed as adding to the credibility of the study (Creswell, 2009). I checked for consistency regarding the similarity of comments made by individuals over time. This helped to shed light on a theme or perspective. In addition, I validated information obtained from interviews by checking program documents and other written evidence that corroborated what interview participants shared (Patton, 1990).

In qualitative research, the burden of transferability is on the reader to determine similarity between the study site and receiving context. The researcher should provide enough detail to allow readers to reach a decision (Mertens, 2005). I accomplished this by writing an extensive description of the time, place, context, and culture.

Dependability is defined as the qualitative parallel to reliability (Mertens, 2005). To ensure dependability, I checked transcripts for mistakes during transcription and created a qualitative codebook to make sure drift did not occur in the definition of codes. Additionally, I utilized peer coding in order to see if similar codes and themes emerged, and a peer reviewer to examine my findings, conclusion, and analysis. The discussion and review of my study with a peer helped me to confront my own values and guided the next steps of the study (Mertens, 2005).

Guba and Lincoln (1989) recommend utilizing a confirmability audit to verify that data can be traced to original sources and the process of synthesizing data to reach conclusions can be confirmed (p. 257). I kept a research journal to chronicle my thoughts, feelings, and experiences throughout the research study. The research journal served as an audit trail. Authenticity includes fairness, respecting participants' perspectives, and empowering them to act (Simmons, 2009). I used member checking to also establish authenticity.

Researcher Positionality

It is important for the researcher to clarify bias from the very start of the study. The researcher needs to comment on past experiences, biases, prejudices, and orientations that have shaped the interpretation and approach to the study (Creswell, 2007). My personal experiences have shaped the way I view education for women and agriculture, and influenced how I conducted this study.

I have a Bachelor's degree and a Master's degree in agriculture. After college, I accepted a position with the University of Missouri Extension and married a farmer. I have personally experienced the gender bias toward women in agriculture and the frustrations that arise from it.

My first few years in extension were challenging. Many farmers, especially older farmers, did not feel comfortable coming to me for assistance. They felt I was too young to know much, and often preferred working with a man. It took some time to demonstrate that I did have the knowledge base and expertise to assist them. Once they realized that I did know, as one farmer put it "what I was talking about," they began to warm up and trust me. Although I had been warned that it might take awhile to get the respect of farmers in the area, I was completely surprised at the lack of respect from some extension colleagues. Many acted surprised that I was an agriculture specialist, and at a nationwide conference, an agriculture colleague from another university asked my husband what his specialty area was even though I was the one wearing the University of Missouri nametag.

In 2004, I joined a group of colleagues from Illinois and Iowa to work on a curriculum for farm women. It had been well documented that women were an underserved audience in agricultural education (Gilles, 1981; Ogawa, 2004; Rivera & Corning, 1990; Shortall; 1996). However, there were still very few programs that met the educational needs of farm women. We established the Annie's Project curriculum and began teaching classes. Word of the program spread quickly, and we began receiving requests for the curriculum and teaching methodology. In order to maintain the integrity of the program, we trademarked Annie's Project. I am a member of the APEFW board of directors. We create policies and procedures, conduct train-the-trainer programs for new Annie's Project instructors, maintain a national database, and assist University Extension personnel in promotion of the program in their states.

Although I have witnessed differences in class participation between women who attend Annie's Project and women who attend traditional agriculture extension programs, I still have mixed feelings about a single sex educational environment. I understand the comfort level of being with other women; however, I am unsure of the degree to which it affects the learning environment. My uncertainty stems from my own experience in college. As stated above, both of my degrees are in agriculture. In my agriculture related coursework, there were more males than females in the classroom, and the instructors were predominantly male as well. I, along with other female classmates, was definitely in the minority. However, I never experienced a gender bias in college related to my learning environment. I was comfortable speaking up and participating in class. I am not sure, if that is due to my generation and the fact that there were more women enrolling in agriculture so I felt comfortable and equal in regards to men in the classroom, or if it is my personality. The only incident where I felt a gender slight was in graduate school from a fellow classmate, who was and still is a friend. After class one day, he told me I should get married so I could stay home and have someone to take care of me. I remember feeling offended and taken aback by his remarks. However, I do not think he deliberately meant to be disrespectful or demeaning. He grew up in a traditional Latino household, and felt strongly about his wife not working outside of the home. Consequently, he was speaking from his own cultural frame of reference. The only time I experienced a strong gender bias was after college once I started my career. I suppose that was why the bias was so surprising to me, because I personally did not experience it during college.

Limitations

My positionality and closeness to the program may be seen as a limitation to this study. I could be viewed as bias since I am an instructor and on the APEFW board of directors. However,

I feel that my passion toward the program is a strength rather than a weakness. In an interview about evaluation, Fetterman remarked on the pros and cons of being an internal evaluator (as cited in Fitzpatrick, Christie, & Mark, 2009). Individual evaluators close to a program may just tinker around the edges instead of suggesting bold and fundamental changes to the program. However, they may also be better at seeing some of the detailed findings more clearly.

Although these biases may shape the way I view, understand, collect, and interpret the data, I made every effort to mitigate bias in this study. I was transparent about the limits of the population sample in this study. I reassure readers of my report about the quality of my material by providing a copy of my interview guide and questions. I was excited to learn about the participants' thoughts and experiences with Annie's Project. I was fair with all evidence and fully report everything I have learned about this study, and I was honest with my findings (Weiss, 1994).

I utilized convenience sampling even thought it is considered to be the least desirable sampling method by many authors. Mertens (2005) stresses that when utilizing a convenience sampling, researchers must acknowledge the limitations of the sample and not attempt to generalize the results beyond the given population pool. The study's small population sample of 18 participants may be seen as a limitation. Initially, I contacted the Annie's Project state coordinators and APEFW office to ask for the state rosters from 2010. In Iowa and Missouri, I ended up having to utilize local instructors who introduced me via email to their class roster list. This helped to legitimize me, and made participants more open to doing an interview. Additionally, the lack of racial and ethnic diversity of the participants limits my ability to do a thorough analysis with the intersectionality aspect of my framework.

I did experience a few challenges with my interviews. I utilized two recorders in all of my interviews, so I would have a back up option. However, in two interviews the recording quality was low due to background noise. One participant wanted to meet me at a McDonald's restaurant and the background noise was horrendous. Another participant was working on the farm, so there was a variety of background noise. My transcription service was able to transcribe the majority of the interviews. However, there were some inaudible portions and I had to consult my fieldnotes and memory to piece those portions together. I realize that my interpretation of the participant's meaning might have been different than they intended. Nonetheless, they received a copy of the transcribed interview and did not make any corrections.

In my first interview, I had difficulty keeping the participant on track. I would ask my question, and instead of answering it she would discuss her views on farming methods and corporate agriculture. At first, I wondered if she could understand me and I would slowly repeat the questions. But she would go off in a completely different direction. Towards the end, I was able to get her to address Annie's Project but she was brief in her comments about it. I felt she was more interested in having a platform to share her views on agriculture rather than talk about Annie's Project.

There were some limitations with the You-Tube/Vimeo videos. The videos were used by University Extension in several states to highlight the impact of Annie's Project. All of the videos were positive about Annie's Project, so that can be seen as potentially skewing the data.

The RISE evaluation data was not compiled until after 2010. This limited the ability to triangulate data for Missouri, Illinois, and Iowa. However, I did obtain long-term survey data (2005-2014) from Missouri, and compared it to the current RISE data.

Summary

I conducted an intrinsic case study to evaluate Annie's Project. Eighteen past Annie's Project participants in Missouri, Iowa, and Illinois comprised the sample population. These 3 states were the pilot states for Annie's Project, and were chosen due to geographic proximity, similarity in agricultural operations, high Annie's Project participation rates, and program history. Data collection methods used included interviews, documents, and audiovisual materials. Additional data was collected through field notes and a research journal.

Data analysis was an ongoing process. The steps in the data analysis process included organizing and preparing the data, initial reading of all information; coding the data; developing themes and descriptions from codes; interpreting data; and representing the findings in narrative, tables, and figures. Lastly, I used several strategies to ensure the quality of data and data analysis. The strategies included triangulating data, conducting member checking, peer review, and clarifying the bias of researcher.

Chapter Four

Findings

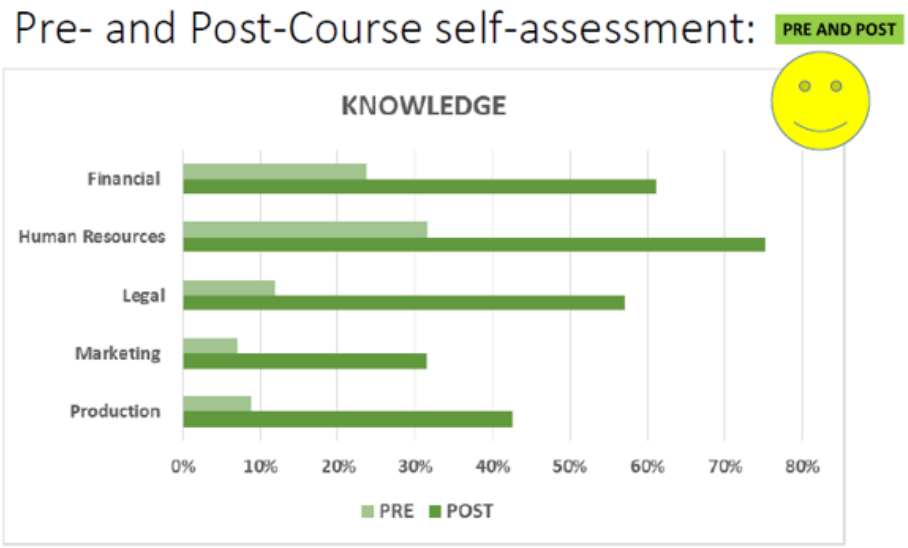
The purpose of this case study is to evaluate the effectiveness of Annie's Project in meeting the educational needs of farm women. In this chapter, I reveal the findings from the interviews (in person and by telephone) with Annie's Project participants, document analysis, and personal observations. Documents reviewed included national evaluation results of Annie's Project courses for 2013-2015 from the Research Institute for Studies in Education (RISE), state evaluation data from Missouri, and Vimeo and You-Tube testimonial videos from various states. The majority of the data presented is from interviews with Annie's Project participants. After examining the data from these sources, three themes emerged to provide an evaluation of Annie's Project.

Setting for the Case Study

Annie's Project is a risk management education program that is targeted toward farm women. The program is designed to empower women to be better business partners or managers by focusing on agricultural risk management. Currently, Annie's Project is being taught in 33 states. The Annie's Project Education for Farm Women (APEFW) Foundation administers the program, but different organizations in the various states facilitate Annie's Project. Most of the facilitators are University Extension employees; other facilitators are involved in agricultural organizations such as Farm Credit, commodity associations, and Women in Agriculture groups. Although some variables are different between states, all sites must follow protocols set out by APEFW including: teaching the five areas of risk management, maintaining program integrity, certifying facilitators, using logos and materials, and conducting a pre- and post-evaluation of the program.

