THE EFFECT OF TWO DIFFERENT PROFESSIONAL DEVELOPMENT METHODS ON OKLAHOMA EXTENSION EDUCATORS' PERCEPTION OF THEIR ROLE AS AGENTS OF CHANGE

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THE EFFECT OF TWO DIFFERENTPROFESSIONAL DEVELOPMENT METHODS ON OKLAHOMA EXTENSION EDUCATORS' PERCEPTION OF THEIR ROLE AS AGENTS OF CHANGE

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Abstract: The purpose of this study was to investigate the influence of two professional development delivery methods, a workshop and a computer simulation activity, on how Extension educators see themselves as change agents and the possibility of moving Extension educators from reactive to proactive programming. To assess the effectiveness of the professional development delivery methods, the study explored Extension educators' perceptions of Extension educator roles and work responsibilities. All Oklahoma Cooperative Extension Service county Extension educators (N = 178) employed as of January 14, 2016, comprised the target population for this study. The study utilized an experimental pre-post-post-test two-group comparison design. The instrument consisted of ranking nine Extension educator roles in order of importance, and rating 12 work related responsibilities on a 6-point Likert-type scale in terms of what is the best use of an Extension educator's time. Data collection was conducted during the 2016 Oklahoma Cooperative Extension Service biennial conference. All county Extension educators in attendance were invited to participate in a two-part professional development session titled *Making an Impact as a Change Agent*. Rogers' (2003) Diffusion of Innovations Theory served as the basis for the content for the session because of its agricultural roots and its applicability to the mission of the Cooperative Extension Service. Of the Extension educators participating in the session, 77 fully completed all three instrument administrations (Pre-Test, Post-Test I, Post-Test II). Participants perceived *Teach Problem Solving Skills* as the most important role and *Access Resources of Total University* as the least important role. Both findings are consistent with Smalley's (1985) study of the perceptions of Minnesota Extension educators. The treatment administered during the two-part professional development session caused participants to perceive all 12 of the work responsibilities as a better use of an Extension educator's time.

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CHAPTER I

INTRODUCTION

With the Cooperative Extension Service's humble beginnings rooted in farmer's institutes, movable schools, and demonstration trains, early Extension educators in the United States shared knowledge with a new nation struggling with agriculture. Today, the Cooperative Extension Service in the United States is the world's largest publically funded nonformal educational organization touching every county and parish in the nation (Fiske, 1989). Although only agricultural knowledge was shared in the beginning, today the scope of knowledge is endless, reaching countless individuals through advanced technological systems.

In the United States, the Cooperative Extension Service is the link between the land grant universities and the counties as a way of bringing research-based, unbiased knowledge to the public (Patrico, 2011; Seevers, Graham, Gamon, & Conklin, 1997). The mission of the Cooperative Extension Service is "to enable people to improve their lives and their communities…by offering practical education" (Seevers et al., 1997, p. 11). The Oklahoma Cooperative Extension Service fulfills this mission by providing research-based information and educational programs for the people of Oklahoma based on needs either identified by the people or recognized by Extension personnel. The focus of these programs is centered on one or more of the four program areas of the Cooperative

Extension Service: (a) agriculture/natural resources, (b) family and consumer sciences, (c) 4-H youth development, and (d) community and rural development. Informal educational opportunities offered in these areas empower the people of Oklahoma to solve local issues and concerns and to make informed decisions about their economic, social, and cultural well-being in a changing world (OCES, 2016a).

The United States has evolved from a country once based on agriculture to now an interdependent nation comprised primarily of manufacturing and technology. As a result, the problems faced by individuals living in both rural and urban communities have become more specialized and complex (Morse, Brown, & Warning, 2006). Consequently, the Cooperative Extension Service staff is challenged to adapt to a changing world (Stone & Bieber, 1997) to ensure the organization's success in the 21st century (Cooper & Graham, 2001).

To address this changing Extension educator role, Cooperative Extension Services in numerous states have identified competencies or specific job responsibilities for Extension educators (Beeman, Cheek, McGhee, & Grygotis, 1979; Benge, Harder, & Carter, 2011; Boyd, 2003; Burke, 2002; Cochran, 2009; Cooper & Graham, 2001; Diem, 2009; Gonzalez, 1982; Harder & Dooley, 2007; Harder, Place, & Scheer, 2010; Maines, 1987; NCCE, 2007; Reynolds, 1993; Stone & Coppernoll, 2004). This exhaustive list of competencies has created a need for continuous professional development opportunities for Extension educators to both learn and sharpen their skills (Benge et al., 2011; Cooper & Graham, 2001; Harder et al., 2010; Irani, Place, & Mott, 2003).

Although Extension educators gain subject matter expertise through their formal degree programs, many times these programs lack instruction in the skills needed to teach clients effectively (Brodeur, Higgins, Galindo-Gonzalez, Craig, & Haile, 2011). In fact, it has been argued that Extension educators are hired primarily based on their technical subject matter expertise, and many have little or no formal training or experience as educators (Bruce & Johnson, 2004; Cole, 1981; Johnson, Creighton, & Norland, 2007; Seevers, 1995; Seevers & Graham, 2012; Warner, 2014). Although Extension educators are proficient in their respective areas of specialization, many have little training in how to teach in a nonformal manner (Bruce & Johnson, 2004; CCES, 1999; Johnson et al., 2007; Seevers, 1995; Warner, 2014). For an educational program to be successful, it must not only have quality content, but competent educators who utilize effective teaching methods to plan, implement, deliver, and evaluate programs are also essential (Birkenholz, 1999; CCES, 1999; Strong, Harder, & Carter, 2010).

Professional development trainings for Extension staff tend to focus on technical content at the expense of the educational process (Irani et al., 2003). In other words, *what* to teach is emphasized, but not *how* to teach it (Cole, 1981; Seevers, 1995). As a result, many Extension educators find themselves knowledgeable in their specialized fields, but inadequately prepared to teach (Cole, 1981; Seevers, 1995).

Statement of the Problem

At the most basic level, Extension educators are *change agents*, tasked with encouraging people to adopt new practices and arming them with knowledge that will in turn, help them solve problems and improve their lives (Amend, 1984; Bloir & King,

2010; Gallaher & Santopolo, 1967; Morse et al., 2006; Rogers, 1963; Rogers, 2003). In criticizing the current Cooperative Extension Service, McDowell (2001) argued that many Extension educators fall short of being true change agents. Extension educators engage in programming that reacts to clients' concerns, but have trouble anticipating or planning for change. He cited evidence that many Extension educators spend their time consulting one-on-one with clients and planning their days strictly around the phone calls they receive. McDowell (2001) argued that Extension educators are not engaging in "aggressive proactive program[ming]" that is research-based and aimed at promoting new agricultural practices to clientele (McDowell, 2001, p. 74).

Purpose of the Study

The purpose of this study was to investigate the influence of two professional development delivery methods on how Extension educators see themselves as change agents and the possibility of moving Extension educators from reactive to proactive programming. To assess the effectiveness of the professional development delivery methods, the study explored Extension educators' perceptions of Extension educator roles and work responsibilities.

Research Questions

Eight research questions framed this study:

1. What is the makeup of Extension educators for selected demographic factors?
2. What are Extension educators' perceptions of the importance of Extension educator roles?

3. Are there differences in Extension educators' perceptions of the importance of Extension educator roles based on selected demographic factors?

4. Do Extension educators' perceptions of the importance of Extension educator roles change as a result of a two-part professional development session?

5. What are Extension educators' perceptions of work responsibilities based on the best use of an Extension educator's time?

6. Are there differences in Extension educators' perceptions of work responsibilities based on the best use of an Extension educator's time when considering selected demographic factors?

7. Do Extension educators' perceptions of work responsibilities based on the best use of an Extension educator's time change as a result of a two-part professional development session?

8. Does the order of administration of two professional development delivery methods (workshop and computer simulation) affect how Extension educators perceive work responsibilities based on the best use of an Extension educator's time?

Conceptual Framework

Extension educators intentionally design programs and curricula grounded in experiential learning based on the work of David A. Kolb (Enfield, Schmitt-McQuitty, & Smith, 2007; Glen, Moore, Jayaratne, & Bradley, 2014; Meyer & Jones, 2015; Torock, 2009). Experiential learning workshops and trainings for Cooperative Extension Service

volunteer leaders have been effective, as seen in their gain of new knowledge and skills reflected in the programs and projects they lead in their counties (Enfield et al., 2007). Like the experiential nature of the Cooperative Extension Service, Kolb (1984) affirmed that it is through experiences that knowledge is created. Because of this, Kolb's (1984) Experiential Learning Theory provides an appropriate framework for informing the variables and outputs in the study.

Kolb's (1984) Experiential Learning Theory is best depicted as a model that describes the learning process in a four-stage cycle including four adaptive learning modes (Figure 1): (a) concrete experience, (b) reflective observation, (c) abstract conceptualization, and (d) active experimentation. The structure of the learning process lies in the transactions among these four adaptive learning modes, and the way the dialectically opposed modes are resolved (Kolb, 1984). When a person goes through all four stages, effective learning is the result. An individual may enter the cycle at any point, but the stages should be followed sequentially (Kolb, 1984). In fact, Extension educators have conducted programs on topics such as community gardens and health to create learning opportunities and to increase learning through the use of the experiential learning cycle (Gillis & English, 2001; Glen et al., 2014). It is the Extension educator's responsibility to provide a complete program including all of the experiential learning stages in order to ensure a complete learning experience for clientele (Torock, 2009).

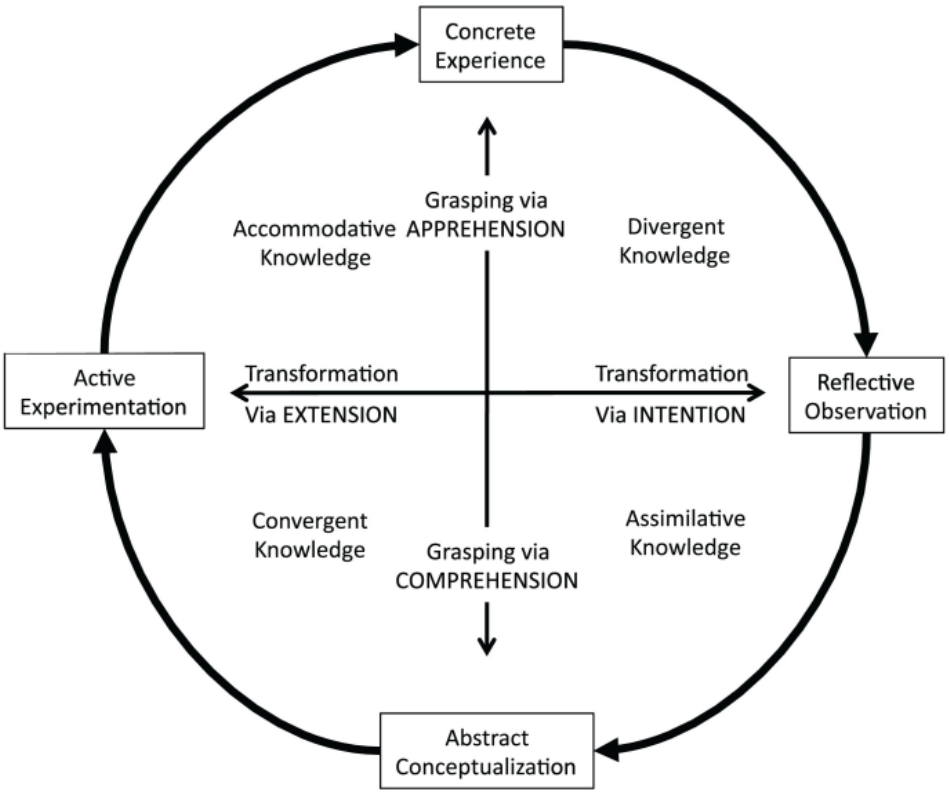


Figure 1. *David A. Kolb's Experiential Learning Theory model.* Adapted from *Experiential Learning: Experience as The Source of Learning and Development* (p. 42), by David A. Kolb, Englewood Cliffs, NJ: Prentice-Hall, Inc. Copyright 1984 Prentice-Hall, Inc.