RISE is a unit of the Iowa State University School of Education. Since 2011, RISE has been compiling the results from the Annie's Project pre- and post-class evaluations. Recently, RISE completed an evaluation study of the national Annie's Project pre-post course results in 17 states for 2013-2015. The key purposes of the evaluation were to examine changes in knowledge and practices in the risk areas of financial, legal, human resources, marketing, and production. On the first night of Annie's Project, participants fill out the pre-course survey. The survey asks participants "Why did you enroll?" The overwhelming response was to "learn more." On the last night of class, participants fill out the post-course survey. The survey results on pre- and post-course self-assessment of knowledge gain showed a significant increase in the five areas of risk management after course participation. Chart 1 displays the knowledge pre- and post-assessment results. It is important to note that the post data were collected immediately after the last class the participant completed.

Chart 1: RISE 2013-2015 Survey Data on Knowledge



Source: RISE Iowa State University

These evaluation results have shown that Annie's Project is well-received by farm women. However, the RISE data are only based on a 2-year period and focused primarily on knowledge

gain in the five areas of risk management. Although these results are encouraging, the overall efficacy of the program has not yet been determined in detail or over time.

This study endeavors to add to existing evaluations of Annie's Project by utilizing a qualitative approach. To capture long term data, I chose 2010 as the participation year in Annie's Project for the population sample. The combination of long term data results and RISE data can give a more complete picture of the efficacy of Annie's Project. Although the RISE data fall in a different time period than this study, parallels in both sets of data can be used to provide a more comprehensive understanding of the broad benefits and limitations of Annie's Project.

Participant Information

The population in this study consisted of former Annie's Project participants from Illinois, Iowa, and Missouri. I initially planned to interview five women from each state. In the end, 18 women participated in the study. Five participated from both Illinois and Missouri, and eight participated from Iowa. I conducted half of the interviews in person, and the other half by telephone, due to the geographic distance between me and the participant. The population sample was broad, consisting of a span in ages, involvement in the farm, and types of operations.

Prior to the interview, I distributed a demographic survey to all of the study participants. Fifteen participants returned the survey. The mean age of the interview participants was 59; the youngest was 32 and the oldest was 85. The majority of the participants grew up on a farm and graduated from college. Most of the participants worked off of the farm and were married. The participants had an average of 2.7 children. The average acreage farmed was 950 acres, and the average years in farming was 29. Predominately, participants were from grain and livestock farming operations. The business structures of the farms were mainly sole owners and, in all of

the farms, family members were involved in some capacity. Table 1 details the demographic survey results.

Table 1

Demography of Annie's Project Interview Participants

Demographic Factors	Average/Total
Age	59
Did you grow up on a farm?	
Yes	13
No	3
Education	
High school/GED	2
Some college	2
College graduate	8
Graduate/professional degree	4
Work	
On farm	7
Off farm	10
Married/Partner	11
Single	1
Divorced	1
Widowed	3
Number of children	2.7
Acreage farmed	950
Years farming	29
Type of operation	
Grain	7
Livestock	1
Grain & livestock	7
Organic	2
Form of business structure	
Sole owner	13
Partnership	5
S-Corporation or corporation	3
LLC	3
Family members involved in farm	
Children	7
In-laws	3
Father	3
Brother/sister	2
Extended family	1

Cross-Cutting Themes

The tagline under the Annie's Project logo is "empowering women in agriculture" (Annie's Project Education for Farm Women, 2016). The word *empower* has several definitions, including "to invest with power" (The American Heritage College Dictionary, 1997, p. 451), and to "make someone stronger" (Oxford Dictionary, 2016). Overwhelmingly, women expressed feeling empowered due to their participation in Annie's Project. Additionally, participants reported that Annie's Project was effective in meeting their educational needs. Three themes emerged that detailed its effectiveness in empowering and educating women who farm: *finding voice, finding agency,* and *improving relationships*. There are some similarities between these themes, particularly with finding voice and finding agency. This stands to reason because when people find their voice, they often find agency.

Finding Voice

When people have voice, they have the ability to speak up, be heard, and shape and share in discussions and discourse (Klugman et al., 2014). During the interviews, participants described the ways that Annie's Project assisted them with finding their voice. Some participants shared that they found their voice through becoming more confident, which highlights the interconnections among voice, confidence, and agency, which I discuss in greater detail below. By finding their voice, participants were able to express their own thoughts and opinions in a variety of contexts. Two of the youngest participants, Jessica and Bea, shared that they were initially reluctant to speak up in meetings. They were hesitant in expressing their thoughts or asking questions for fear of appearing unknowledgeable and asking unintelligent questions. Both credited Annie's Project with helping to instill confidence in them to speak up. Jessica explained:

> I think the class helped me gain confidence (p. 5, line 158)...just the confidence and the fact that, you know, I can go in to a situation now and not have to worry about asking questions. I feel a lot more confident knowing that it's okay not to know everything and not to worry what other people think and that type of thing. (p. 5, lines 179-181)

In addition to feeling increased confidence, Bea found her voice by becoming involved in the agriculture community. She shared:

> When we're in a meeting it increased my confidence and helped me to speak up when I had a question or you know, wanted to give input on something. Annie's Project, because I started it right, I did Annie's Project the first couple of years we were farming. That really helped kick start it for me….I became very active volunteering… and that was partly due to my Annie's Project experiences…I made a lot of connections that I am working with today. (p. 3, lines 76-79, p. 4, lines 122-127)

Bea did not grow up on a farm, and had felt like an outsider in the agriculture community. Annie's Project helped her "become a part of the community of agriculture…it's helped bring me in and make me feel a part of that" (p. 3, lines 90-92). This sense of belonging led Bea to start blogging about agriculture and her experiences as a farm wife. Through her blogs, she was able to support and promote the agriculture community by sharing her story.

Other participants also spoke of increased involvement in the agriculture community. Jessica remarked:

> Annie's Project, it really kind of spiraled me into being involved a lot more in agriculture. Being an advocate and knowing that even though I'm a

> woman, and even though I don't know everything, I still live on a farm and I see everyday life, so I should advocate for my own story (p. 2, lines 71-73)
>
> …It helped me to do more leadership projects…We have a small community so I know being someone that's able to step up and take some roles and the leadership of a community is important. (p. 4, lines 121-127)

After Annie's Project, Melissa also got involved and advocated for agriculture. She began volunteering with Missouri Farmers Care, a group representing Missouri's farming and agriculture community, and CommonGround, a website for women farmers to have conversations about the food they grow and how they produce it. Farmers involved in Missouri Farmers Care and CommonGround serve as representatives of the agriculture community by educating non-farm families about food and farming. Melissa shared "…I was spokesman (sic.) for that, and I think, it [Annie's Project] kind of helped me to prepare for my role…and how important a woman's role is…we do have something to offer that we should each have a voice" (p. 4, lines 117-122). These women all felt the need to speak up for agriculture, to share their stories, and to educate consumers. Annie's Project was a vehicle to help empower them to be able to do those things.

Another way participants found their voice was through their involvement on the farm. Some were involved in the production aspect of the farm, primarily in animal care, and others were only involved with the bookkeeping. Regardless of their pre-Annie's Project level of involvement, consistently the participants reported increased involvement after Annie's Project.

For example, Kathy reported a significant increase in her farm involvement, both in decision making and production activities. She shared:

> ….it just made things a lot less intimidating for me when I did get a 100%

> more involved in the farm that what I was. So, and opening those windows and actually, you know, being included in the conversation vs. sitting back here on the chair, no, I'm the one sitting at the table now. And, they're talking and they're asking what do you think about this or what about this? (p. 9-10, lines 345-349)

During our interview, Kathy's excitement about being included in the conversations was palpable. She was proud that her husband and father-in-law consulted with her on farm decisions and often took her advice and suggestions for change.

Jessica described similar changes in her farm involvement. She grew up on a farm and married a farmer. However, after their marriage, she worked off the farm and was not very involved until she took Annie's Project. She acknowledged "it really helped me to move forward on the farm and be involved" (p. 6, lines 193-194). By wanting to be involved, Jessica started doing more. Today, she does the bookwork, feeds cattle every morning, and assists with field work. She shared, "with technology, I can pretty much do everything that needs to be done on the farm. The physical hard work/labor is no longer a big issue. It's just learning the ways of having to do things right" (p. 2, lines 62-64). Jessica felt that it did not matter whether you were a woman or someone young learning about the farm, everyone started at the same place. As her role has grown, people talk to her and ask her questions regarding the farm because they know she is capable of answering them.

Other participants commented on an increase in awareness of the operation of the farm, which led them to want to engage more with their farm. Rhonda described being "a little more in tune and a little more attentive to what's going on. I ask more questions and that's important. That's very important for farm women (p. 5, lines 186-188)…Ask those questions and feel

confident about it" (p. 5, line 190). Maude shared "…it [Annie's Project] makes me realize that I can have more of a say in how it [the farm] operates. And, it makes me realize that I need to better do the finances and I need to be more proactive in things" (p. 4, lines 111-113). Annie's Project helped the participants find their voice with their partners on their farm and a sense of belonging within the agricultural community.

In addition to participant interviews, I found evidence of finding voice throughout other data. For example, in the Missouri Annie's Project survey data, 67% of respondents said Annie's Project increased their confidence and skills to serve in other community roles. A sample of the roles reported include: fire district board, Future Farmers of America (FFA) agriculture committee, library board, farmer's market board, Farm Credit Services board member, and hospice volunteer. Panel participants in Video 2 also discussed their increase in community and farm involvement. One participant was a school board member and was working to get vocational agriculture back in the school. She credited Annie's Project with giving her "resources and contacts with other women to help make things happen." Another participant shared how Annie's Project gave her ideas to "fine-tuned their management practices" and led to increasing her involvement in the farm.

Finding Agency

Agency is the ability for individuals to change, make choices, and act for themselves (Klugman et al., 2014; Shortall, 2006; Trauger et al., 2008) and agency emerged as a salient outcome of Annie's Project. Through participation in Annie's Project, women became more agentic through education, growth in confidence, and development of a social network.

Through education. The desire to learn, and to keep learning, was a strong value for all of the participants. Although these values may be what led them to Annie's Project in the first

place, participants described Annie's Project as an important way to reinforce the learner identity by addressing multiple needs: learning in general, learning about farming, and learning about themselves and their capacity to be successful.

Virginia participated in Annie's Project to "gain more knowledge" (p. 5, line 7). She added:

> I think we, everybody, needs a program just to do things like that, learning everything, how to –where's people taking you, not taking, being honest and stuff and there are guys out there that will do that, that will take advantage and especially a woman they'll try to take more advantage. (p. 5, lines 18-22)

Virginia identified some of the challenges of being a woman in agriculture. Other participants reinforced Virginia's sentiments and noted challenges such as facing risk in farming, having their abilities doubted, and being left out of decision making. Participants saw education as a way to meet these challenges and to be better farm managers and partners, and prepare for their futures.

Sarah grew up in a farm family with three daughters and no sons. She was excited to hear about Annie's Project, "I was just thrilled to know that there was something out there for women because I grew up knowing all along how much my mother was involved…I'm just glad they're getting the recognition and the education" (p. 5, lines 163-166). Sarah felt that it was extremely important that women received agriculture education because they are the ones who end up with the farm. On average, women outlive men, and this leaves widows of the farmer or daughters, like her sisters and herself, with a farm to manage (Clayton, 2009; Hitti, 2006; McCammon, 2012). Often, women are unprepared to take on the management of a farm, and Annie's Project helped participants take control of their roles in the farm.

Several participants assumed their positions on their farms due to family deaths and inheritance. For example, the death of her husband was a pivotal moment for Patricia; she struggled to cope on her own. She stated "I was really lost when he passed away" (p. 5, line 166). Her biggest challenge was deciding what to do with the farm. Should she keep the hogs, cattle, and crop ground? Should she continue farming with her brother-in-law? Those were hard decisions for her to make. As the executive director of a nursing home, Patricia handled Medicaid, Medicare, and made business decisions for the nursing home. So she thought, "...why can't I do this for my own, my own business interest" (p. 5, lines 168-170). Patricia felt she needed education to be able to make those decisions and enrolled in Annie's Project. She stated, "it [Annie's Project] gave me more to think about than I thought I had to think about (laughs), but it kept me from procrastinating in decision making" (p. 4, lines 110-111). After Annie's Project, Patricia refinanced her farm at a lower interest rate, dissolved a cattle business relationship with her brother-in-law, and sold the livestock. All were significant decisions to make because her husband had always handled the financial matters of the farm, and raising livestock had been a family tradition.

Unlike Patricia, who inherited a farm from her husband, Sarah inherited a farm from her parents. Growing up she was a stereotypical farm kid:

> ...I participated in all things that most kids do on a farm. But I never was brought into any of the decision making or understood, you know, the kinds of operating particulars that went on. And so, when we were left with the farm, I had to do some quick learning about those kinds of things. (p. 1, lines 29-32)

Annie's Project was one way both Patricia and Sarah gained the knowledge they needed to feel more agentic in tending to and managing the farm.

In addition to participants interviewed, education featured predominantly in the Missouri survey data and six of the vimeo/you tube videos. In these data, participants pointed to specific content areas that they now knew more about such as risk management. Regarding knowledge increases in general, the Missouri evaluation data showed a significant increase in knowledge in the post-course assessment of Annie's Project. Although these data are specific to Missouri Annie's Project participants, they are consistent with responses from the interview participants in all three states in my study, suggesting that increased knowledge and education is a meaningful outcome among many Annie's Project participants. Altogether, education is an important component in achieving gender equality, and women with more education experience fewer constraints to their agency (Klugman et al., 2014).

Through increased confidence. Participants expressed feeling more agency due to a growth in confidence, which influenced their decision-making and actions. Several shared the changes that have taken place since their participation in Annie's Project, and their feelings about those changes. Blanche described feeling more confident in taking action on the farm. She shared:

> I have a little more self-confidence when it comes to some farm things. I had a neighbor call and say this baler had a bolt, some special bolt that was out, wanted me to get it for a few days. My husband was in Denver for a school for his work and I said, "Can I just come over there and bale it for you?" He was like, yeah right (laughs). And I did! And, you know, it was like I was just grinning from ear to ear. I was telling John [husband] that night on the phone, he said, "You did what?" And I said, "Well, it was only 30 acres. So, I could do it after work and it wasn't a big deal." (p. 2, lines 231-235)

Likewise, Virginia expressed satisfaction at being able to do things on her own. She remarked, “It makes me feel good that I can help him [husband] and that I can go and be able to do things that take some of the burden off of him and which I kind of did some before, but we went together. But, now I just go and I just take care of it” (p. 9, lines 4-8). Other participants described having more capacity and a sense of equality. Despite her initial concern, Patricia now feels capable of managing her farm without her husband. She continued, “Annie’s Project has given me confidence to know that I can, I can manage the farm with my husband being gone, that I can do it. I can do it” (p. 6, lines 190-191). Since Annie’s Project, Patricia has done it. She continues to manage the farm and diligently makes conservation improvements in order to maintain the farm for future generations. As a landowner, Sarah stated:

> I think I have a little bit more confidence when I’m approaching the operators, if I have to approach them about anything. I feel like I’m an equal partner with them in terms of making decisions about what we need to do with the ground. (p. 4, lines 142-144).

She credited Annie’s Project with giving her the courage to become more engaged in the decision making and operation of the farm.

In the Missouri Annie’s Project survey data, participants cited an increase in confidence in making business decisions, and in speaking with farm advisors such as attorneys, lenders, and the United States Department of Agriculture (USDA) Farm Service Agency. Exemplars from the vimeo/you tube videos also provided evidence of finding agency as a result from participating in Annie’s Project. In Video 1 and 2, participants stated they became empowered and gained confidence from Annie’s Project.

Through social networks. Not only did the Annie's Project curriculum in general lead to finding agency but the experience of being with other women who farm helped to increase agency. Melissa explained:

> Maybe just being a little bit more confident knowing that, you know, there's other women that are just like me and that we're all doing the best that we can and there's a support system in place whether it be the Extension or fellow farm women. So I think just knowing you have a support system can help in making you feel more confident because you know you're supported and you belong to a community that holds your values. (p. 5, lines 163-168)

Lois concurred with Melissa's sentiments, "In my community, definitely made connections with other women in similar situations. That really built confidence that there are lots of women who are really making a big impact on their operation in a variety of roles. That was encouraging" (p. 3, lines 94-97). Many of the participants enrolled in Annie's Project because it was a program for women. Lois added "It [Annie's Project] was aimed toward women. That helped it not be so intimidating to me" (p. 2, lines 55-56). The appeal and comfort of a gender-specific program emerged throughout all of the data I analyzed.

The gender-specific design of Annie's Project made the content and learning environment less intimidating for participants. Kathy stated, "That's one of the big things I think people can be intimidated and I think that's the nice part about these classes that they have for women, it makes everybody maybe more comfortable to speak up" (p. 5, lines 157-159). Jessica addressed feeling intimidated by men and the importance of the camaraderie of women:

> When you have all women in the same room there is some camaraderie to that. You do get a little intimidated by men being around and not wanting

> to ask questions, thinking they may think you don't know as much or because she's a woman and that type of thing. But, being with a bunch of other women, I think that is what really helped me to gaining a little bit of confidence in my questions. (p. 3, lines 76-80)

Being in an environment with other women who farm influenced their learning in several ways. The women shared that other women could understand their points of views and struggles; they could ask questions without feeling embarrassed or patronized, and they could better learn from each other as well as the class speakers.

For example, as a young farmwife, Bea had challenges getting used to the lifestyle of farming, especially living on a livestock farm. She did not grow up in agriculture, and struggled with "getting used to being tied down and committed to the farm all the time" (p. 1, lines 13-14). She connected with some women online, and she "started to see the value of having this network of women that understood what life was like on the farm. They understood what finances were like on the farm and how cash flow works and that kind of thing" (p. 1, lines 33-36). Bea learned about Annie's Project after joking to a friend about needing a class for farmwives, and was surprised when she learned there was one. She reflected, "the biggest take away for me was meeting other women and learning how to get involved in agriculture and with other groups and things like that. So, the networking aspect was huge for me" (p. 2, lines 58-61). Bea discovered a passion for sharing her agriculture story with consumers, and this led to a career change. Bea continued, "Now, I have a career in ag communications…I don't think I would have done that if not had network of other women, partly through Annie's Project that helped encourage me and helped me learn the ropes and things like that" (p. 3, lines 82-85).

Jessica also reflected on the value of being in a community of women. She stated that without Annie's Project, she might forget that there is a larger network of support. She reflected "the networking, I think, was one of those things that you kind of forget that there's people that you can talk to other than just resources on the internet and that type of thing" (p. 3, lines 108-110). In addition to making contacts for networking, Jessica enjoyed the connections and friendships that developed through Annie's Project.

The rapport with other women who farm seemed to resonate strongly with participants. In turn, the connections like those Jessica described above, turned into friendships. Several participants are still in touch with each other. For example, Blanche stated, "…we talk, via email and stuff, you know, we still keep in touch" (p. 4, lines 123-124). The social networking aspect of Annie's Project provided participants with a group of other like-minded women, where the women support and mentor each other by sharing their innate knowledge and life experiences. These relationships bolstered them to be full participants in their farming lives.

Women-only and networking emerged as an important aspect of Annie's Project in the videos, including Videos 2, 5, 6, 7, 8, and 10. Video participants spoke of "learning in a less threatening environment" (Video 6), how the "climate is comfortable when its just women," and "makes it easier to be strong when you are surrounded by strong women." Other videos also reflected on the advantages of a gender-specific educational program. For example, women reported "being around other women who are successful at life" (Video 2), and "with women you feel that you are not alone" (Video 8). In addition, they mentioned the "the opportunity to network with other women" (Video 4), "connections" (Video 7), "sisterhood" (Video 10), and "support network" (Video 11) established by their participation in Annie's Project.

Counter-narrative. Although agency was a powerful theme throughout all data sources, a few participants described a different experience with Annie's Project. In regard to education, Irene stated:

> Oh, I didn't learn anything. I was the only single person there. Most of them [other participants] were farmers' wives…I just learned from the ladies, the farm ladies that I met there has to be more than one income for participation and advancement of their farms. (p. 4, lines 114-115, 120-122)

Like most participants, Irene's personal circumstances shaped her experience with Annie's Project. However, unlike most of those who participated in her particular Annie's Project class, she was a single mother, never married, and was the primary farmer in her farming operation. In addition, she was an organic farmer and was very vocal in her opinions of non-organic farming methods. In these ways, Irene felt that she stood out and did not align with others in her Annie's Project class. Moreover, she felt the class content focused too much on traditional farming as a husband and wife endeavor. Irene's sentiments were not shared by other participants who did not have a partner; however, they all had a husband at one point in their lives, which may have shaped their perspectives differently.

Dana did not feel that Annie's Project had much of an influence on her feelings of self. However she shared, "I can see that it would be a real encouragement to farm women. The validation. Empowerment in their decision making. I guess I'm old enough, I'm already there, but, I think for younger women especially, it would be very beneficial" (pp. 2-3, lines 62-65). Although Dana did not feel an increase in agency as a result of her participation, she did recognize the potential in Annie's Project to do so for others.