Related to the four learning modes, Kolb (1984) asserted that most learners develop a unique learning style: (a) convergent, (b) divergent, (c) assimilation, or (d) accommodative. An individual's unique style is associated with the structure of his or her individual learning process that is based on the degree to which the four learning modes are emphasized when completing a self-report assessment (Kolb, 1984).

The implications of the Experiential Learning Theory (Kolb, 1984) for this study are clear – Extension educators who participate in professional development

opportunities (concrete experience) followed by some type of assessment (reflective observation) indicating a change in perceptions and/or knowledge (abstract conceptualization) will lead to Extension educators who will utilize what they have learned when working with clientele (active experimentation).

Theoretical Framework

Getting new ideas adopted is difficult. Many new ideas, or innovations, go through a well-thought out process that can be learned. Everett M. Rogers (2003) conceptualized the Diffusion of Innovations Theory to explain "the process in which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 2003, p. 5).

Diffusion research has helped agricultural researchers with the *how* of getting their scientific research put to practical use (Rogers, 2003). Extension educators have benefitted from diffusion research, as the diffusion model is "the main theory guiding their efforts to transfer new agricultural technologies to farmers" (Rogers, 2003, p. 54). In fact, the Cooperative Extension Services in the United States are known for being "one of the world's most successful technology transfer systems," and they are recognized around the world for the "diffusion of technological innovations" (Rogers, 1988, p. 493). Therefore, Rogers' (2003) Diffusion of Innovations Theory serves as the foundation of Extension outreach methods (Stephenson, 2003).

Because Rogers' (2003) Diffusion of Innovations Theory aligns with the work of Extension educators (Stephenson, 2003), understanding its underlying principles and generalizations could help Extension educators understand their role as a change agent

and better equip them as they deliver programs to their clientele. Extension educators competent in this theory and who see themselves as true change agents could then easily apply its concepts in their daily work.

Significance of the Study

The utilization of two delivery methods for a professional development session could shed light onto the best instructional methods to employ when delivering non-technical skills to Extension educators. Administrators planning professional development trainings for Extension educators could replicate the most effective methods when designing staff development programs. The findings of this study could serve as a guideline for implementing professional development trainings for county Extension educators that are non-technical in nature.

Definitions of Terms

Agriculture/4-H Educator – an Extension educator who provides leadership to agricultural and 4-H youth development programs in a dual assignment with approximately 90% of time spent in agriculture and 10% of time spent in 4-H youth development work (OCES Human Resources, 2016).

Change Agency – the entity for which the change agent works (Rogers, 2003). For the context of the study, the Oklahoma Cooperative Extension Service is considered the change agency.

Change Agent – "an individual who influences clients' innovation-decisions in a direction deemed desirable by a change agency" (Rogers, 2003, p. 27). For the context of the study, Extension educators are considered change agents.

Cooperative Extension Service – the outreach branch of all land grant universities that provides non-formal education to people by "taking knowledge gained through research and education [at the land grant universities] and bringing it directly to the people to create positive changes" (USDA-NIFA, n.d., ¶ 1).

Experiential Learning – "The process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping experience and transforming it" (Kolb, 1984, p. 41).

Extension Educator – a county level employee of the Cooperative Extension Service who conducts educational programming for the people within a single county; a change agent (OCES Human Resources, 2016).

Family and Consumer Sciences/4-H Educator – an Extension educator who provides leadership to family and consumer sciences and 4-H youth development programs in a dual assignment with approximately half of time spent in each program area (OCES Human Resources, 2016).

4-H Educator – an Extension educator who provides the leadership and management for the overall county 4-H youth development program (OCES Human Resources, 2016).

Simulation Game – "an instructional method based on a simplified model or representation of a physical or social reality in which students compete for certain outcomes according to an established set of rules or constraints. The competition can be (1) among themselves as individual or groups, or (2) against some specified standard, working as individuals or cooperating as a group" (Szczurek, 1982, p. 27).

CHAPTER II

REVIEW OF LITERATURE

Continuous professional development of staff is challenging for most organizations. However, keeping up-to-date on current issues and transferring that information to personnel should be important to any organization that is committed to improving the quality of lives. The Cooperative Extension Service's commitment to professional development ensures that staff members are able to address the changing needs and problems faced by individuals today. Developing Extension educators' non-technical competencies through alternate delivery methods as well as helping them understand their role as a change agent are both vital to their professional development. In turn, Extension educators who are well-educated will help ensure the vitality of the Cooperative Extension Service.

This chapter provides an in-depth review of the literature related to the study's key variables. The chapter is divided into four main sections including the land grant system, Experiential Learning Theory, Diffusion of Innovations Theory, and professional development, so that the pertinent aspects of the study can be best examined.

The Land Grant System

At the time of the founding of the United States in 1776, education was primarily for the rich and the elite. Institutions of higher learning were private, providing education in the classics, preparing students to be minsters, lawyers, doctors, and the like (Bliss, 1952; Sanders, 1966a). In the 19th century, the United States was primarily rural, and agriculture was the major pursuit (Boone, 1989). However, there were no colleges to educate the common people whose lives would be spent in business, trade, and agriculture.

Jonathan B. Turner of Illinois recognized the need for educational institutions that would teach agricultural practices and that would be open to the industrial class of people. For years, Turner promoted his idea, but it was Representative Justin S. Morrill of Vermont who introduced a bill to the United States Congress in 1857 specifically for this purpose. The bill was finally signed into law in 1862 as the Morrill Act, creating the land grant universities (Rasmussen, 1989). The act provided each state with federal land to be sold, and the funds generated from the sale were used to create endowments to fund the land grant institutions in each state ("Committee on the Future," 1995).

The land grant universities were to provide practical education to all citizens. As with anything, there were initial struggles. There was a lack of quality teachers, a lack of research-based curriculum to teach, a lack of good students, and a lack of funds, just to name a few of the problems (Rasmussen, 1989). To remedy the problem of the lack of scientific-based material to teach, the Hatch Act of 1887 funded the experiment stations as places to conduct research that could then in turn be taught at the land grant

universities (Sanders, 1966b). To address the problem of sparse funding, a second Morrill Act was passed in 1890 to provide additional funds for the land grant universities and to provide funds for a land grant institution in the segregated southern states specifically for African-Americans (Rasmussen, 1989).

The Cooperative Extension Service

In the late 1800s and early 1900s, efforts were made to extend the knowledge of the land grant universities to reach those not attending the universities (Prawl, Medlin, & Gross, 1984). Early Extension efforts included farmer's institutes, demonstration trains, and movable schools that essentially "took the university to the people." However, these efforts began to spread university staff too thin and funds were too scarce to continue reaching the general population. Something more was needed (Butterfield, 1952).

As a result, the Cooperative Extension Service was established with the signing of the Smith-Lever Act in 1914. Just as in its name, the Cooperative Extension Service is truly a cooperative organization, with county, state, and federal governments providing funding, staffing, and programming (Rasmussen, 1989). This three-way partnership serves as the non-formal, educational organization linking the public and the land grant universities (Smith & Wilson, 1930). The organization's purpose is to transfer practical, research-based information from the land grant universities to the people who then use that knowledge to improve their lives (Sanders, 1966b).

Philosophy. "Learning put to use leads to a better life for the individual, family and community" (Seevers et al., 1997, p. 5). This belief, embedded within the philosophy of the Cooperative Extension Service, is rooted in the beliefs of early Western

civilization: (a) the opportunity for change or progress, (b) the reliability of science, (c) a belief in the equality of people, and (d) the influence of education (Ward, 1962). All of these beliefs were significant when the Smith-Lever Act was passed in 1914. Stemming from these principles came the belief that maintaining the equality of opportunity for all citizens at the time was important (Bliss, 1952). Thus, the people felt the government was morally obligated to provide a way to make the practical benefits of the land grant universities available to everyone at a time when most people could not afford to attend college (Bliss, 1952). In fact, Extension's outreach is recognized as one of the greatest contributions to democracy in the United States (Bliss, 1952).

Seaman A. Knapp is known as the Father of Extension, as he promoted change in agricultural practices among farmers by using practical demonstrations that the farmers did themselves. Knapp inspired early Extension educators that their value was in what they could get other people do to for themselves, not in what they could do for them (Rasmussen, 1989). Prawl et al. (1984) identified three principles that formulated how the Cooperative Extension Service put this idea into action: (a) reaching people where they are, (b) teaching people to determine their own needs, and (c) teaching people to help themselves. "Helping people help themselves" and "learning by doing" are slogans which embrace these principles that are still used today (Seevers et al., 1997, p. 6). A pragmatic approach to educational programming, coupled with a belief in both the development and the empowerment of people, all provide a framework for the philosophy on which the Cooperative Extension Service was built (Boone, 1989; Horton, 1952; Sanderson, 1988).

What Extension educators do. Extension educators are employees of the land grant universities, and they are the "heart and soul of Cooperative Extension" (Seevers &

Graham, 2012, p. 50). Although many different staffing patterns are found throughout the nation, the traditional staffing pattern of the Extension educator working in one county is the leading approach. With this approach, Extension educators have constant contact with clientele, making them the most visible of all Extension staff (Clark, 1966). Extension educators are sometimes referred to as county agent, "change agent, teacher, or social activist" (Seevers & Graham, 2012, p. 50). Extension educators may have designated areas of focus such as agriculture, family and consumer sciences, 4-H youth development, community and rural development, or they may have specialized assignments such as nutrition or horticulture. Overall, it is the Extension educator's job to provide leadership and expertise to help their clientele solve problems, no matter the area of need (Clark, 1966; Rasmussen, 1989; Smith & Wilson 1930).

As previously mentioned, Extension educators are sometimes called change agents, or "one who plays purposive roles designed to influence the process of change in a specific situation" (Gallaher, 1967, p. 214). In fact, Bloir and King (2010) asserted that "[The Cooperative Extension Service's] business is that of the change agent" (p. 1). During the time that Representative Asbury F. Lever of South Carolina and Senator Hoke Smith of Georgia led discussions in Congress regarding the legislation that eventually became the Smith-Lever Act, Lever stated his view of Extension educators. He asserted their role was to provide direction and leadership for rural America (Smith, 1952) by taking the lead with every initiative aimed at better farming, living, education, citizenship, and happiness (Warner & Christenson, 1984). Extension educators were to engage farm families in new knowledge and discovery by removing the barriers of rural isolation (Schwieder, 1993). Now over 100 years since its beginning, the primary reason

for the Cooperative Extension Service's existence is to fulfill these change agent functions and advance the public good (Bloir & King, 2010; Morse et al., 2006).