Eliza had been a farmwife for several years prior to coming to the Annie's Project class. During those years, she was a stay-at-home mom and was not involved with the farm. Eliza came to the Annie's Project class "excited to learn, but kind of embarrassed at the same time that I should've already known the things that were in the class" (p. 2, lines 41-43). She had a mixed experience being in a women-only classroom environment:

> I kind of felt, though, like my questions that I asked were pretty juvenile (p. 5, line 10). They [the other women] made me feel a bit snugged in a bad way and kind of silly (p. 5, lines 15-16)…made me feel a little inferior (p. 5, line 33)…[it was] nice to sit around some other farm women. But I took the opportunity to be completely vocal and honest, and ask as many questions as I could, and I don't think the other ladies took that aspect, since they were more quietly there. (p. 6, lines 10-13)

She continued:

> I'm super glad I went, I'm glad that the program is available; the story behind it was inspirational. The topics were on cue, and we had a pretty small class size, so I learned quite a bit, but I feel like I can learn just as much tagging along with the husband here and there, and everywhere else too. (p. 7, lines 31-35)

In the end, being in a women-only learning environment did not seem as important to Eliza as other participants. Her experiences were so different from others in terms of her comfort level of being with women.

Eliza was also different from other participants, as she often made self-depreciating remarks. She was concerned with misspeaking or appearing foolish and unprepared. At times, I perceived that she was trying to perform for me or thought I was looking for specific answers. She would ask if she answered the question right and seemed to need validation from me. This

led me to wonder if perhaps she was generally a little insecure and, on some level, she needed agreement or validation from others. For Eliza, it is possible that attending meetings with her husband enhanced her learning experience because she was with someone who she knew and who made her feel more secure, comfortable, and validated. Eliza's demeanor and perspectives were quite different from the other participants who felt secure, comfortable, and validated because they were with other women who farm.

Improving Relationships

Several participants shared how relationships with others changed as a result of their Annie's Project participation. The relationship changes typically involved their spouses, but family, other partners, and farm advisors were also mentioned. A sub-theme, *communication*, also emerged during the interviews, as it relates to relationships.

Overall, Annie's Project served as a conduit to strengthen their farm relationships. Participants expressed greater understanding of personality differences, family dynamics, agriculture terminology, and the importance of communication after participating in Annie's Project. Dana indicated that Annie's Project, "Maybe just heightening my awareness, the importance of different aspects of relationships, working together" (p. 2, lines 43-44). Bea shared the impact Annie's Project had on her as a young, newly married farmwife:

> Annie's Project really helped me think about our entire farm as a partnership, and as a, our farm, and our marriage, and our household, everything had to be team and everything was interrelated and had to flow really well…So, I do think that Annie's Project played a part in that, in getting our, you know, people talk about work life back in balance. (p. 3, lines 101-107)

Around the time she attended Annie's Project, Bea and her husband decided it would be best for the family if she quit work and stayed at home to raise their children and help with the farm. Although the traditional marital role was not something that she ever thought would work for her, it ended up working because of their family and farm situation. Bea added, "…Annie's Project helped me think about the best way for our family to manage those types of things" (p. 3, line 115).

Kathy described how she engaged differently with her husband after her participation in Annie's Project. She shared, "I'm going to a lot more meetings with him [husband]…He knows that I'm paying more attention a lot more than I did…so, it's been very, very good for us to be able to bounce one another, you know, off" (p. 3, lines 98, 106, 108-109). After 29 years of marriage, they talk more now than they ever did before. Working together on the farm has brought them a lot closer and led Kathy to feel like a full partner on the farm.

In addition to changing relationships with their spouses, some of the participants described how Annie's Project influenced their relationships with the entire family. Lois stated, "I take a more active role in family business meetings, because as I increase in knowledge I'm more aware and able to articulate what's happening. So, that's kind of an extended family kind of impact" (p. 3, lines 107-109). Likewise, Kathy revealed changes with her husband and father-in-law, "One thing that Annie's Project really did, it opened up channels and I can be involved in, in their conversations versus sitting here and not" (p. 3, lines 87-88). She also mentioned her relationship with her daughters and talking to them about their futures in agriculture. Kathy stressed that she wants her daughters to know "that there's opportunities in our life …and we're making agriculture work even though we're women" (p. 10, lines 374-375). She added that her daughters have watched her evolve through Annie's Project opportunities, and she has told them,

"…the sky is the limit. They [daughters] can do anything they want. So, and I think that's a big thing and Annie's Project is a part of that" (p. 10, lines 375-377).

Not only did her relationship with her family change, but Bea also mentioned that skills she learned at Annie's Project changed her relationship with their lender, "I was much more comfortable when I went in to talk to our lender. It made me feel like I knew much better what he was talking about" (p. 2, lines 67-68). Similarly, Sarah experienced changes in her interaction with a farm advisor. Sarah and her sisters felt strongly about keeping their farm together for future generations, and were not happy with their current attorney. She explained:

> …the legal information gained, gleaned through the Annie's Project caused me to change my attorney. And that was a big change because we had used, the family had used…with the farm, and we had used the same lawyer for 3 generations. So it was a long, long standing relationship, but it wasn't working for me and my sisters. And, so that was a huge change we made. (p. 3, lines 96-99)

Through their new attorney, they were able to achieve their goal of securing succession through a legal method that suited their wishes and needs.

Communication. Not surprisingly, communication played an important role in participants' improved relationships, especially in the context of a spousal relationship. Annie's Project provided women a greater understanding of agriculture and the terminology associated with it. Several participants remarked how being able to share a common language brought their marriage closer. Blanche mentioned a change in interactions with her husband concerning the purchase of farm machinery. She remarked, "I'll find myself looking through…an ad tracker and like, this looks like a good tractor…some of those things where I wouldn't have done that probably in the past" (p. 5, lines 194-197). Jessica shared that communication was what her

husband was hoping they would get out of her participation in Annie's Project. She explained he wanted her to be able to ask questions about the farm and discuss business decisions. Jessica added, "I think it got him excited to talk about it because before it was just kind of a glazed over look from me to him. So I really enjoyed that, that relationship building that it did with my husband and I" (p. 3, lines 100-103).

During my analysis of vimeo/you tube videos, those featured Annie's Project participants shared that increased communication was a positive change related to their training. For example, in Video 3, a participant remarked on the increase in communication with her father. This enabled her to deepen her relationship with him, and learn some farming insights from him. In turn, this improved her own knowledge of farming. She attributed this change to her participation in Annie's Project.

Missed Opportunities

Although the findings were primarily positive, the interview participants also noted areas where they felt the program could improve. The aspects mentioned most often were: length of time, frequency, locations, and content.

Virginia suggested "making [Annie's Project] a longer period of time" (p. 9, line 25). She felt that more questions arose once the information was digested, and she would have liked to be able to go back and address different things. Patricia also would have liked "a longer period" (p. 5, line 177) on certain topics. Marie and Kathy had strong opinions on the frequency of classes. Marie "just wishes it [Annie's Project] would be offered more often" (p. 4, lines 129-130). And Kathy "would like to see it advertised more" (p. 13, line 489) and "would go once a year if you guys (sic.) offered it" (p. 14, line 541).

Several participants talked about the locations and how far they had to drive to get to a class. When Jessica took Annie's Project, she had "over an hour drive, that was a pretty hard part of it, trying to get there once a week. And I think if it were now, I wouldn't even try to make it" (p. 5, lines 187-188). Although participants felt strongly that networking was an important outcome of Annie's Project, sometimes the structure of Annie's Project limited the long-term ability to sustain those relationships. For example, Blanche recommended to "have the locale some place closer and maybe some of the farm women that I do know [could] have been in the class together so then you would have that closeness as far as someone to pull on for information" (p. 7, lines 276-278).

When reflecting on specific areas of content, participants pointed to some areas that were not covered. Some reported that the program could be stronger if there were separate classes based on type of operation or level of involvement. For instance, Bea suggested "having a separate [class] for grain marketing vs. livestock marketing would be great" (p. 5, lines 185-186). That sentiment was echoed by Nena who complained that "a lot of the class was geared to the row croppers" (p. 4, line 130). Sarah, a landowner, also recommended separate classes. She shared:

> [I] wondered at the time if maybe a separate project that, you know, just land owners like myself, who are removed from any kind of physical operation on the farm. Might be an improvement because the kind of questions that they had were good to listen to and glean from but most of the time it didn't affect me. (p. 5, lines 156-159)

Lois encouraged Annie's Project instructors and facilitators to "maybe look at the class makeup. And there may be some of the topics that deserve a little more time and others that

deserve less time because of the makeup of the class" (p. 5, lines 169-171). Rhonda also suggested creating individualized training. She recommended "interviewing your people or really get a set of expectations from them. What would you like to learn? What do you feel you need? And maybe have a few classes or a few of the instructors that go more in depth to some of the training" (p. 6, lines 201-204).

Two participants expressed slight disappointment in the content that was taught. Consistent with remarks from an Annie's Project alumna in video 10, Patricia would have liked a "little more in depth session(s)" (p. 5, line 175). Rhonda had a similar response:

> I wanted more meat. I wanted more specific things. (p. 3, line 112)…
>
> There was one lady that kind of, one participant that kind of took over
>
> and wanted a lot of personal help and the rest of us kind of sat sometimes.
>
> I think being a teacher too, you gotta make sure everybody has got something
>
> to do and getting their expectations fulfilled. (p. 3, lines 113-116)

Others felt too many topics were covered in the time frame that was allowed for the class, which may have contributed to concerns about the lack of depth.

A commonality among all the suggestions for improvements was the desire to keep learning. They want to learn everything they can, whether it is from each other or from a class. Their hunger for knowledge and information is a signal for educators to take notice. Going forward, these missed opportunities could be used as a guide in developing programs to meet the educational needs of women who farm. I discuss additional recommendations for the future of Annie's Project in the next chapter.

Summary

In Chapter 4, I described the case study and presented the themes that emerged from the interviews and document analysis. Three themes described how participants experienced Annie's Project and how it met the educational needs of those women who farm. The themes were finding agency, finding voice, and improving relationships. I also identified four missed opportunities that translate into potential suggestions to improve the Annie's Project program.

In the next chapter, I discuss how the findings relate to the research questions of this study and the logic model. Additionally, I identify implications for research and practice, and draw conclusions.

CHAPTER FIVE

Conclusion

I became interested in Annie's Project over a decade ago. I was a newly married farm wife and had started my career with MU Extension. The program appealed to me because I was aware of a lack of educational opportunities for women who farm and was interested in the women-only aspect of the program. In 2005, I became an Annie's Project instructor. For several years, I have been interested in conducting a thorough evaluation of Annie's Project. The primary form of evaluation occurs immediately after an Annie's Project program. Each participant is asked to complete an evaluation that focused on learning, particularly the knowledge gained in five areas of risk management. A few long-term evaluations have been conducted, but they mainly focused on knowledge acquisition and retention. I wanted to go beyond what the women learned during the course. I wanted to know why the women participated in Annie's Project, what they were doing with the information they learned, how it influenced their farming operations, how it may have changed family dynamics, and did it really empower them to become better business partners and managers.

In this chapter, I provide a brief study overview, followed by a discussion of my findings as they relate to the research questions, theoretical framework, and program logic model. Specifically, this chapter presents the outcomes for the logic model that I presented in Chapter 1. Additionally, in light of the outcomes, I present recommendations for future research and practice. I also provide a personal reflection of the research. Lastly, I summarize my findings and conclude the study.

Overview of the Study

The purpose of this qualitative intrinsic case study was to evaluate the effectiveness of Annie's Project in meeting the educational needs, beyond knowledge acquisition, of farm women. Two questions guided this study:

1. How does Annie's Project influence the experiences of farm women who participate in its training?
2. What factors contribute to farm women's participation in the program?

Eighteen past Annie's Project participants in Missouri, Iowa, and Illinois comprised the sample population. I collected data by conducting interviews, and reviewing documents and audiovisual materials. I collected additional data through field notes and a research journal.

I analyzed the data through a close reading of the transcripts, documents, and audiovisual materials and coded them, developing themes and descriptions, and creating the case by representing the findings in narrative and tables. Lastly, I used several strategies to ensure the quality of data and data analysis including triangulating data, conducting member checking, using peer review, and clarifying my bias.

Three themes emerged from the data: (a) finding voice, (b) finding agency, and (c) improving relationships. There are some similarities between these themes, particularly with finding voice and finding agency. This stands to reason because when people find their voice, they often find agency.

As a reminder, I used Liepins and Schick's (1998) framework, which was extended by Trauger et al. (2008), to evaluate the effectiveness of Annie's Project in meeting the educational needs of women who farm. Liepins and Schick (1998) proposed that seriality and agency would support a theoretically robust analysis of gender and education in agricultural training. Their

framework involved a detailed study of a program using the tools of seriality and agency to analyze the four aspects of training: contexts, operations, participation, and outcomes. Trauger et al. (2008) expanded upon the conceptual tools suggested by Liepins and Schick (1998); they introduced the concept of intersectionality with serality and social networks with agency. Figure 1 illustrates Liepins and Schick's adapted framework.

Figure 1. Framework for a gendered analysis of Annie's Project

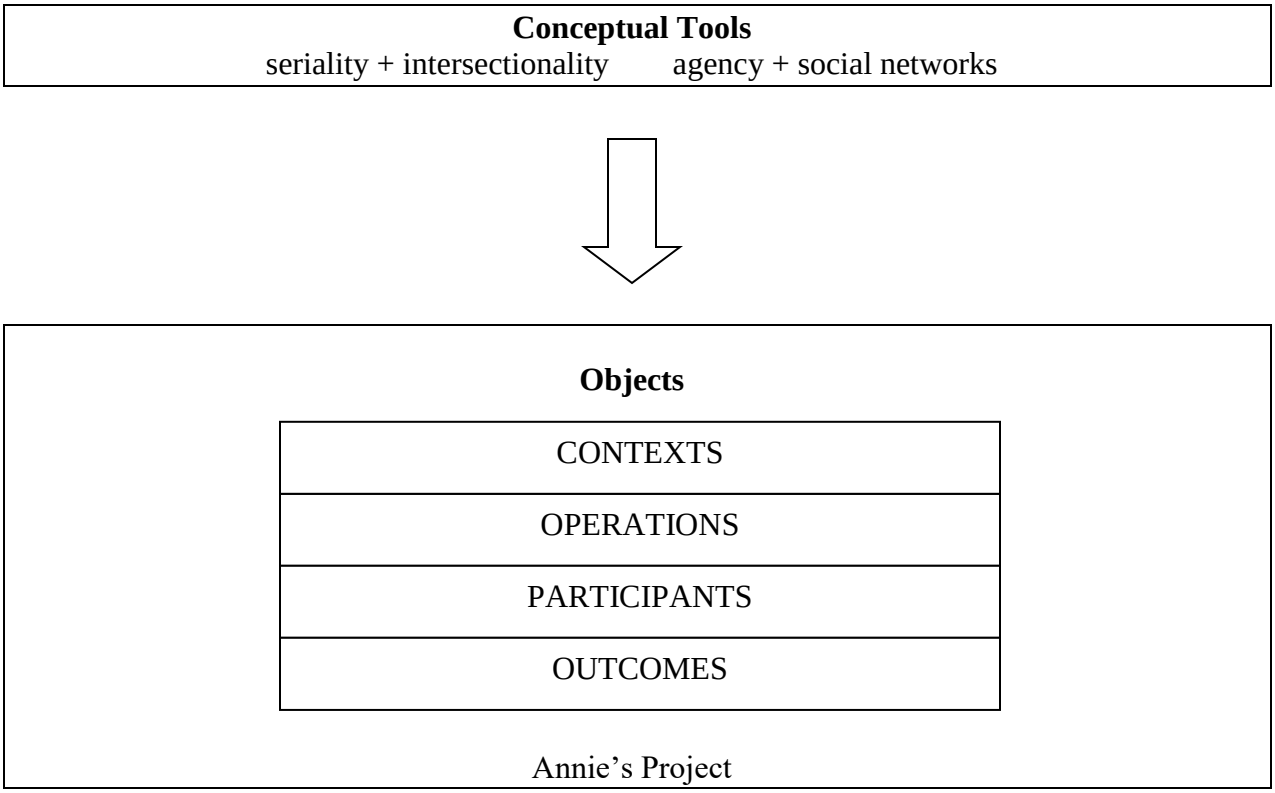


Figure 1. A framework for a gendered analysis of agricultural education. Adapted from "Gender and education: Towards a framework for a critical analysis of agricultural training," by R. Liepins and R. Schick, 1998, *Sociologia Ruralis, 38*(3), p. 294. Copyright 1998 by John Wiley and Sons.

The contextual issues around Annie's Project hinge on the fact that women who farm have a critical need for agricultural educational programs. Adherence with traditional patriarchal inheritance practices has led to farm knowledge and expertise being passed from man to man (Heggem, 2014), leaving women ill-prepared to run and manage a farm. To date, women who farm are becoming more visible as they have significant ownership, management, employment,

and influence on U.S. farms (Clayton, 2009; Cocheo, 2007; Doering, 2013; McCammon, 2012; Runyon, 2014). This is leading women to pursue agricultural training (Leckie, 1996), which has been underserved by traditional models of agricultural education and training (Liepins & Schick, 1998; Ogawa, 2004; Rivera & Corning, 1990; Trauger et al., 2008; Trauger et al., 2010). Annie's Project has broken the traditional model of agricultural training by being a program designed strictly for women, whose mission is to empower women to manage risks in their farming operation along with providing them with a strong social network.

The operations of Annie's Project are based around a set curriculum and methodology for teaching. The Annie's Project curriculum focuses on the five areas of risk management, incorporates hands-on activities, and allows time for discussion and networking. This networking and discussion time is extremely important because it provides an opportunity to share information and build trust. In turn, this helps participants to build agency (Trauger et al., 2008).

The participants in Annie's Project are of all ages and experience levels, as confirmed by the demographics in this study. This diversity allows women to develop a wide network of women farmers who enhance their learning environment and experiences. As women embrace growing roles on the farm, they desire educational opportunities that meet their growing needs and changing identities.

The last aspect, outcomes, is the most relevant to this study's research questions. In the program logic model, four objectives are listed in the outcome conditions. The objectives are that as a result of Annie's Project women farmers and ranchers would: be empowered to become better business partners and owners by managing agricultural risk to bring greater financial security and well-being to their families, seek additional education, have increased satisfaction with their farm or ranch role and/or lifestyle, and contribute to rural communities. From the

discussion below, it is clear that the outcomes of Annie's Project found through my study are consistent with Annie's Project's intended outcomes. However, my findings provide a more nuanced understanding of the outcomes for those who participated in this study and the data that were triangulated with my interviews.

Influences of Annie's Project

In my study, I discerned there were multiple ways that Annie's Project influenced the experiences of the women who participated in its training. I will describe those ways by considering seriality and intersectionality, along with agency and networks.

Seriality and Intersectionality

For women farmers, multiple identity locations shape women's involvement in agriculture and how others perceive them (Trauger et al., 2008), which is consistent with notions of how women learn best (Belenky et al., 1986). Gender identities and other mutually constitutive systems intersect to define women's position in agriculture (Trauger et al., 2008). For example, age, class, martial status, and sexuality work together to shape who is perceived as and who self-identifies as farmer, and who identifies as a farm wife (Trauger et al., 2008). Women belong to different groups or collectives over time. For instance, the women in this study who are married may identify themselves as farm wives or farm partners, while those who are widowed or divorced may identify themselves with other independent women farmers (Trauger et al., 2008).

Usually when women have attempted to assert the identity of the *traditional* farmer, their legitimacy and ability has been challenged (Alston, 2000; Leckie, 1996; Pini, 2005; Trauger, 2001). Before women can address challenges and change agricultural discourses, they have to change the way they view themselves (Alston, 2003). Women must have the confidence to

declare they are *farmers* too, not just *farm wives* but genuine business partners working for the good of their farming operations (Alston, 2003).

The findings of this study show that Annie's Project has empowered women who farm to find their voice and agency. Participating in Annie's Project enabled these women to feel more confident and become more involved in the farm and agricultural community. Participants changed as a result of their participation in Annie's Project. Overwhelmingly, participants expressed more self-confidence to speak up and express their thoughts, not only in class situations but also in their farming operations, business dealings, and in their communities.

My study is consistent with previous research that found farming women's identities change over time (Alston, 2003; Trauger et al., 2008). Annie's Project helped women realize their potential, reminded them of the importance of their role in agriculture, and helped them change the way they view themselves and their role on the farm. Annie's Project helped women who farm find their voice on the farm, a sense of belonging, and a realization that they are farmers too (Alston, 2003).

Stereotypical ideologies about what women can and cannot do have been robust and embedded in agriculture (Heggem, 2014; Keller, 2014; Staudt, 1990; Trauger, 2004; Trauger et al., 2008). Stereotyping of a woman's farm role starts at an early age by adults who believe there are innate differences that influence a girl's ability to become a farmer (Heggem, 2014; Leckie, 1996). Thus, it is not surprising that others who interacted with Annie's participants were taken aback when they began to engage in farm roles that challenged stereotypes. For example, Blanche's husband was impressed that she was comfortable and willing to volunteer to bale the hay of a neighbor. As he became more comfortable with her increased confidence, he yielded to her expertise in other aspects of the farm, specifically with livestock. Many participants indicated

that they enjoyed taking care of livestock; however, as with Blanche, it did not preclude their ability to operate machinery. To challenge preconceived notions about their legitimacy as farmers, women need to feel confident in their abilities to handle the physical aspects, as well as the business aspects, of farming. As a result of Annie's Project, participants felt more agentic and able to make decisions and consider other life choices, even when gender norms are restrictive (Klumberg et al., 2014).