With the changing problems of the world, the role of the Extension educator as a change agent has continuously evolved to address the complex problems of today. Rather than simply providing content or technical knowledge to clients, change agents must facilitate educational processes allowing their clientele to work together to make a difference (Morse et al., 2006). Extension educators essentially guide change for their clients utilizing a "planned education process" (Gallaher & Santopolo, 1967, p. 224) within a social system including both a knowledge center and a client group. (Gallaher & Santopolo, 1967). Much of the environment in which Extension educators work focuses on change, in which their main function is to link knowledge resources to the clients' needs (Gallaher, 1967; Gallaher & Santopolo, 1967).

Specific to being a change agent, the Extension educator also assumes the roles of analyst, advisor, advocator, and innovator (Gallaher, 1967; Gallaher & Santopolo, 1967). In the advisor role, the Extension educator presents clients with alternatives to a situation, leaving the decision-making up to them. While in the advocator role, the Extension educator recommends a particular alternative. In the innovator role, the Extension educator is committed to creating an innovation to meet the special needs of clients (Gallaher, 1967; Gallaher & Santopolo, 1967) Of these four roles, analyst, or when the change agent interprets a situation for a client, has been identified as the one role of the four that is most critical for success as an Extension educator (Gallaher, 1967; Gallaher & Santopolo, 1967).

Analyzing is the first step for Extension educators in educational programming because they must first identify and understand clients' needs. Only then can they offer appropriate alternatives to a situation. Analyzing should be a continuous process to stay current in their environments, with the other three roles hinging on its success (Gallaher & Santopolo, 1967). It is imperative that Extension educators understand when to play each role, as playing the wrong role at the wrong time could damage the educator/client relationship (Gallaher & Santopolo, 1967).

Lionberger and Gwin (1982) also stated their view of change agents, asserting that they should be people-oriented, rather than innovation-oriented. Both personal contact and an Extension educator's willingness to analyze a situation and understand the needs of the clientele are essential for success (Gallaher, 1967; Lionberger & Gwin, 1982). Since clientele need different types of information at each stage of the adoption process, change agents should adapt their communication strategies accordingly to meet each client's unique situation (Gallaher & Santopolo, 1967; Lionberger & Gwin, 1982). Change agents, as advocators, should involve their clients in the communication/decision-making process, working to help them achieve their goals (Gallaher & Santopolo, 1967; Lionberger & Gwin, 1982). When clients have a hand in planning and in the change process, they more readily accept innovations introduced by the change agent (Gallaher & Santopolo, 1967). Gallaher and Santopolo (1967, p. 230) asserted, "Involving people in an educational experience is a complex process that demands knowledge of social organization, social action, and motivation to a degree rarely attained by the average Extension worker."

As previously mentioned, the Extension educator plays a number of change agent roles (Gallaher, 1967). Aligning with this assertion, during Dr. Norman A. Brown's tenure as Dean and Director of the Minnesota Agricultural Extension Service, nine distinct and independent change agent roles applicable to county Extension educators were conceptualized (Brown, 1980). These roles were later used by Jared M. Smalley (1985) to understand Minnesota Extension educators' self-expectations in the workplace. The roles are defined as follows:

- *Teach Problem Solving Skills* – The process of providing Extension clientele with skills that help them solve their own problems.

- *Alternative Delivery Systems* – The process of developing approaches for assisting Extension clientele in addition to meetings and one-to-one consultations.

- *Interest in Issues* – The process of keeping aware of issues at the state, regional (i.e. neighboring states) and national levels that also have impact on Extension clientele at the county level.

- *Involve Volunteers* – The process of recruiting, selecting, training, and giving volunteers a significant role in the delivery of Extension educational programs.

- *Good Program Development* – The process of identifying educational needs with Extension clientele, setting priorities, implementing and evaluating learning experiences, and reporting results.

- *Remain Flexible to Meet Needs* – The process of remaining in touch with and reacting to the immediate and changing needs of Extension clientele.

- *Access Resources of Total University* – The process of going beyond the Extension-related units of the University of Minnesota (including its branches) to acquire information and expertise to meet the needs of Extension clientele at the county level.

- *Self-Development Plan* – The process of maintaining and improving subject matter and personal skills to continue your effectiveness as a County Extension Agent.

- *Educational Risk Taker* – The process of trying new educational approaches and attempting to work with non-traditional clientele where there is risk in terms of the educational outcomes not being successful. (Smalley, 1985, pp. 13 – 14)

Smalley (1985) found that Minnesota Extension educators ranked *Teach Problem Solving Skills* as the most important role and *Access Resources of Total University* as the least important role. A more in-depth description of the nine roles used in the study is provided (Smalley, 1985):

- *Teach Problem Solving Skills* – As change agents, Extension educators help clients help themselves, which aligns with the philosophy of the Cooperative Extension Service. They go beyond just giving information to clientele. Instead, they help clients understand and interpret their problems, by giving direction to the educational learning process.

- *Alternative Delivery Systems* – When the Cooperative Extension Service began over 100 years ago, Extension educators reached their clientele primarily through one-to-one consultations and group meetings. However, with today's changing

world, a variety of delivery methods are necessary for Extension educators to effectively reach their diverse clientele.

- *Interest in Issues* – Dealing with issues that impact the Extension educator's community may result in conflict and controversy among clientele. Extension educators need to stay abreast of issues that could impact their clientele and have the skills needed to appropriately deal with any situations that could arise. A resistance to change could be the result if issues are not dealt with properly.

- *Involve Volunteers* – Volunteers have also been the core of Extension programming, especially for 4-H youth development. Because of increasing responsibilities and demands on volunteer leaders' time, Extension educators should be skilled in how to recruit, train, and retain quality volunteer leaders to meet the needs of the county's programming.

- *Good Program Development* – Developing good, educational programs is one of the fundamental responsibilities of an Extension educator. Good program development is an intentional effort to meet the needs of the clientele that includes identifying needs, program planning, and evaluating to show program impact.

- *Remain Flexible to Meet Needs* – Extension educators should manage their time wisely, set priorities, and be readily able to respond to clientele on short notice.

- *Access Resources of Total University* – Extension educators are expected to utilize the research provided through the land grant university to disseminate information to their clientele.

- *Self-Development Plan* – Extension educators should participate in professional development trainings aiming to increase both their subject matter and personal skills.

- *Educational Risk Taker* – Teaching non-traditional clientele is risky, as these programs may require extra effort in terms of communicating and selecting an appropriate delivery method. Outcomes of these educational programs are sometimes at more risk of failure than those for traditional audiences.

Besides fulfilling the nine broadly defined change agent roles, Extension educators are expected to carry out many work responsibilities rooted within these roles on a daily, weekly, monthly, and/or a yearly basis (Fetsch, Flashman, & Jeffiers, 1984; Goering, 1980; OCES Human Resources, 2016). Goering (1980, pp. 25 – 26) compiled a list of critical Extension educator work duties:

- recruit, train, and utilize lay leaders
- conduct programs
- prepare specific program plans
- respond to client requests for specific information
- plan annual plan of work
- develop and maintain public relations
- assess community needs

In another similar study, Extension educators perceived top work priorities to be

- leader recruitment,

- leader training,
- program planning, and
- advisory work with councils (Fetsch et al., 1984).

Specific to the Oklahoma Cooperative Extension Service, Extension educators are expected to carry out 11 specific responsibilities (OCES Human Resources, 2016):

- assess county needs
- prepare and deliver specific programs to the public
- use a variety of educational methods to deliver programs
- provide educational leadership for adult and youth programs
- evaluate program effectiveness
- recruit, train, and develop lay leaders
- respond to client requests for specific information and technical assistance
- coordinate 4-H activities
- develop and maintain public relations
- perform administrative functions
- pursue a professional development plan

Likewise, Cooperative Extension Services across the nation have similar lists of work responsibilities.

Expectations of Extension educators. Not only are Extension educators expected to perform certain roles and fulfill specific responsibilities, Cooperative Extension Services in many states have put into place lists of expectations, or competencies, for Extension educators. Competencies are described as a skills,

knowledge, or abilities needed for success in one's job (Weatherly, 2005), and they should be the foundation for improved performance of Extension educators (Stone & Bieber, 1997). During the time period of the 1920s to the 1950s, studies indicated that Extension educators needed a broad foundation and technical training in agriculture, with no mention of training needed in education, psychology, or sociology (Crosby, 1920; Mathews, 1951). However, competencies identified as important for an Extension educator shifted in the 1960s and 1970s to include non-technical skills (Beeman et al., 1979; McCormick, Cunningham, & Bender, 1968; Peabody, 1968; Price, 1960; Sappington et al., 1977):

- using teaching methods effectively
- developing personal leadership abilities
- identifying leadership within the county
- teaching and communication
- organizing groups
- communicating change with clientele
- teaching

Studies continued into the 1980s and 1990s with similar non-technical competencies identified for Extension educators. Keita and Luft (1987) identified some of the most important competencies as

- getting along with people,
- developing support of local people, and
- understanding principles of communication.

In Ohio, similar competencies were identified as important (Ritsos & Miller, 1985):

- organizational skills
- communication skills
- program planning and development
- public relations

A study of Louisiana Extension educators identified similar competencies such as

- communication,
- program planning,
- program execution,
- maintaining professionalism, and
- teaching (Reynolds, 1993).

As the Cooperative Extension Service has transitioned into the 21st century, several states have developed extensive competency models to guide their professional development efforts (Benge et al., 2011; Cochran, 2009; Cooper & Graham, 2001; Ghimire & Martin, 2011; Gregg & Irani, 2004; Harder et al., 2010; NCCE, 2007; Stone & Coppernoll, 2004). In Ohio, a set of 14 core competencies were identified to include in its model, some of which were

- communication,
- customer service,
- flexibility and change,

- understanding stakeholders and communities, and
- teamwork and leadership (Cochran, 2009).

Similar competencies were identified as part of models developed for Florida Extension educators (Benge et al., 2011; Harder et al., 2010):

- communication
- personal leadership development
- relationship building
- teaching skills
- program development process
- teamwork skills

However, while Gregg and Irani (2004) identified similar competencies in Florida, they also identified a unique competency previously unmentioned, the use of information technology.

In Arkansas, Cooper and Graham's (2001) model identified

- faculty/staff relations;
- public relations;
- program planning, implementation, and evaluation; and
- personal and professional development as the top competencies for Extension educators.

Texas (Stone & Coppernoll, 2004) and North Carolina (NCCE, 2007) both identified competencies in their models similar to Arkansas including

- communication skills,
- human relations skills,
- leadership skills, and
- personal effectiveness.

Specific to Oklahoma, nine core competencies were identified for all Extension educators (OCES, 2016b):

- communication
- flexibility
- initiative
- organization
- professional orientation
- program planning, implementation, and evaluation
- service orientation
- teamwork/leadership
- technology

However, when considering Extension educators across the nation, the Personnel and Organizational Development Committee (PODC) of the Extension Committee on Organization and Policy confirmed 11 areas of core competencies that all Extension educators should have (Maddy, Nieman, Lindquist, & Bateman, 2002):

- community and social action process
- diversity/pluralism/multiculturalism
- educational programming

- engagement
- information and education diversity
- interpersonal relations
- knowledge of the Cooperative Extension Organization
- leadership
- organizational management
- professionalism
- subject matter

Extension educators' knowledge and experience in educational processes, the non-technical skills, are equally as important as their technical and subject matter knowledge (Gallaher & Santopolo, 1967). Therefore, as the Cooperative Extension Service begins another 100 years of service to the public, ensuring that Extension educators are proficient in these non-technical competencies must be a priority in order to remain a viable outreach system.