During the interviews, participants discussed their desire to have the farm passed on to their children. Women often have a strong sense of emotional connection to the farm, and feel strongly about being good stewards of the land, as well as passing the land to future generations (Cassidy & McGrath, 2014; Doering, 2013; McCammon, 2012). Similarly, Kathy mentioned her daughters and their desire to farm. She stressed that she wants them to know that being women does not preclude them from opportunities and successes in farming. Kathy's statement challenges the notion that young women frequently face additional obstacles in farming, whereas they face not only gender stereotyping but age stereotyping as well (Cassidy & McGrath, 2014; Heggem, 2014; Pilgeram, 2007; Schmitt, 1998). Programs like Annie's Project can assist women farmers, and indirectly future generations of women farmers, in meeting their educational needs in all stages of their farming identities.

Agency and Networks

Education is powerful and provides individuals with a greater sense of control over their lives. Education transforms and liberates, thus legitimizing the value and potential contribution of oppressed groups to a changed social system (Freire, as cited in Trauger et al., 2010). Scholars have shown how gender influences the transfer of agriculture information and knowledge in a family farming operation (Heggem, 2014; Leckie, 1996; Pini, 2005; Pini, 2007; Shortall, 1996;

Shortall, 2003). Often women are ill-prepared to face the task of running and managing a farm (Leckie, 1996). Prior to Annie's Project, this was the case with participants in my study, especially Sarah and widowed Patricia. Both women inherited farms and were ill-prepared to manage them. By participating in Annie's Project, Sarah, Patricia, and others described an increased confidence and ability to act as agents in shaping their role on the farm (Shortall, 2006; Trauger, 2001).

Some participants were in situations like Sarah and Patricia, and others sought knowledge as way to improve themselves and assert their worth to the farm. In particular, knowledge gained through Annie's Project served as a form of protection. Participants saw knowledge as power, which made them less vulnerable to being taken advantage of because they were women. Further, the knowledge gained through Annie's Project empowered women in their decision-making and helped inspire action by getting more involved in their farming operations.

As women felt more confident, they were more likely to be unafraid to try new farming methods and learn new skills. Farming is changing and it appears that technology is one of the change agents. Technology has come full circle and is now a contributing factor to women becoming more involved in the production side of agriculture. In Chapter 2, I discussed how the invention of the plough was a turning point for women in agriculture. Previously, women were in charge of the fields and gardens but the plough required more body strength ("The Plough", 2011). With more advances in technology, farmers became dependent upon machinery; yet, physical strength was still the ruling factor in farming. Women's participation was regulated in part due to assumptions about women's physicality. Now technology has advanced to the point where physicality is no longer a factor. The playing field has leveled, and the skills to be a successful farmer have changed (Runyon, 2014). With technological advances, and increased

confidence in their abilities because of Annie's Project, participants felt few constraints as women farmers. Consistent with Micik's (2011) article, advances in technology are opening doors for women and farming is now seen as a viable career choice.

Programs targeted at women are essential because they provide mentoring, networking, and camaraderie for women (Rissing, 2013). Networks are particularly important for women farmers (Shortall, 1996; Trauger et al., 2008). Networks can provide opportunities for women to build trust, share information, and build agency (Trauger et al., 2008). For those women in my study, Annie's Project facilitated new networks and the majority of participants mentioned their value, particularly networks with other women. Although I anticipated that might be an outcome, I was surprised at how often it was mentioned by participants.

As with findings from previous research (Annes & Wright, 2015; Trauger et al., 2008), participants had peers and a place to share difficulties and mitigate isolation in being involved in agriculture. The majority of participants desired interactions with other like-minded women who were going through similar problems and challenges. The network became an opportunity to develop relationships that served as a support system. The women supported and mentored each other by sharing their innate knowledge and life experiences. In this way, they also empowered each other and built agency. Not only did women have networks while they participated in Annie's Project, those relationships and friendships they found in Annie's Project continued even after the classes ended.

Agriculture is a unique occupation in which a person's personal and business lives are often intertwined. Family farms can have multiple generations involved in them, and a separation of family and work is nearly impossible. Also, relationships with lenders, attorneys, seed companies, and equipment dealerships are often life long, if not multi-generational. Overall,

relationships are a big part of a farming operation. Thus, it was not surprising that participants discussed the importance of relationships. However, their experiences with Annie's Project fostered improved relationships and enhanced networks. Participants indicated an improved relationship with husbands, children, parents, extended family, and in-laws, as well farm advisors.

According to participants, the relationships that changed the most were the spousal relationship. They described improved communication, involvement in decision making, and feeling like a full partner. After Annie's Project, participants became involved players in the farm. They were no longer just informed about the farm, but they expressed opinions and helped to make decisions; this is another way they increased their agency as a result of participating in Annie's Project.

Although improving relationships was an outcome in my findings, beyond the literature about establishing networks discussed previously, there is little scholarly literature related to farm women on the subject. Scholars have found that families are important in breaking patriarchal traditions (Micik, 2011) and are the most critical factor women need to move beyond gendered farming roles (Alston, 2000; Beach, 2013). Another study, by Beach (2013), looks at farmer's views on women. Findings from my study provide additional evidence about the value of familial relationships in supporting women's farming self-efficacy, confidence, and agency.

Despite some research that points to changes in the masculine architecture of agriculture (Alston, 2000; Beach, 2013; Micik, 2011), the traditional patriarchal structure is deeply embedded in agriculture and sweeping change will take time (Shortall, 2014). Although Annie's Project made room for women to enter these traditional structures, the men in most participants' lives still had a strong hold on the family farm. For example, Kathy was extremely passionate

about agriculture, and was involved in all aspects of the farm, perhaps the most involved of any of the participants. However, she reported that her husband had the final say in decisions related to farm management. As in Annes and Wright's (2015) study, the women's involvement in the farm was contingent upon mens' approval. Thus, "developing a sense of agency does not necessarily lead to loosening patriarchal structures" (Nazeen et al., as cited in Annes & Wright, 2015, p. 9). In all, farming is still largely a man's domain, but there is a movement toward equity. I found it propitious that spouses welcomed the involvement and input. Perhaps this is an indication of a shift in the traditional patriarchal views of farming. Participants credited Annie's Project, in part, for equipping them with the skills they need to become an equitable partner in the farm.

Participation in the Program

In this study, there were two main factors that contributed toward women's participation in Annie's Project: to gain knowledge and to be in a women-only program. Next, I consider the factors in relation to Trauger et al.'s (2008) concepts of seriality and intersectionality and agency and social networks.

Seriality and Intersectionality

Women still face negative stereotypes and biases in fields that are historically masculine (Deutsch, 2007; Heilman & Eagly, 2008; Heilman et al., 2004; Ibarra et al., 2013; Pilgeram, 2007; Schmitt, 1998). As stated earlier, the stereotypical ideologies about women's competence are deeply embedded and visible in agriculture (Heggem, 2014; Staudt, 1990). Women who farm have different backgrounds, involvement levels in the farm, challenges, experiences, and lifestyles. In addition, other aspects of their identities including race, gender, class, spiritual beliefs, and geopolitical location coincide with each other (Crenshaw, 1989; Fletcher, 2016;

Reynolds, 2015). Hence, their identities are intertwined with other identities, such as farmer, farm wife, or farm woman (Brandth, 2002; Trauger et al., 2008). When these different identities are taken together, they render individuals differentially oppressed. For instance, women's experiences in urban agriculture are different than experiences in rural agriculture. Moreover, the intersection of race and gender or gender and nationality lead to very different experiences. Although women experience sexism in distinct ways regardless of race or nationality, the set of domination characteristics that influence a woman's life as a farmer in Zimbabwe or Bolivia are different than the set of domination characteristics that influence a woman's life as farmer in America (Fletcher, 2016).

Congues (2015) contends the terms "women who farm" denotes intersectionality. I would add that "farm women" denotes it as well. The term "women" represents being female in a patriarchal society and women are rendered invisible within the term and image of "farmer," along with their work and contribution in agriculture (Congues, 2015). This invisibility leaves women marginalized from receiving knowledge and being involved with decision-making on the farm (Cassidy & McGrath, 2014; Heggem, 2014; Leckie, 1996). Consequently, this leads to farm knowledge and expertise being passed from man to man (Heggem, 2014).

As substantiated by my findings, women's role in farming is often shaped by inheritance and their entry to farming (Shortall, 2003). Often, women are unprepared to operate and manage a farm due to a lack of knowledge (Leckie, 1996). Thus, adult learning is the most relevant form of education for them (Clayton, 2009: Cocheo, 2007; Doering, 2013; McCammon, 2012; Shortall, 2003). The need for knowledge led study participants to Annie's Project. Research has shown that women often have different educational needs based on their personal history and knowledge base; this was reflective of participants in my study (Trauger et al., 2008). Although

educational needs and histories differed, all participants described a thirst for knowledge, to learn, and to keep learning. This desire to learn was at the heart of why many of them participated in Annie's Project.

Agency and Networks

Women with more education experience fewer constraints to their agency, and greater autonomy (Klugman et al., 2014). In general, education is a basic requirement for women to empower themselves and transform their lives (Brooks, 2002; Deka & Borbora, 2017; Meizrow, 1978). However, the formation of networks is equally important for empowerment (Annes & Wright, 2015). English and Irving (2012) stressed the importance of relationships as part of transformative learning. Women enjoy being with other like-minded women (Annes & Wright, 2015; Shortall, 1996). These relationships, or networks, allow women to share information, experiences, encouragement, and knowledge (Annes & Wright, 2015; Brooks, 2002; Shortall, 1996; Trauger et al., 2008). This in turn, gives women the opportunity to build agency, claim their voice, and transform their learning and lives (Brooks, 2002; Loughlin, as cited in Brooks, 2002; Trauger et al., 2008).

The scholarly literature on gender and learning is divided, particularly on the advantages of single sex/single gender education (Eliot, 2011; Halpern et al., 2011; Hayes, 2001; Mael, et al., 2005; Karpiak et al., 2007; Kaufmann, 2007; Sax, 2006). Despite the inconsistencies in extant research, my findings overwhelmingly supported the theory that women respond to women-only learning environments. In fact, my findings showed that a women-only classroom environment was one of the main factors contributing toward their participation in Annie's Project. Several of the interview participants mentioned feeling intimidated by men being around in educational settings and were not comfortable asking questions at meetings when men were

present. McGivney (1993) and Shortall (1996) stated one of the strongest arguments for women-only programs/classrooms was the preference of the participants. Consistent with this, participants shared that they enjoyed being around other farm women, felt more comfortable and gained confidence in asking questions, and were able to learn more in this setting versus a traditional co-educational classroom setting (Belenky et al., 1986; Crawford & MacLeod; 1990; Hayes et al., 2002). This safe harbor setting allowed women to learn in a stress free and open environment. Furthermore, as demonstrated in my findings, this led women to have more confidence and agency in making farm decisions, asserting themselves with their families, partners, and farm advisors, and building a social network with other women who farm. Thus becoming full partners in their farming lives. My findings indicate that a women-only environment, like Annie's Project, is the preferred educational environment for these farm women.