Criticisms. Despite its widespread use and applicability to improving lives through practical problem-solving, there are still criticisms of the Cooperative Extension Service. Specifically, some critics believe that Extension educators have strayed from their roots and are no longer fulfilling the basic change agent roles and work responsibilities as previously described (Gallaher & Santopolo, 1967; McDowell, 1985; McDowell, 2001; McDowell, 2004a; McDowell, 2004b; Skees, 1992).

McDowell (2004a) argued that good, solid problem-solving research is needed. However, Extension's research focus is not always need driven, but rather forced by the

political economy. Therefore, the information provided to clients is not based on their needs, but rather propelled by a political agenda (McDowell, 2001).

Likewise, Extension educators spoke in the past with freedom about the issues affecting different client groups, even if what they had to say was unpopular (McDowell, 2001). However, in recent years, "the Cooperative Extension Service has been captured by farming interests," and Extension educators are no longer "objective educators," who educate farm groups about their best interests (McDowell, 2001, p. 71). Extension educators are being held hostage and driven by the desires of the farm groups. These "hostage takers" influence Extension educators to tell clientele what they want to hear, rather than what they need to hear (McDowell, 2001, p. 83; McDowell, 2004b).

Special interest groups are influential to the point that Extension educators are apprehensive about addressing important issues for fear of upsetting them and losing political support (McDowell, 2004b; Skees, 1992). In fact, very few deans, Extension directors, and agricultural program leaders understand that it is their obligation to lead and educate the farm groups, rather than letting the groups control them (McDowell, 2001). Deans within colleges of agriculture tend to let commercial agriculture be influential because they know they need this traditional group's support in order to secure financial resources. So many times the Cooperative Extension Service "follow[s] the farm groups around like bulls following cows in heat" (McDowell, 2001, p. 71). As a result, many times new agricultural groups are not included in educational programming at the expense of such traditional groups (McDowell, 2004a; Skees, 1992). The Cooperative Extension Service must broaden its foundation of support (McDowell, 1985;

McDowell, 2004a), and researchers must be willing to stand up to the special interest groups that control the land grant system (Skees, 1992).

The way Extension educators spend their time has also shifted. The allocation of staff time to helping a single client is incompatible with Extension's principle of serving the public (McDowell, 1985). Extension specialists who spend more time traveling "to hold the hands of the client groups and less time in scholarship" are being held hostage by these groups (McDowell, 2001, p. 74). McDowell (2001) asserted that when field staff, or Extension educators, spend all of their time in ways that suggest to clientele that they are at their beck and call all of the time with no programs of their own, it is obvious that the hostage has taken hold at the local level as well.

However, McDowell (2001) does not disagree that some individualized contact and reactive programing of the sort are important to keep current with clientele problems and to establish credibility. Nonetheless, proactive programming should be the main focus of Extension educators. For Extension educators to provide leadership to their clientele, programming should be based on empirical evidence offering solutions to the clients' problems (McDowell, 2001).

McDowell (2001) argued that "individual, on demand, service programming" is not a feasible way to reach a large clientele group. However, as the Cooperative Extension Service has evolved over the years, many Extension educators have their favorite clients with whom they have spent excessive amounts of time. The number of clients that an Extension educator could visit one-on-one is far less than he or she could serve by a "well-designed proactive program that meets a real need" (McDowell, 2001, p.

75). In fact, one state's Cooperative Extension Service was at one time seen as simply a consulting group for farmers, and professional development training for Extension educators on how to conduct educational programming was seen as a waste of time (McDowell, 2001).

Even in the 1960s, Gallaher and Santopolo (1967) offered criticism to the common belief that an Extension educator's performance should be measured by "number of meetings held, telephone calls made and received, newspaper articles written, or pamphlets distributed" (p. 230). They asserted that Extension educators who are sensitive to behaviors rather than to subject matter only, can not only better assess their own skills, but can more accurately assess clients' needs and offer them other kinds of support (Gallaher & Santopolo, 1967). McDowell (2001) summed up the idea of Extension educators' current reactive mindset quite well: "When agricultural agents were asked to describe their program day, the reply was that on any given day, they did not know what they were going to do until they got their phone messages – that is strictly reactive programming" (p. 75).

In essence, McDowell (2001) contended that Extension educators have strayed from being true agents of change. Clients are not getting what they need from Extension educators; they are getting what they want (McDowell, 2004b). If this is indeed the case, there is not a bright future for the "dinosaur" known as the Cooperative Extension Service (McDowell, 2001, p. 96). Rather, it is time for Extension educators to redefine their roles and refocus on the public service mission and philosophy of the Cooperative Extension Service.

Experiential Learning Theory

David A. Kolb's (1984) Experiential Learning Theory is intellectually rooted in the works of John Dewey (1925, 1934, 1938), Kurt Lewin (1951), and Jean Piaget (1971), as all three scholars developed experiential learning models that share common characteristics. Experiential learning links education, work, and personal development suggesting "a holistic integrative perspective on learning that combines experience, perception, cognition, and behavior" (Kolb, 1984, p. 21). In experiential learning, concrete experiences serve as the basis for observation and reflection. Observations are assimilated to theory, and then implications for action are determined, creating new experiences (Kolb, 1984).

Kolb (1984) stated that six propositions characterize the Experiential Learning Theory that are shared by scholars who are associated with the process of experiential learning:

- Learning is best described as a process and not as an outcome. Ideas are formed and re-formed through experience. Emphasis on the process of learning as opposed to behavioral outcomes is what sets experiential learning apart from traditional approaches to education.

- Learning is grounded in experience. All learning is relearning. Individuals enter the learning process with ideas about the topic at hand and have beliefs that they have previously used. Educators have to implant new ideas and get rid of or modify old ones. However, many times new ideas are resisted because they conflict with old ideas.

- Learning entails the resolution of conflicts between dialectically opposed modes of adaptation to the world. Learning happens from the resolution of conflicts from different ways of viewing the world, resulting in tension and making it a conflict-filled process. According to Kolb (1984), "New knowledge, skills, or attitudes are achieved through confrontation among four modes of experiential learning" (p. 30). Polar opposite abilities are required for learning, and the way the opposite abilities get resolved determines the level of learning that happens.

- Learning is a holistic process of adaptation to the world. Learning occurs everywhere from schools to workplaces to personal relationships and involves all stages in life from childhood to old age. In fact, learning "involves the integrated function of the total organism – thinking feeling, perceiving, and behaving" (Kolb, 1984, p. 31).

- Learning consists of transactions between the person and his or her environment. Transaction, rather than interaction, implies a fluid relationship between objective and subjective conditions of experience. As a result of both becoming related, they are changed as opposed to retaining their separate identities.

- Learning is the process of creating knowledge. "Knowledge is the result of the transaction between social knowledge and personal knowledge" (Kolb, 1984, p. 36). This transactional process is called learning. Therefore, to understand learning, it is necessary to understand the process of creating knowledge.

Kolb (1984) defined learning as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping experience and transforming it" (p. 41).

Experiential Leaning Theory Model

Kolb's (1984) Experiential Learning Theory is best depicted as a model that describes the learning process in a four-stage cycle including four adaptive learning modes: (a) concrete experience, (b) reflective observation, (c) abstract conceptualization, and (d) active experimentation. The structure of the learning process lies in the transactions among these four adaptive learning modes, and the way the dialectically opposed modes are resolved (Kolb, 1984).

Kolb (1984) defined two opposed ways of grasping and taking hold of experiences in the world. This dialectic is described as the prehension dimension and is represented as a vertical axis in Kolb's (1984) model. Concrete experience is at one end of the axis, and abstract conceptualization is at the other. Individuals either grasp experiences through comprehension, reliance on conceptual interpretations or symbolic representations, or through apprehension, reliance on tangible, sensory qualities of an immediate experience (Kolb, 1984).

Just as there are two opposed ways of grasping experiences, similarly there are two opposed ways of transforming the grasped experiences. This dialectic is described as the transformation dimension and is represented as a horizontal axis in Kolb's (1984) model. Reflective observation is at one end of the axis, and active experimentation is at the other. Individuals either transform their grasped experiences through internal

reflection, referred to as intention, or through active external manipulation, referred to as extension (Kolb, 1984).

The experiential learning process is cyclical in nature. Learners may enter the cycle at any stage of the four learning modes, but the stages should be followed sequentially for the most effective learning to occur (Kolb, 1984). Concrete experiences are the foundation for learners' reflections. Reflections are integrated into abstract concepts which are then actively tested in future contexts (Kolb, 1984). Learning and knowing require both the grasping and transforming of an experience. Both the prehension and the transformation dimensions of the Experiential Learning Theory model are essential for effective learning. Experience alone is not enough, as the learner must transform the experience for learning to occur. Therefore, one dimension alone is not enough (Kolb, 1984).

The two dimensions, prehension and transformation, create four different elementary forms of knowledge (Kolb, 1984). Experience grasped through apprehension and transformed via intention results in divergent knowledge. Assimilative knowledge is the result of experiences grasped by comprehension and transformed by intention. However, when experiences are grasped through comprehension and transformed through extension, convergent knowledge is created. Finally, when an experience is grasped by apprehension and transformed by extension, accommodative knowledge results (Kolb, 1984).

Learning Styles

Kolb (1984) asserted that most people develop a unique learning style related to one of the four basic forms of knowledge. Personality type, educational specialization, professional career, current job role, and adaptive competencies all shape an individual's learning style:

- *Convergent* – This style relies on the learning abilities of abstract conceptualization and active experimentation. The greatest strength of this style lies in problem-solving, decision-making, and the practical application of ideas. These individuals do well on conventional intelligence tests with one single solution. They prefer knowledge that is organized for focus on specific problems and prefer technical tasks as opposed to social and interpersonal issues.

- *Divergent* – This style relies on the learning abilities of concrete experience and reflective observation. Learners preferring this style have a strong imaginative ability, are aware of meaning and values, and view concrete situations from many perspectives. These learners emphasize observation over action and perform well when asked to brainstorm ideas. They are interested in people and are imaginative and feeling-oriented.

- *Assimilation* – This style relies on the learning abilities of abstract conceptualization and reflective observation. These learners are strong in inductive reasoning and in creating theoretical models. They are less focused on people and more so on ideas and abstract concepts. Ideas are not judged on practicality, but more so on logic and soundness.

- *Accommodative* – This style relies on the learning abilities of concrete experience and active experimentation. Learners preferring this style are strong in carrying out plans and involvement in new experiences. They seek opportunities, take risks, and seek action. These learners are best suited when it is necessary to adapt to changing immediate circumstances, discard a plan or theory because it does not fit the facts, and solve problems via trial and error. Although at ease with people, sometimes accommodators may come across as pushy and impatient to others.

Development

Development occurs as a result of the learning process. Kolb's (1984) Experiential Learning Theory of development focuses on the transaction between internal and external circumstances, concerning personal and social knowledge. Kolb (1984) stated that "learning is a social process…individual development is shaped by the cultural system of social knowledge" (p. 133). Essentially, learning is the vehicle for human development through interactions among individuals with their internal characteristics and with society's external circumstances (Kolb, 1984).

The integrative complexity of the four learning modes describes the way learning shapes development (Kolb, 1984). Four dimensions of growth arise from the four modes. They include (a) behavioral complexity in active experimentation, (b) symbolic complexity in abstract conceptualization, (c) affective complexity in concrete experience, and (d) perceptual complexity in reflective observation. These increasing complexities all lead to more highly integrated experiences through development (Kolb, 1984).