Recommendations for Further Research

During my interviews, I noticed a difference between the younger women and older women. Not only did more of the younger women experience more sexism (or were at least more willing to discuss it), but they were often generally more open in the interviews and readily viewed themselves as farm partners. Additionally, they thought of farming as an occupation more than a way of life. Given these findings, more research is needed to understand the generational differences of farm women and generational experiences shape women's views on farming and their participation in agriculture.

As agriculture changes, there will be further changes with family farms. It would be valuable to research these changes and the influences on patriarchal farming. For example, studies are needed to examine women who return to the farm to be the primary farmer. Another

study could explore the experiences of women who are taking over the family farm operation and how technology assists them in doing so.

My study is limited by its inclusion of only three states. It would be beneficial to expand the study to other states to see if similar themes emerged or if new information about Annie's Project and its influence were discovered. Additionally, it would be of interest to follow this study's participants for another 10 years to see if the same themes reemerged in a follow up study.

Recommendations for Practice

The strongest factor that led participants to Annie's Project was to learn. The desire to learn is strong with these participants, and they are interested in any opportunity to do so. This study has shown that Annie's Project is effective in meeting many of the educational needs for farm women. However, as with anything, there is room for improvement and change. During the interviews, participants highlighted time frame, frequency, location, and content as programmatic aspects that could be improved.

Annie's Project is an 18-hour course, usually covered in a span of 6 weeks. Participants often felt overwhelmed by the variety of topics. There is so much information being shared, and it is hard to absorb it all in the 6-week setting. In the study, participants desired additional education to refresh what they learned in the class. One participant even indicated that she would go once a year if it was offered. A refresher course, or even a shortened version for returning participants, would be helpful in the continuing education of farm women. Additionally, it would reinforce the network the participants created during Annie's Project.

Interview participations wanted Annie's Project to be offered in more locations. Many had to drive a considerable distance to get to a course and felt more women would participate if

distance were less of a factor. University Extension faculty and staff conduct most Annie's Project courses. Those individuals have other programs and teaching responsibilities; thus, there are constraints on the amount of time they have to devote to a particular program. Another issue is that some University Extension faculty and staff members are not interested in conducting Annie's Project. To be able to grow the number of locations, the number of trained instructors needs to increase. This could be achieved by partnering with an organization outside of University Extension that could assist in the marketing and facilitating of courses. It is also important for University administrators to recognize the need and value of this program and other programs for farm women. If the need is recognized, perhaps a greater emphasis would be placed on identifying more instructors to deliver the program. For example, instructors could receive an incentive, or push, to be trained to teach the course. Another opportunity may exist in training former participants of Annie's Project to deliver the program. Women love to learn from each other, and often participants learn as much from each other as they do from the class instructors. An opportunity to train former participants to deliver the content and share their personal experiences could be an invaluable contribution to the Annie's Project program.

Annie's Project covers a variety of topics in the 18 hours of class. Some of the participants felt that the class was too basic, and wanted more in-depth coverage of topics. Several states are already doing Level II courses that focus on a single topic, such as marketing or estate planning. I recommend that instructors offer Level II courses, as well as educational opportunities beyond traditional gendered farm management tasks, such as hands-on opportunities for women to learn about technology, handling livestock, driving farm machinery, and maintaining equipment.

The preference for women-only classrooms in my findings did not come as a surprise. It is something that I have witnessed in the classes that I have taught. In traditional co-educational workshops and classroom settings, I have noticed a tendency for women to stay silent. Usually they come with a spouse or partner, and often let that person do the talking while they take notes or just listen. I often wonder if women stay silent due to feeling intimidated or because they feel if they speak up it will be detracting from their spouse or partner who is considered to be 'the farmer.' Regardless, I have noticed women do ask more questions when they are with other women. They seem comfortable with what they do not know and encouraged to ask questions and participate in class conversations. They appear to trust each other and find encouragement in learning new things.

The women-only environment is a major strength of the program, and the participants in my study responded to it favorably. In fact, many preferred women-only programs over traditional agricultural programs. My findings, personal experiences, and literature make the case for maintaining women-only educational spaces, particularly within masculine fields like agriculture. In addition, educators need to be aware of this and offer women a choice between women-only and co-educational opportunities beyond the Annie's Project classes. This would provide comfortable and engaging learning environments, as well as more opportunities to network with other farm women.

This study confirmed the importance of the networking aspect of Annie's Project. Farm women participants expressed the value of getting together with other farm women, and they learned as much from each other as they did from educators. I believe more networking time should be incorporated in Annie's Project. I also think this highlights the need for networking

opportunities after the course is completed. This could be accomplished through informal meetings, socials, conferences, or clubs.

A few participants were interested in attending an Annie's Project course that would be customized to their needs—for instance, a landowner-only course, a course for widows, a course for new farmers. Although the logistics of customizing a class would be difficult, the idea has merit. These customized classes may not need to be a full Annie's Project 18-hour course; although, the current structure of Annie's Project provides the benefit of networking with women from different backgrounds and experiences.

Trauger et al. (2008) found that women desire education on a variety of agriculturally related topics. They recommend that educators need to think broadly when developing new curricula and programs for farm women. My findings also support this. The women who participated in Annie's Project found their voice and agency—traits that may have been hidden or repressed prior to the program. Thus, I recommend that voice and agency be further reinforced by involving farm women in the discussion of what they need and what would be helpful as part of agricultural education. Often, educators think they know what information or knowledge is needed. That may not accurately reflect what an audience's needs really are, and can be self-defeating of the overall purpose of education.

Lastly, any negatives that were mentioned by participants were more focused on their experiences with a poor facilitator. To me, this strengthens the need for APEFW to maintain a strong facilitator/instructor training program. The APEFW board needs to consider ways to evaluate program facilitators and possibly require vetting by state coordinators. Diversity training should be added to the facilitator training program to ensure that all facilitators and instructors are appropriate in their examples and interactions with participants. For instance,

facilitators should try to avoid heteronormative examples, or at least provide other examples to speak to women who may not be/have been partnered with a man. In addition, diversity training may create more inclusive environments that may attract farm women with more racial and ethnic diversity.

Researcher Reflections

In this study, I wanted to go beyond knowledge acquisition, which is already addressed in other evaluations of Annie's Project, and learn about the additional aspects that shaped participants' experiences and involvement in Annie's Project. Despite my desire, I believed that knowledge acquisition would be one of the major themes of the study. That preconceived thought was based on all of the Annie's Project class evaluations I have received, the RISE data, and Missouri Annie's Project survey data. Thus, I was surprised that finding voice and agency were the predominant themes. When women reflected on the program, they remembered more about the way it made them feel rather than what they learned. Moreover, feelings should not be disconnected from knowing, as both were relevant for the participants. Although it is beyond the scope of this study, I wonder whether knowledge acquisition would even be possible without being accompanied by emotional knowing. In addition to mastering the content, the participants shared the feelings of confidence and empowerment they felt as a result of Annie's Project. During the interviews, many of the women reported already having the content knowledge from Annie's Project curriculum prior to participating in Annie's Project; they just needed validation in their actions, and affirmation in their abilities and decision making. That was very powerful for me as an interviewer and as an Annie's Project instructor. To me, it is a reminder of how women, like those in this study, might need an emotional support network. Based upon my

findings, women, especially those in a man-dominated industry such as farming, benefited from the camaraderie and insights of other women.

I was surprised at the number of women who were taking care of the livestock on their farms. Women are usually considered to be the more nurturing gender, and often have a better demeanor with animals (Heggem, 2014; Pilgeram, 2007). Many of the study participants made all of the decisions regarding the livestock. Those decisions included breeding, rations, culling, purchasing bulls, and selling animals, tasks that are often perceived as masculine, suggesting a crack in the grass ceiling.

When I posed the question: "What challenges have you experienced being a woman in agriculture" during the interviews. I expected more of the responses to focus on gender challenges, but only five of the participants talked about experiencing challenges related to their gender. The majority of those who mentioned gender were the younger participants. The older women did not express any gender-related challenges, at least none that had to do with being woman in agriculture. Perhaps this finding can be understood by realizing that the older women have been in farming longer and thus are more deeply socialized into the "traditional" gender norms in farming. For example, Brandth (2002) and Shortall (2014) found that farm women seem to accept the patriarchy and the idea that farming is a central part of man's identity. Women and men do gender identity and work identity in a way that allows for the family farm discourse to persist (Shortall, 2014), and perhaps younger generations are more willing to challenge this discourse, or have not been socialized into the masculine farming culture long enough to think otherwise.

This study has changed my mind on the single gender learning debate. Before I was on the fence and could see strength in arguments for and against single gender classrooms.

However, this study has led me to believe that, at least in some contexts like Annie's Project, women do benefit from a single gender learning environment. My findings showed that the women who participated in the study greatly benefited from the opportunity to discuss issues, ask questions, and network with other women.

Summary and Conclusion

In summary, I used Liepins and Schick's (1998) framework, upon which Trauger et al. (2008) expanded, to evaluate the effectiveness of Annie's Project in meeting the educational needs of farm women. The framework involved a detailed study of a program using the tools of intersectionality with seriality and social networks with agency to analyze the four aspects of training: contexts, operations, participation, and outcomes. Overall, findings from this study show Annie's Project is accomplishing what it set out to do in the program logic model.

In presenting the outcomes by answering the research questions, I identified multiple ways participants experienced Annie's Project and how it met the educational needs of those participants. These findings are consistent with the proposed outcomes from the logic model provided by Annie's Project. Annie's Project helped participants find their voice with their partners on their farms. They also expressed feeling more agency due to a growth in confidence, which influenced their decision-making and actions. The findings reflected, in part, the program logic model's long term outcome of women farmers and ranchers feeling empowered to become better business partners and owners by managing agricultural risk to bring greater financial security and well-being to their families. While participants did not discuss the financial aspects of their farm, they did discuss feeling empowered to become involved in the farm decision-making.

Annie's Project also motivated women to seek other educational opportunities. Many of the participants went on to enroll in Annie's Project level 2 courses, as well as participate in other farm management programs. This addressed the program logic model's long term outcome of women farmers and ranchers seeking additional education.

Participants reported improved relationships with others as a result of their Annie's Project involvement. The relationship changes involved their spouses, along with other family members, farm partners, and farm advisors. Participants discussed increased communication, involvement in farm decisions, and strengthened relationships with family members. In this way, participation in Annie's Project has increased satisfaction with the participants' farm or ranch role and/or lifestyle.

Several participants have become advocates for agriculture; they speak about their farm and farming practices to consumers. Others have become involved in local boards and organizations. This involvement addresses another one of the long-term outcomes in the Annie's Project program logic model, which is after participation in Annie's Project women farmers and ranchers contribute to rural communities.

Altogether, Annie's Project has been a catalyst in empowering the farm women in this study to become more involved in their farming operations and in the agriculture industry. This study looked at farm women over a period of time, from their completion of Annie's Project in 2010 until 2016. Therefore, these findings are more longitudinal than the evaluations the participants completed at the end of the Annie's Project course and offer evidence of long term influence of the program.