In addition to the increasing complexities of growth and development, the developmental process is divided into three stages of maturation including (a) acquisition, (b) specialization, and (c) integration (Kolb, 1984). Acquisition spans from birth to adolescence and is a time in which learners acquire basic learning abilities and cognitive structures. Children gradually gain a sense of self that is separate from the environment. The specialization stage extends through formal education or career training into early experiences of adulthood in both work and personal life. Individuality is achieved through competencies attained through a career. Transition to the final stage, integration, is marked by confrontation of conflict between social demands and personal fulfillment (Kolb, 1984). Not all learners reach this stage. However, during this awakening stage, the individual gains a new awareness and shift in perspective when experiencing life (Kolb, 1984).

Diffusion of Innovations Theory

Getting people to adopt new ideas does not just happen. Instead, new ideas, or innovations, go through a well-thought out process that can be learned. Everett M. Rogers (2003) conceptualized the Diffusion of Innovations Theory to describe the diffusion of innovations in a social system. The four key elements of diffusion are (a) innovation, (b) communication channels, (c) time, and (d) social system (Rogers, 2003). An innovation is "an idea, practice, or object that is perceived as new by an individual or other unit of adoption" (Rogers, 2003, p. 12).

An innovation goes through the innovation-decision process as knowledge is gained and a decision is made to adopt or reject the innovation. The decision is not an

instantaneous act, but rather a process (Rogers, 2003). This process was first conceptualized by Ryan and Gross (1943) with their study of the diffusion of hybrid corn. Today, scholars recognize five stages of the innovation-decision process: (a) knowledge, (b) persuasion, (c) decision, (d) implementation, and (e) confirmation. In the knowledge stage, individuals gain awareness of an innovation and understand its function. Next, they form an attitude about the innovation in the persuasion stage, either favorably or unfavorably, before entering the decision stage (Rogers, 2003). It is the decision stage that individuals participate in activities that lead them to either adopt or reject the innovation. Sometimes a cue to action can help to crystallize the decision. A cue to action can be described as an event that occurs either naturally or as the result of some action by a change agency that leads to a decision (Rogers, 2003). During the implementation stage, individuals put the innovation to use. Sometimes during this stage reinvention occurs when an individual may modify or change an innovation to better suit his or her need. Finally, the confirmation stage is when the individual's decision is reinforced, or perhaps reversed (Rogers, 2003).

Not only does the innovation-decision process help to reduce uncertainty about an innovation, five attributes help to decrease uncertainty as well. The attributes are (a) relative advantage, (b) compatibility, (c) complexity, (d) trialability, and (e) observability (Rogers, 2003). How an individual perceives each of these attributes predicts the rate of adoption. Relative advantage is how the innovation is perceived as being better than the past idea. Innovations that are compatible with an individual's needs, values, and experiences are said to have a faster rate of adoption than those that do not (Rogers, 2003). If an innovation is too complex, the rate of adoption will be slowed,

but the ability to put an innovation into practice and observe the results speeds up adoption. Innovations with more relative advantage, compatibility, simplicity, trialability, and observability have a faster rate of adoption than those that do not (Rogers, 2003).

Communication channels are important to diffusion, as they describe the means by which information about the innovation is shared among individuals. Impersonal channels such as mass media can be used, or more personal channels such as a conversation between individuals. Deciding on which method to use depends on what stage of the innovation-decision process the individual is in. Although homophily, the degree to which individuals are similar, is important for forming favorable attitudes, some degree of heterophily, the degree to which individuals differ, is needed to bring new innovations into groups of people (Rogers, 2003).

Both time and social system are important to the diffusion of innovations. The rate of adoption and the different adopter categories both involve time. The rate of adoption is the speed at which an innovation is adopted by individuals in a social system (Rogers, 2003). It is best represented by an s-curve, where the innovation diffuses slowly in the beginning, and then has a period of rapid growth, and tapers off toward the end. The social system of individuals affects their innovativeness, thus placing them into five different adopter categories identified by Rogers (2003).

The adopter categories include (a) innovators, (b) early adopters, (c) early majority, (d) late majority, and (e) laggards. Each category has its distinct characteristics (Rogers, 2003). Innovators compose 2.5% of the population and are venturesome, daring, cosmopolitan, and often have financial resources allowing them to be risky. Although not

often respected by their peers, they are important to the diffusion process because they are the ones who go outside of their local networks and bring new ideas into the system (Rogers, 2003). The next group, early adopters, compose 13.5% of the population. They are localized, respected in their social groups, and are the person to "check with" before adopting an innovation. Early adopters are role models and bring the highest degree of opinion leadership (Rogers, 2003). The last group that adopts just before the average individual in a social system is the early majority, which makes up 34% of the population. This group is deliberate, has frequent interactions with peer groups, but they are seldom considered opinion leaders in a social system (Rogers, 2003). Those in the late majority group adopt just after the average. Like the early majority, this group also composes 34% of the population. They have scarce resources and most of the uncertainty must be gone before they feel it is safe to adopt. They are skeptical and cautious of new innovations, and may adopt based on economic necessity or peer pressure (Rogers, 2003). Laggards, the last group to adopt, account for 16% of the population. They are traditional, suspicious of change, resistant to innovations, and many are isolated from their social systems. They have limited resources and hold no opinion leadership (Rogers, 2003).

As previously mentioned, opinion leadership is found within the group of early adopters. Opinion leaders greatly influence the adoption of an innovation (Rogers, 2003). They offer advice and provide their "stamp of approval" for other members of a social system. Opinion leaders serve as a model for others and reach a large number of people through their behaviors (Rogers, 2003). They are the trendsetters and cause an innovation to "take-off." If change agents can identify and mobilize the opinion leaders in a social

system, the diffusion of innovations will be much more successful. However, change agents should exercise caution when utilizing opinion leaders, as to make sure they do not become too innovative in the eyes of their followers, thus losing credibility (Rogers, 2003).

Foundation of the Cooperative Extension Service

Rogers' Diffusion of Innovations Theory (2003) serves as the foundation of Extension outreach methods (Stephenson, 2003). The purpose of the Cooperative Extension Service was clearly stated in the Smith-Lever Act of 1914 (Rogers, 1963). The act plainly conveys that Extension workers are change agents, and that diffusion is a fundamental concern of the Cooperative Extension Service, the change agency (Rogers, 1963). As stated in the Smith-Lever Act, the purpose of the Cooperative Extension Service is, "to aid in diffusing among the people of the United States useful and practical information" (Smith & Lever, 1914, Sec. 1). Programs resulting in changed behavior are the goal of the Cooperative Extension Service, as change agents help individuals adopt practices that will improve their lives (Clements, 1999).

The concepts of diffusion research help Extension educators get their clientele to put research-based information to use (Rogers, 2003). The Diffusion of Innovations Theory explains the process an innovation goes through over time among members of a community (Rogers, 2003). Extension educators who understand the Theory are better equipped to understand why certain programs succeed or fail. The diffusion framework could also be used as an evaluation tool to help Extension educators understand any obstacles or issues surrounding adoption of a practice (Hubbard & Sandmann, 2007).

As the Cooperative Extension Service moves into another century of helping people help themselves, it is important for Extension educators to be skilled in identifying individuals in their communities who are influential and who impact community decisions and social actions (Powers, 1967a). Extension educators who understand social power and who can identify these "power actors" (Powers, 1967b, p. 238), are better equipped for success in the community (Powers, 1967a). However, many of these influential individuals do not even know the Extension educators in their counties, and in turn, the Extension educators are unable to identify these key decision-makers (Powers, 1967a). However, several techniques have been identified to help Extension educators determine the power structures in their communities (Powers, 1967a; 1967b). Yet most change agents or Extension educators are unfamiliar with these techniques (Powers, 1967b). The roots of these techniques are embedded within Roger's (2003) Diffusion of Innovations Theory.

Diffusion Simulation Game

The Diffusion Simulation Game was created as part of a workshop on diffusion strategies, which was part of multi-day Instructional Development Institute. The Institute was aimed at providing classroom teachers with skills on how to systematically develop instructional materials and distribute them (Molenda & Rice, 1979). The basis for the game was that many times instructional developers do not distribute what they produce. Too many times good products sit on a shelf because of poorly planned methods of diffusion efforts (Molenda & Rice, 1979). Thus, the purpose of the Diffusion Simulation Game is "to provide a virtual scenario within which students can put their knowledge and

skills about change management concepts and strategies into practice" (Kwon, Lara, Enfield, & Frick, 2012, p. 234).

Simulations provide holistic, realistic opportunities for learning. The study of communication, or diffusion, fits well with simulation gaming, as learners need to experience cause and effect for their actions (Molenda & Rice, 1979). With regular board games, however, the outcomes of communication are left too much to chance, making it difficult to discern cause and effect between communication strategies and their consequences. However, the Diffusion Simulation Game avoids the common pitfalls of regular board games (Molenda & Rice, 1979). The inner workings of the game are based on research findings related to communication outcomes. Moves are followed by immediate consequences and effects can be traced to their causes, allowing the player to refine his or her decision-making skills (Molenda & Rice, 1979).

In the 1970s, a team from the Department of Instructional Systems Technology at Indiana University created the Diffusion Simulation Game after searching for materials to teach graduate students in an instructional systems technology course planned decision-making concepts related to communication. During their search, the team found a board game developed by Everett M. Rogers called The Change Agent (Molenda & Rice, 1979). Using the simple board game as a starting point, the team created a simulation where the player or team of players takes on the role of a change agent, a junior high school teacher, who is trying to get others in the school to adopt peer tutoring. Each player has two academic years to influence other teachers and staff at the school to adopt (Molenda & Rice, 1979). The game board consists of a list of possible activities including: (a) gathering information about individuals or social networks, (b) one-on-one

personal contacts, (c) dispensing written materials, (d) conducting demonstrations and site visits, (e) public media campaigns, and (f) engaging in confrontational or compulsory behaviors with individuals (Molenda & Rice, 1979). Each of the mentioned activities costs a certain number of weeks out of the two academic years. The object of the Diffusion Simulation Game is to move each teacher or staff member through the phases of adoption until they have all accepted peer tutoring (Molenda & Rice, 1979).

The board game is designed to be played under the supervision of a trained game monitor. Teams of two to four students work together to decide what actions to take, and which teachers or staff members to target, in order to get as many as possible to adopt the peer tutoring in two academic years (Molenda & Rice, 1979). When a team decides what action to take and which teachers or staff members to involve, the game monitor enters the information into the algorithm board which then determines which feedback card the team should receive. The feedback card states how many weeks were consumed by the action, what happened as a result of the action, which teachers or staff members were affected by it, and how much influence the action had on other teachers or staff members (Molenda & Rice, 1979). Teams record the adopter points received as a result of the feedback from their game moves. Each teacher or staff member requires a different total amount of points to reach adoption. The number of points needed are based on individual character descriptions (Molenda & Rice, 1979). Through trial and error initially, the teams learn that advance planning and a strategy are necessary for successful adoption. The game ends when all the weeks have been used up or all teachers, staff members, and the principal have adopted peer tutoring. At the conclusion, the game monitor provides

feedback and debriefing on important diffusion concepts allowing the students to reflect on how the strategies they used affected the adoption process (Molenda & Rice, 1979).

In 2002, the Diffusion Simulation Game was converted to a Web-based version to meet the needs of graduate students taking the course via distance education. The paper-based board game formed the core for the online computer version that is used today (Frick, Kim, Ludwig, & Huang, 2003). Instead of playing in teams and with a trained game monitor, the online version is designed to be played individually, and the online server acts as the monitor providing feedback to the players (Frick et al., 2003). In 2006, a free version was made available on the Web. Upon release, no gameplay logs were available, no login was needed, and there was no instructor debriefing guide. Otherwise, the free version was identical to the original online version (Enfield, Myers, Lara, & Frick, 2012).

A new Flash-based version of the online simulation has since been created that is the current version of the game. Improvements include improved player and game-session identification so that performance over multiple game sessions can be examined and the adoption stage of each of the teachers and staff members is included (Enfield et al., 2012; Lara, Myers, Frick, Aslan, & Michaelidou, 2009). The Flash-based version also includes optional interactive video tutorials that assist players through a shortened modified version of the game that can be viewed prior to playing the game. Additionally, this enhanced version of the game lends itself well for inserting new content for different contexts (Lara et al., 2009), such as agriculture, that was used in the present study. Online free access of both the school-based and the agriculture-based versions is available with

multiple game performance data storage and game-session user login identification included.

Research on the Diffusion Simulation Game shows that when examining students' scores, they improved in the number of adopters secured over the three sessions in which they played the game (Lara, Enfield, Myers, & Frick, 2011). During the first session, students played the Diffusion Simulation Game with no prior instructions regarding the Diffusion of Innovations Theory (Lara et al., 2011). However, during the second session, students were given an instructional sheet about Rogers' Diffusion of Innovations Theory prior to playing, which led to score improvement (Lara et al., 2011). During the third session, the students were encouraged to think aloud, and their comments were recorded and analyzed (Lara et al., 2011). Students' comments to one another and their use of correct terminology also indicated an increase in learning from the different gaming sessions (Lara et al., 2011). Strategic thinking was evident by the number of different combinations of strategies utilized by the students to persuade the staff members to adopt (Lara et al., 2011).

Not only were the students' scores positive for the Diffusion Simulation Game, the feedback from students was positive as well. Students indicated that the game helped them comprehend the diffusion process (Kovalik & Kuo, 2012).The students were able to apply what they were learning from their course as they played the game, indicating the high fidelity between the Diffusion Simulation Game and the change process (Kovalik & Kuo, 2012). Although they were frustrated at times, students thought the game was "appropriate for the course, realistic, and fun" (Kovalik & Kuo, 2012, p. 814). Students also offered three practical suggestions for those wishing to implement the Diffusion

Simulation Game. First, they suggested playing the game at the beginning of a course and then again at the end to see if participants had a better score at the end after learning course content. Second, they suggested playing the Diffusion Simulation Game in small groups as opposed to alone, and third, they suggested utilizing only one change model while playing the game (Kovalik & Kuo, 2012). The Diffusion Simulation Game provided a positive, hands-on learning opportunity for students to apply the change process learned in their course as they acted as the change agent. The students experienced the effects of the strategies and tactics chosen as they moved the potential adopters along the continuum from awareness to adoption (Kovalik & Kuo, 2012).

While the Diffusion Simulation Game does align with Rogers' (2003) Diffusion of Innovations Theory, some of the winning strategies in the game were found to not align with what the Theory predicts (Enfield et al., 2012). Assuming a client-oriented approach, providing opportunities to evaluate the innovation, and utilizing mass media early on, were all found to be winning strategies in the game (Enfield et al., 2012), as well as predicted by Rogers' Theory (2003). However, getting to know the staff and utilizing opinion leaders, interpersonal channels, and early adopters, are all strategies predicted as successful by the Diffusion of Innovations Theory (Rogers, 2003), but were not found to be successful in the Diffusion Simulation Game (Enfield et al., 2012). However, prior to adjusting the Diffusion Simulation Game to align with what is predicted by the Theory, further study is needed on the Diffusion Simulation Game (Enfield et al., 2012).

Another concern with the Diffusion Simulation Game involves players with no prior knowledge of the Diffusion of Innovations Theory (Enfield et al., 2012). Besides

the previously mentioned study (Lara et al., 2011) that provided students with instructional material prior to playing the Diffusion Simulation Game, Kwon et al. (2012) also provided students with instructional support in the form of prompts throughout the game. The prompts provided information about the Diffusion of Innovations Theory regarding effective strategies in the diffusion process. These two studies found that providing information contributed to cognitive overload of novice players (Enfield et al., 2012). Even though the fidelity of the Diffusion Simulation Game is high, students may have very different experiences as they work through the adoption process because of the interactive nature of the game. Because of this, debriefing is recommended after the completion of the simulation to help students make the connection between Rogers' (2003) Theory and the different successful strategies selected during the Diffusion Simulation Game.

While the Diffusion Simulation Game situated in an educational setting is the most prevalent in the literature, there are other variations of online games focusing on the concepts of diffusion. One of these variations, The Diffusion Game, is also a refinement of Rogers' board game, The Change Agent. Charles B. Weinberg along with Roberto Mendez and David Rothschild first modified and adapted Rogers' game for the computer in 1977 and again in 1981 (Sapp, n.d.). It was later updated and modified in 2001 by Scot Hoffman and Paul Murphy. The player assumes the role of a change agent with the objective of securing the adoption of an innovation in a rural village (Sapp, n.d.). The village consists of 100 farm households divided into 10 groups. However, there are a different number of followers for each group, and each group is led by an opinion leader with varying influence both inside and outside of his or her group (Sapp, n.d.). However,

unlike the other game where the innovation of peer tutoring is specified, no particular innovation is named. Another difference is only one year is allotted for adoption, not two (Sapp, n.d.). Additionally, this variation is not nearly as interactive or intricately designed. There are no character descriptions and although players do select diffusion activities to carry out, no characters are selected to target with the activities. Results of individual games are not stored in this more simplified game variation, thus eliminating the element of tracking a player's game performance. While there are differences in contexts, innovations, characters, time, and design, both online simulation games are rooted in Rogers' (2003) Diffusion of Innovations Theory.

Professional Development

In the literature, professional development is used interchangeably with terms such as in-service development, staff development, staff training, in-service education, and continuing education. Cooperative Extension Services in different states may use any one of the terms to refer to the "opportunities for staff to grow professionally and personally" (Schwartz & Bryan, 1998, p. 5). However, in this study, the term professional development is used throughout. More specifically, professional development could refer to the continuous learning to build competencies, skills, and knowledge necessary for success in one's job (Beeler, 1977; Woodard & Komives, 1990). Or, it could be described as a planned experience designed to create a change in behavior, ultimately resulting in professional or personal growth that improves the overall organization (Merkle & Artman, 1983).

Regarding improvement, professional development should provide opportunities for both knowledge refinement and acquisition of new knowledge and skills to meet the changing needs of clientele (Canon, 1980). In fact, the changing of problems and the increase in complexity among problems faced by individuals today, coupled with the increase in diversity among learners, has led to organizations broadening both their role and position on professional development training (Meyer & Marsick, 2003).

People are no longer learning just through face-to-face workshops and one-on-one time with mentors. Today, individuals engage in desktop technologies, distance learning, and participate in shorter, more focused training opportunities (Meyer & Marsick, 2003). Therefore, instructors and administrators should be knowledgeable of such alternate delivery methods. Overall, professional development opportunities serve as the means for staff to improve their skills, techniques, and knowledge, where the possibilities for areas of development and methods of delivery are endless (Truitt, 1969).

Delivery Methods

While professional development delivery methods are indeed endless, some of the most common face-to-face methods utilized include workshops, formal courses, staff meetings, seminars, and professional conferences (Truitt, 1969). However, there has been a movement toward alternate delivery methods in response to the increasing demands placed on individuals (Bishop, 2006; Center for American Progress, 2009; Lieberman & Pointer-Mace, 2008). Today, many professional development opportunities are offered via distance learning which could include video conferencing, online (Internet-based), video courses, etc. (Fairbarn, Kearns, & Fair, 2000; Lewis, Snow, Farris, & Levin, 1999).

Nonetheless, hybrid courses, which combine face-to-face learning with distance learning, are the most effective delivery method for professional development (Dziuban & Moskal, 2001; Young, 2002). Both delivery methods utilized in this study, a workshop and an online computer simulation game, can be classified as either face-to-face or distance instruction.

Face-to-face instruction. As mentioned, face-to-face instruction can be implemented utilizing a variety of methods. One of those methods, face-to-face courses, has produced more satisfaction among learners than online courses, as learners indicated more positive perceptions of both the instructor and the course quality when compared to online learners. (Johnson, Aragon, Shaik, & Palma-Rivas, 2000). In a different study, classroom teachers reported a preference for face-to-face meetings when given the option of attending trainings via videoconferencing, as they found face-to-face meetings more personal with better discussions (McConnell, Parker, Eberhardt, Koehler, & Lundeberg, 2013). Face-to-face meetings offered teachers more time for socializing and forming a sense of community with one another. This learning community allowed them to feel comfortable and led to discussions about family and work-related dilemmas that were not part of the professional development training (McConnell et al., 2013).

While many studies have indicated comparable outcomes between face-to-face instruction and distance instruction (Aragon, Johnson, & Shaik, 2002; McCann, 2007; Neuhauser, 2002; Shachar & Neumann, 2010), Extension educators preferred face-to-face professional development trainings to distance trainings (Lakai, Jayaratne, Moore, & Kistler, 2012; McCann, 2007). New Extension educators in Virginia indicated they needed a professional development program that was flexible, focused, face-to-face, and

included hands-on activities and resources with real-world examples (Garst, Hunnings, Jamison, Hairston, & Meadows, 2007). Overall, face-to-face professional development sessions allow for networking opportunities, one of the most valuable experiences gained from face-to-face instruction (Baker & Hadley, 2014).

Workshops. Workshops, one commonly utilized face-to-face delivery method, emphasize interactive learning, the development of competencies, and opportunities for hands-on activities (Fleming, 1997). Practical interaction, small group work, and the application of learning are also all components of a workshop (Fleming, 1997). Likewise, Morgan, Holmes, and Bundy (1976) highlighted the importance of small groups, full participation, and behavior changes. Sork (1984) defined a workshop as "a relatively short-term, intensive, problem-focused learning experience that actively involves participants in the identification and analysis of problems and in the development and evaluation of solutions" (p. 5). Each of these descriptions is similar, as workshops emphasize problem-solving, skill-building, knowledge growth, systemic change, and personal awareness/self-improvement (Brooks-Harris & Stock-Ward, 1999). Besides the previously described characteristics and emphases, experiential learning, sensitivity to a variety of learning styles, and the use of different learning activities are also important elements of workshops. "A workshop is a short-term learning experience that encourages active, experiential learning and uses a variety of learning activities to meet the needs of diverse learners" (Brooks-Harris & Stock Ward, 1999, p. 6). Other terms, such as seminar and training program, may be used interchangeably with the term workshop, but they should include active learning utilizing a variety of methods to be considered a workshop (Brooks-Harris & Stock Ward, 1999).

In keeping with the active nature of a workshop, the presenter should act as a facilitator of experiential learning, rather than just a teacher or instructor. This is unlike traditional educational formats in which the instructor serves as the expert delivering information to participants (Brooks-Harris & Stock Ward, 1999; Lawson, 2006). Instead, the role of a facilitator goes beyond simply serving as an expert instructor, as a facilitator encourages active learning among participants and creates powerful learning experiences (Brooks-Harris & Stock Ward, 1999).