By using Liepins and Schick's (1998) framework, which was extended by Trauger et al. (2008), the tools of intersectionality with seriality and social networks with agency demonstrated

the effectiveness of Annie's Project in meeting the educational needs of farm women. In addition, it highlighted other outcomes that are related, but not explicit in the Annie's Project long-term outcomes. This study supports the research that found that women respond well to women only programs, that a network of other women is an invaluable resource, and that education empowers women. In particular, the study highlights the role education has on a women's voice and agency, which confirms that education is a powerful tool that can transform people's lives.

Additionally, this study's findings substantiated the need for assisting women in all stages of their farming identities so they can be an equitable partner or the farmer in their farming operation. As we move forward, there will continue to be more women on the farm, either through inheritance or by occupational choice (Doering, 2013; Runyon, 2014). Advances in technology will, and have had influenced the skill set needed to be a farmer (Runyon, 2014). As women assume the role of *farmer* and patriarchal traditions continue to change, there will be more demand for educational programs that address the needs of farm women.

Therefore, more programs need to be developed and a learning culture needs to be established that better serves farm women. Annie's Project, coupled with the implications from this study, can serve as a guide for the development of future programming. In the future, educators need to be aware of farm women's educational needs and changing roles. In programming, they need to consider the powerful connection between knowledge acquisition and emotion. Curricula need to be developed that are more in-depth, offer hands-on learning opportunities, have ample networking time, and extend beyond traditional gendered roles and norms. By addressing these needs, educators can help farm women learn and thrive in a complex

business, by remaining economically viable, enhancing conservation of their farms, improving gender equity, and sustaining generational farming.

Appendix A

WAIVER OF DOCUMENTATION OF CONSENT

INVESTIGATOR'S NAME: KARISHA DEVLIN
PROJECT # 2005097

STUDY TITLE: MEETING THE EDUCATIONAL NEEDS OF FARM WOMEN: A CASE STUDY OF ANNIE'S PROJECT

1. I would like to ask you to participate in a study that involves research.
2. Participation is voluntary and your decision not to participate will not involve any penalty or loss of benefits.
3. For this study, I will be conducting interviews with 15 former Annie's Project participants from Iowa, Illinois, and Missouri. The interviews will be 1-2 hours in length and will take place in a mutually agreed upon location or by telephone.
4. The purpose of our study is to evaluate the effectiveness of Annie's Project in meeting the educational needs of farm women.
5. We are asking approximately 15 subjects to participate in this study.
6. The study staff may withdraw you from the study at any time after explaining to you the reason for withdrawal.
7. While on the study, there are no anticipated risks for you as a participant.
8. If you agree to take part in this study, there are no external benefits to your participation. However, you may feel some satisfaction for helping to contribute to the literature and research on the education of farm women.
9. If you choose to participate, you may decline to answer any of the interview questions if you so wish. Further, you may decide to withdraw from this study at any time without any negative consequences by advising the researcher. With your permission, the interview will be tape-recorded to facilitate collection of information, and later transcribed for analysis. Shortly after the interview has been completed, I will send you a copy of the transcript to give you an opportunity to confirm the accuracy of our conversation and to add or clarify any points that you wish. All information you provide is considered completely confidential. Your name will not appear in my dissertation or any report resulting from this study, however, with your permission anonymous quotations may be used. Data collected during this study will be retained in a locked filing cabinet at my home. Only I will have access to this information.
10. There is no compensation given to you for participation in this study.
11. If you have any questions regarding your rights as a participant in this research and/or concerns about the study, or if you feel under any pressure to enroll or to continue to participate in this study, you may contact the University of Missouri Health Sciences Institutional Review Board (which is a group of people who review the research studies to protect participants' rights) at (573) 882-9585.
12. If you have any problems or questions, you may contact Karisha Devlin at 660-216-4008.
13. I would be happy to answer any questions that you may have.
14. A copy of this script will be given to you to keep. If a telephone interview is used, the script will be emailed to you.
15. If we are unable to get through the interview questions in the allotted time frame, a follow-up interview may be scheduled. The follow-up interview would last no more than 1 hour.

Appendix B

Farm Women Interview Guide

1. What is your involvement/role on the farm?

2. Describe the farm tasks you do and responsibilities that you have on the farm?

    a. Who does the marketing on your farm? Who sells the products (grain or livestock)?
    b. What is your role? Are you involved in the production or financial (or both) aspect of the farm? How did you get involved in that aspect of the farm? How long have you had that role?
    c. Who makes risk management decisions (crop/livestock insurance, farm liability/policy insurance, legal/leases)?

3. Who is involved in farm decision making and management? How are you involved in those decisions? Tell me about a time when you were involved in a farm decision.
    a. Do you feel more qualified to make farm management decisions? How so or why not?

4. What challenges have you experienced as a woman in agriculture?

5. What prompted your participation in Annie's Project?
    a. How did the program appeal to you?

6. What were your expectations prior to the program?

7. What were your thoughts while you were attending the program?

8. What have you learned from the program?

9. How did participation in Annie's Project change your involvement in your farming operation and your rural community?

10. How is your family life any different as a result of class participation?

11. Describe your interaction with farm partners and/or advisors (lenders, accountants, attorneys, seed companies, input suppliers, extension) as a result of class participation?

12. What changes in behavior are a result of class participation? OR What do you do now that you didn't do before your participation in the program?

13. How, if any, has the farm changed since your participation in the program?

14. How, if any, has the program changed your feelings about yourself?

15. If you could change one thing about the program, what would it be?

Appendix C

Demographics - Annie's Project

Name (pseudonym):

Age _____

Did you grow up on a farm? Yes No

Education: Some High-School High-School/GED Some College College Graduate

Graduate and/or Professional Degree

Work: On farm Off farm

Married/Partner Single Divorced Widowed

Number of children _____

Acreage farmed _____

Years farming _____

Type of Operation: Grain Livestock Value-Added

Organic Other _____

Form of business structure:

Sole-owner Partnership S-corp or Corp Limited Liability Company Other_____

Family members involved in farming operation:

Children In-laws Father Brother/Sister Extended family

Educational opportunities since attending Annie's Project: _____
_____

Appendix D
Annie's Project Logic Model

Situation→	**Inputs→**	**Activities→**
Opportunity 1. Farm Women: a) Have significant ownership, management, employment, and influence on US farms. 2. Educators: a) Can impact agriculture through targeted education to women. Challenge 1. Farm Women: a) Have a critical need for educational programs designed to empower them to manage risks, enhance the financial viability of their farms, plan for generational succession, and improve conservation practices. b) Can be more efficient and effective with fewer resources when they collaborate to build capacity and deliver programs.	What we invest A. Organizational experience: a) University of Missouri Extension; b) Annie's Project Education for Farm Women (APEFW); and c) Network of educators serving farm women in other states. B. Delivery Partnerships: a) Internal to University of Missouri such as relationships with clients, counties, and campus; and faculty expertise; and b) External to MU such as industry professionals and communities providing in-kind services or products, or serving as guest instructors. C. Curricula and tools: a) Annie's Project basic risk management curricula; b) Annie's Project special topics curriculum D. Funding: a) Farm Credit National Contributions and Farm Credit Services of America; and b) USDA Risk Management Agency, USDA Extension Risk Management Education	What we do A. Develop logic model and program outcome goals; B. Provide team leadership and professional development trainings; C. Manage projects including staffing and financial resources; D. Assess needs with local stakeholder meetings, surveys E. Plan, budget and write to apply for grant and gift funding; F. Maintain public and educator websites and Facebook with curricula, events calendar, news, videos, and success stories; G. Develop curricula and prepare course materials; H. Screen/vet guest instructors and provide guidance; I. Coordination course delivery on a statewide annual basis; J. Market programs and increase awareness of farm management topics and the roles of farm women; K. Deliver high quality, transformational courses; L. Evaluate programs with standardized reporting tools and analysis, and offer to other states; M. Report the public value and impacts of programs; and N. Contribute to national Annie's Project programs and to other Women in Ag programs.
Assumptions: Educators can empower farm women to improve social, economic and environmental systems through good decision making and long range planning. Women are willing to take on increased management roles with the proper training and support.		

Appendix D (cont'd)
Annie's Project Logic Model

Outputs→	**←Outcomes**		
	Knowledge	**Actions**	**Conditions**
Who we reach 1. Farm Women: a) Of all ages and experience levels from across Missouri will participate in programs (150 women); and b) Will self –identify themselves as eager learners and family farm management decision makers. 2. Educators: a) Partner with each other from across Missouri including field specialists, county and campus staff; a) Self-identify themselves as having the capacity and desire to educate farm women; and b) Provide products and services such as new or improved curricula, evaluation instruments, and farm management courses for women.	Learning 1. Farm Women: a) Understand financial statements and how to analyze their farm business; b) Know how to communicate with family/employees with different communication styles; c) Identify property ownership and steps to estate planning ; d) Access pricing information and examine contracts; and e) Explain production and revenue insurance, and sign up for USDA programs. 2. Educators: a) Understand how to apply best educational practices that lead to transformational learning by serving the unique learning preferences of women; and b) Increase confidence in their ability to develop and deliver programs on emerging issues in agriculture.	Behavior changes 1. Farm Women: a) Calculate costs of production and family living expenses, and review leases; b) Assign health care power of attorney, and choose health or life insurance; c) Prepare/update wills and begin farm succession planning ; d) Use cost of production and price information to make marketing decisions; e) And will utilize the local network for informal mentoring or to access professional service. 2. Educators: a) Deliver agriculture risk management education programs for women; b) Seek guidance from farm women; c) Create and share teaching materials with other educators; d) Use program evaluation to inform program planning.	Societal conditions 1. Farm Women: a) Are empowered to become better business partners and owners by managing agricultural risk to bring greater financial security and well-being to their families; and b) Seek additional education; c) Increase satisfaction with their farm or ranch role and/or lifestyle; d) Contribute to rural communities 2. Educators: a) Enhance their capacity and are more efficient and effective in the delivery of programs targeted to women; and b) Extension and outreach farm mgmt. programs in Missouri are sustained through partnerships, high quality educational experiences and demonstrated program impact.
External Factors: The ability of all stakeholders to fully participate in educational programs is challenging in times of economic or social stress.			

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VITA

Karisha Vaughn Devlin was born in Canton, Mississippi on November 21, 1975. She graduated from Tishomingo County High School in 1994. Following high school, she attended Mississippi State University receiving a Bachelor of Science degree in Animal Science in 1999 and a Master of Science degree in Agribusiness Management in 2001. In May 2017, she earned a Doctorate of Education in Educational Leadership and Policy Analysis from the University of Missouri.

In 2002, she joined the University of Missouri Extension as an Agricultural Business Specialist. She serves six counties in northeast Missouri specializing in the areas of value-added agriculture, farm management, business development, and marketing. She is passionate about educating farm women and helped to develop the curriculum for Annie's Project, a farm risk management program for women. Karisha and her husband, Dan, own and operate a grain farm in Edina, Missouri. They reside on the farm with their children, Jason and Kate.