One of the techniques facilitators utilize to create active learning experiences within a workshop is cooperative learning. Cooperative learning utilizes small groups of participants working together to maximize both their own and their groups members' learning (Johnson, Johnson, & Smith, 1991). Cooperative learning is more than just putting participants into groups to work on an assignment. Rather, it is carefully planned by the facilitator who arranges learning experiences for the participants to work together to accomplish the group's goals (Lawson, 2006). In fact, Johnson and Johnson (1989) identified five basic elements that should be present in cooperative learning:

- *Positive Goal Interdependence* – Each member of the group should feel a need to do his or her own part for the benefit of the entire group.

- *Face-to-Face Interaction* – Group members explain to one another how a problem might be solved and help one another to understand the task.

- *Individual Accountability* – Each group member takes personal responsibility for the assigned task and contributes to the group.

- *Social Skills* – Group members communicate effectively, build trust and respect with other members, and resolve conflict appropriately.

- *Group Processing* – Participants reflect upon the group's task and analyze whether or not improvements should be made to increase effectiveness.

There are a variety of methods facilitators can utilize that can incorporate these basic elements, thus helping participants to work together effectively as they achieve the group's goals. Some of the methods include (a) team-based learning, (b) jigsaw, (c) discussion groups, (d) think-pair-share, (e) group projects, and (f) group investigation/small group teaching (Hilke, 1990; Slavin, 1995).

Research has shown that cooperative learning produces higher achievement, better relationships, and healthier psychological adjustment than when individuals engage in learning experiences on their own (Johnson et al., 1991). The focus of cooperative learning is more on the learning process than on content. Participants learn more than just subject matter content; they learn interpersonal skills as they are involved in the learning process, which results in higher-level reasoning, greater productivity, and the greater transfer of ideas (Lawson, 2006).

Distance instruction. Distance instruction has emerged out of the necessity to cut costs (Smith, 2012). Both the provider and the students benefit from the affordability of distance trainings, as the cost is reduced by decreasing or eliminating travel expenses (Belanger & Jordan, 2000; Borady-Ortmann, 2002; Kidwell, Freeman, Smith, & Zarcone, 2004; Piskurich, 2006; Thomas 2004). Distance trainings offer flexibility, cost savings, availability to more participants, and access to resources that may not be available

utilizing face-to-face instruction (Killion, 2000; Riddle, 2004; Zenger & Uehlein, 2001). However, the drawbacks identified by some students associated with distance instruction include feeling isolated, having technical difficulties, and a lack of personal interaction with the instructor and other students (Edmundson, 2002; Gordon, 2003; Schrum & Benson, 2000; Thorson, 2002; Wiesenberg & Willment, 2001).

Online computer simulation games. One commonly utilized delivery method classified as distance instruction is online computer simulations. Online computer simulations allow students to be immersed in game-like environments, relying on experiential learning activities for instruction (Feinstein, 2001). Additionally, the use of simulations is one of the effective experiential learning methods for adults (Brookfield, 1986; Knowles, Holton, & Swanson, 2005). Unlike games for entertainment, serious or simulation games are designed for educational use (Sorensen & Meyer, 2007). The purpose is not to win (Rogers & Goodloe, 1973), but to help students develop decision-making skills and provide low-risk environments where they can experiment with creativity (Kovalik & Kuo, 2012). Simulations allow students to transfer knowledge they have learned to real-world situations (Sottile & Brozik, 2004). They allow students to experience environments as close to real as possible without the costs and risks that could be associated with a real-world experience (Kovalik & Kuo, 2012). In fact, gaming simulations have been used for training in the military, medical field, and aviation, to name a few (Kovalik & Kuo, 2012). One example of a successfully implemented simulation allowed participants to problem-solve and exercise their judgmental abilities as they interacted with different situations they could encounter in the food industry (Feinstein, 2001). Overall, the simulation helped students acquire dynamic knowledge, as

they were able to increase their knowledge of the foodservice system as they manipulated their way through the online simulation (Feinstein, 2001). This supports the fact that simulations are an effective tool to help students acquire dynamic knowledge and higher order cognitive capabilities.

When used appropriately, "simulations can be motivating, challenging, and engaging for students" (Kovalik & Kuo, 2012, p. 820). They establish immediate goals that can only be met by applying course content (Lang, 2014). Simulations allow students to apply what they have learned in the classroom, helping them realize that what they have learned is indeed relevant and will help them achieve a goal based on a real-world scenario (Lang, 2014). However, poorly designed simulations can lead to frustrations for students, and not all students accept simulations as viable methods of instruction (Cruickshank & Telfer, 1980).

While simulations do enrich learning as a whole (Wolfe, 1997), there is some question regarding learning and performance. For instance, students who perform best may have just selected the correct strategy within the simulation and not learned much at all (Wolfe & Chanin, 1993). On the other hand, students could have learned a great deal working through the simulation, but not perform well overall in the exercise (Wolfe & Chanin, 1993). Washbush and Gosen (2001) found that in over six years in looking at ten data sets, learning did take place, as students mastered new skills, validating simulation as an acceptable learning method. Learning and performance are not positively correlated, indicating that instructors should be cautious when grading students, as the end result of a simulation exercise reflects that of performance, not learning (Washbush & Gosen, 2001).

Extension Educators

Professional development programs should be at the heart of organizations that are committed to improving the quality of lives (Schwartz & Bryan, 1998), such as is the mission of the Cooperative Extension Service (Seevers et al., 1997). In fact, the Extension Committee on Organization and Policy (ECOP) adopted a statement emphasizing the need for continuous professional development for Extension professionals to keep up with the changing needs of clientele (ECOP, 1977). However, prior to this time, professional development was described as structured education enabling Extension professionals to develop technical skills (Crosby, 1920; Mathews, 1951). The development of educational process skills or non-technical skills were not deemed important. Recent research, however, has explored the importance of developing non-technical competencies in Extension educators (Benge et al., 2011; Cooper & Graham, 2001; Diem, 2009; Harder & Dooley, 2007; Harder et al., 2010; Keita & Luft, 1987; Lakai et al., 2012). The importance of professional development was again identified as a priority in the 2010 Strategic Opportunities for Cooperative Extension Report (Seevers & Graham, 2012), suggesting that organizations such as the Cooperative Extension Service should have a system in place to build the competencies of Extension educators (Van Buren, 2001).

However, for professional development to be successful, Extension educators should recognize the need for professional development and be willing to invest the time and resources to gain the skills needed (Lessly, 2005). Additionally, the Cooperative Extension Service must be committed to providing quality professional development opportunities for Extension educators that address the changing needs of clientele

(Lessly, 2005) in order to ensure that Extension remains "a viable educational outreach system" (Arnold, 2007, p. 18). Supporting this assertion, Ferrell (2006) indicated that Oklahoma Extension educators wanted professional development opportunities that could help them better meet the broad range of needs of their clientele. Ultimately, when Extension educators view professional development as a continuous learning process and are committed, it can make a difference in both the educators and the clientele that they serve (McKenzie, 1991; Sims, 1998).

CHAPTER III

METHODOLOGY

The purpose of this chapter is to describe the methods and procedures followed to conduct the study. This chapter provides a description of the purpose, the research design, the population of interest, and the study's participants. Procedures for both the development of the treatment and the instrument, followed by a detailed description of both the data collection process and the methods utilized for data analysis are provided. The chapter concludes with a discussion of controlling threats to validity.

Purpose of the Study

The purpose of this study was to investigate the influence of two professional development delivery methods on how Extension educators see themselves as change agents and the possibility of moving Extension educators from reactive to proactive programming. To assess the effectiveness of the professional development delivery methods, the study explored Extension educators' perceptions of Extension educator roles and work responsibilities.

Research Design

The study utilized an experimental pre-post-post-test two-group comparison design to examine Oklahoma Extension educators' perceptions of Extension educator

roles and related work responsibilities. True experimental designs have at least two groups. One group receives a treatment while the second group either serves as a control group and receives no treatment, or serves as a comparison group and receives a traditional intervention, such as the case in the present study (Engel & Schutt, 2014). Descriptive survey and descriptive correlational research methods were utilized, as well as both independent *t*-tests and one-way analysis of variance to discern the treatment effect. Both one-way and factorial repeated-measures analysis of variance were also employed to determine the effect of the treatment over the course of three instrument administrations and to examine the effect of the order of administration of the two post-tests.

Population

All Oklahoma Cooperative Extension Service county Extension educators (N = 178) employed as of January 14, 2016, comprised the target population for this study (L. C. Freeman, personal communication, February 5, 2016). As displayed in Table 1, the majority of county Extension educators in Oklahoma were female (60%).

Table 1

Gender of Population (N = 178)

Gender	*f*	*%*
Male	71	40.0
Female	107	60.0
Total	178	100.0

Of the 178 Extension educators, 39% had worked for the Oklahoma Cooperative Extension Service for less than five years. More than half (51.7%) of all the Extension educators had 10 years or less of experience working in Extension (Table 2).

Table 2

Years Working in Extension of Population (N = 178)

Number of Years	*f*	*%*	*C%*
< 5	70	39.3	39.3
5 – 10	22	12.4	51.7
11 – 15	27	15.2	66.9
16 – 20	19	10.7	77.6
21 – 25	20	11.2	88.8
26 – 30	13	7.3	96.1
31 +	7	3.9	100.0
Total	178	100.0	

Approximately half (53.9%) of the Extension educators were 50 years of age or younger. However, 40 out of the 178 Extension educators fell into the 51 to 55 years of age group, suggesting that most educators were late career (Table 3).

Table 3

Age of Population (N = 178)

Age in Years	*f*	*%*	*C%*
< 25	8	4.5	4.5
25 – 30	32	18.0	22.5
31 – 35	15	8.4	30.9
36 – 40	15	8.4	39.3
41 – 45	15	8.4	47.7
46 – 50	11	6.2	53.9
51 – 55	40	22.5	76.4
56 – 60	27	15.2	91.6
61 +	15	8.4	100.0
Total	178	100.0	

Each of the 77 counties in Oklahoma has a Cooperative Extension Service office staffed by one or more Extension educators. The majority of the Extension educators in Oklahoma are classified as Agriculture/4-H, Family and Consumer Sciences/4-H, or 4-H, as defined in Chapter I. However, some counties may have Extension educators with specializations that could include horticulture, community and rural development, or nutrition.

The most common county staffing pattern in Oklahoma is one Agriculture/4-H educator and one Family and Consumer Sciences/4-H educator along with an administrative assistant (n = 44). In fact, of the 178 Extension educators, 80 were

Agriculture/4-H and 65 were Family and Consumer Sciences/4-H (Table 4). However, if funding is available from the county, a third Extension educator focusing solely on 4-H is housed within the county. If additional county funds are available beyond what is required to fund a 4-H educator, other specialized educators may be added to a county's Extension staff. Even so, counties do deviate from this pattern, as some have more Extension educators and some have fewer, depending on budgets, personnel availability, and county need.

Table 4

Extension Program Area of Population (N = 178)

Program Area	*f*	*%*
Agriculture/4-H	80	45.0
Family and Consumer Sciences/4-H	65	36.5
4-H	33	18.5
Total	178	100.0

One of the Extension educators in each county is assigned the role of County Extension Director. In addition to duties associated with the Extension educator's specialization, he or she is also responsible for administrative duties of the Extension office including budgets, working with the county's Board of Commissioners, reporting, and managing personnel. Due to vacancies in two counties, 75 of the 178 Extension educators held the role of County Extension Director (Table 5).

Table 5

County Extension Director Role of Population (N = 178)

County Extension Director	*f*	*%*
Yes	75	42.1
No	103	57.9
Total	178	100.0

The Oklahoma Cooperative Extension Service is administratively divided into four districts: Northeast (NE), Northwest (NW), Southeast (SE), and Southwest (SW). Of the 77 counties, 21 are in the NE district, 17 are in the NW district, 19 are in the SE district, and 20 are in the SW district (Figure 2). The number of Extension educators employed in each district is typically proportional to the number of counties in the district. As depicted in Table 6, the NE district has the most counties and reported the most Extension educators (n = 59), and the NW district has the fewest counties and reported the fewest Extension educators (n = 33). The metro area of Tulsa helps account for the greatest number of Extension educators in the NE district, followed by the SW district which includes the greater Oklahoma City area as well as the city of Lawton. The sparsely populated NW district is associated with the fewest number of Extension educators employed in a district.

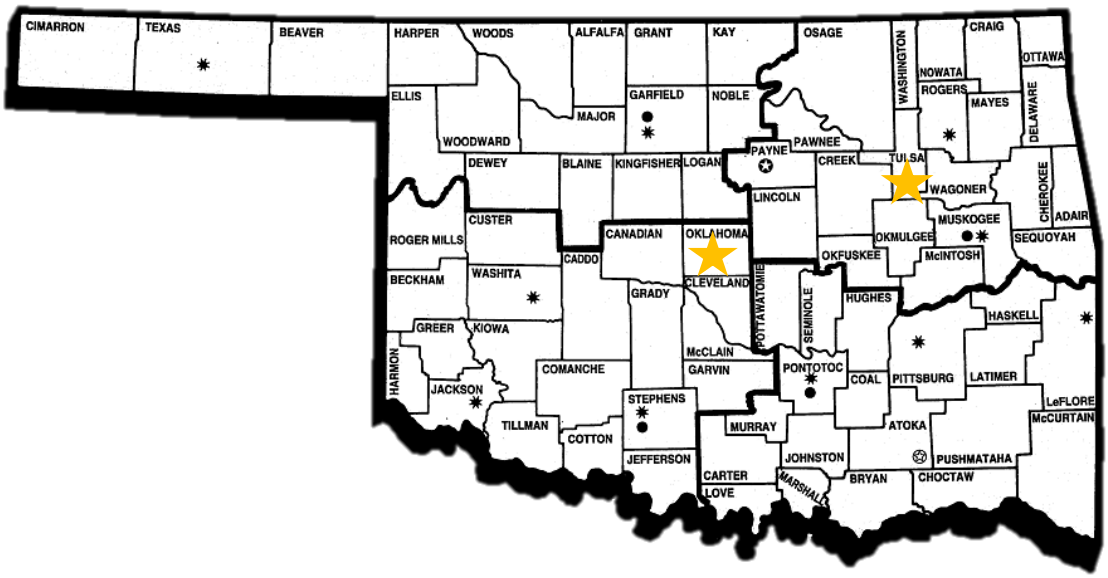


Figure 2. *Oklahoma Cooperative Extension Service administrative districts.* Adapted from "Oklahoma Cooperative Extension Service Administrative Districts and Area Specialists," by Oklahoma Cooperative Extension Service, 2016d, *Oklahoma Cooperative Extension Service County, Area, and District Office Directory*. Retrieved from http://countyext2.okstate.edu/OCES_AdminDistricts_Map.pdf

Table 6

Extension District of Population (N = 178)

District	Number of Counties	*f*	%
NE	21	59	33.1
NW	17	33	18.5
SE	19	41	23.0
SW	20	45	25.3
Total	77	178	100.0

Participants

From the target population of 178 Extension educators, a sample of 77 educators was used for the study. The 77 Extension educators who were included in the study attended the 2016 Oklahoma Cooperative Extension Service biennial conference at the time of data collection and completed all three administrations of the instrument. A month prior to the conference, 170 out of the 178 county Extension educators who were registered for the conference were randomly assigned to two groups, either Group A (n = 85) or Group B (n = 85). Group A and Group B designated which treatment the participants would receive first. A free online resource, www.random.org (Haahr & Haahr, 2016), was utilized to randomize the conference registrants. Although initially the groups were equal in size, the lack of completion of all three administrations of the instrument (Pre-Test, Post-Test I, Post-Test II) by an Extension educator or the absence of an educator's name on all three administrations which prevented the ability to track all three, resulted in the educator's data being removed from the study. Additionally, not all of the Extension educators who registered for the conference actually attended. Only data from the 77 Extension educators whose three instrument administrations could be tracked were included in the study. While additional Extension educators did complete either one or two of the instrument administrations, 77 educators fully completed all three. Of the 77 included Extension educators, 34 respondents had been assigned to Group A, and 43 had been assigned to Group B. After taking this information into account, the final response rate for the study was 43%.

Treatment

Everett M. Rogers' (2003) Diffusion of Innovations Theory served as the basis for the content for the experimental treatment, a professional development session, *Making an Impact as a Change Agent*. This theory was purposefully selected because of its agricultural roots and its applicability to the mission of the Cooperative Extension Service. Because professional development delivery methods were also of interest, an interactive face-to-face workshop was used for one part of the session, and a computer simulation activity was used for the other part of the session. All county Extension educators attending the 2016 Oklahoma Cooperative Extension Service biennial conference were invited to participate in both parts of the professional development opportunity.

The goal of the treatment was to provide an overview of Rogers' (2003) Theory and how Extension educators could implement its concepts in the work they do on a daily basis. Three key concepts of Rogers' Theory (2003) that apply to the work of county Extension educators and that could be taught during the allotted three hours were selected. The three topics selected for the professional development session were (a) Innovation-Decision Process, (b) Categories of Adopters, and (c) Opinion Leadership.

Although the topics and the overall desired outcome were the same for both parts of the professional development session, the delivery methods differed. Treatment A was an interactive face-to-face workshop that included group discussions, activities, and role-playing exercises. Treatment B was a stand-alone computer simulation activity where participants worked through a simulation by reading and following the prompts provided

solely by the online simulation. Both groups of participants, Group A and Group B, experienced both delivery methods. Group A participated in the computer simulation activity followed by the face-to-face workshop, whereas Group B participated in the face-to-face workshop first, followed by the computer simulation activity.

In keeping with the interactive nature of a workshop, several hands-on activities were created to facilitate learning within the face-to-face workshop (Fleming, 1997). Cooperative learning created an active learning environment, as the participants were divided into small groups to maximize their learning (Johnson et al., 1991). To get participants to focus their attention on diffusion of innovations at the beginning of the workshop, participants were asked to think about the process involved in getting people to adopt a low sodium diet. Participants were then led in a group discussion about the five stages of the innovation-decision process, describing each stage using the context of a low sodium diet. Following the large group discussion, participants were divided into small groups where they were asked to work together to describe what each of the five stages would look like for using a battery charged lawnmower. Upon completion, each group shared with the larger group how they envisioned the five stages of the innovation-decision process for a battery charged mower. Next, the innovation of the batter charged mower led into a discussion about the categories of adopters. Participants were asked to consider the characteristics of individuals in each category in terms of adopting a battery charged mower. Following the large group discussion, participants once again convened into their small groups. Each group was given a set of five cards, one for each of the adopter categories. Participants were then asked to identify as a small group the adopter categories of individuals after reading a brief description. Upon coming to a group

consensus, the appropriate card was raised in the air to indicate each group's selection of the adopter category, followed by a period of brief discussion. The final workshop topic, opinion leadership, was facilitated by a role-playing activity led by session facilitators. Each facilitator was designated as either an innovator, an opinion leader, or a laggard. The facilitators answered questions asked by the workshop leader regarding travel, news sources, social circles, education, and computers. Their answers revealed characteristics typically associated with each category of individuals. The workshop concluded with a brief discussion about the applicability of Rogers' (2003) Diffusion of Innovations Theory to Extension educators' daily work. Materials and handouts created to deliver the workshop, along with photos depicting the events, are included in Appendix A.

In the computer simulation activity, participants were immersed in a game-like environment where they relied on the experiential learning activities embedded within the simulation for instruction (Feinstein, 2001). Participants were only given technical instructions, including how to log in to the online computer simulation and a list of character descriptions to ease readability from the computer screen. No further instructions were given by the facilitator, as participants were asked to work through the simulation using the prompts provided by the simulation. The context of the computer simulation was a farmers' market. Participants assumed the role of a change agent challenged with getting the producers within the simulation to adopt organic practices. As participants selected different diffusion activities, weeks were deducted from the allotted two years. Each diffusion activity cost a different number of weeks, with some activities costing only one week, while others costing six weeks. The cost in weeks of each activity reflected the amount of time that might be needed if the activities were actually

implemented. During the simulation, the producers moved from awareness to adoption as participants selected appropriate diffusion activities for them according to their descriptions. Through trial and error, participants learned which diffusion activities were appropriate for each producer and during which stage of adoption to initiate them. The overall goal of the computer simulation activity was for participants to secure as many adopters of organic practices as possible during a two year time period (Enfield et al., 2012; Lara et al., 2009). To accomplish this goal while learning principles of Rogers' (2003) Diffusion of Innovations Theory, participants were encouraged to play multiple rounds of the computer simulation. The list of character descriptions and a screenshot of the computer simulation are included in Appendix B along with photos of the participants participating in the computer simulation activity.

Instrument Development

The instrument was designed to be administered as a pre-test and two post-tests, and it can best be described in two parts (Appendix C). Part I consisted of ranking nine Extension educator roles in order of importance, and Part II was composed of 12 work related responsibilities asking participants to rate them on a 6-point Likert-type scale in terms of what is the best use of an Extension educator's time. All three instrument administrations were comprised of the same items in the same order. The only variation was in the pre-test, which included six demographic items: (a) Extension program area, (b) County Extension Director role, (c) years working in Extension, (d) age, (e) gender, and (f) Extension district.

Reliability and validity are essential to the quality of an instrument. Reliability refers to the extent to which an instrument measures consistently what it intends to measure, whereas validity refers to the extent to which an instrument measures what it claims to measure (Ary, Jacobs, & Razavieh, 2002). Both are addressed for Part I and Part II of the instrument.

Part I-Extension Educator Roles

As described in the review of literature, nine distinct and independent change agent roles applicable to county Extension educators were conceptualized by Dr. Norman A. Brown (1980), Dean and Director of the Minnesota Agricultural Extension Service. The importance of these roles was further explored by Jared M. Smalley, a Minnesota Extension district supervisor, in a study to ascertain Minnesota Extension agents' perceptions of the roles (Smalley, 1985). Smalley (1985) developed an instrument to "measure the relative importance of the nine change agent roles as perceived by Minnesota County Extension Agents" (Smalley, 1985, p. 50).

One part of Smalley's instrument listed the nine roles and asked agents to rank them in order of importance from one to nine without assigning any two items the same number. The most important role received a one, and the least important role received a nine. For the present study, a modified version of Smalley's instrument was utilized. In the modified version, the term *change agent* was replaced with *Extension educator,* and the definitions of each of the roles were included in the instrument items.

Reliability and validity. According to Smalley (1985), an accurate reliability rating could not be computed due to the independent nature of the ranked items. Face

validity was achieved based on Smalley's experience as an Extension district supervisor and through conversations both with other district program leaders in Minnesota and with district supervisors from other states. Because it had been 30 years since the validation, Extension staff members from three states were consulted in November 2015 to establish validity once again. The Extension personnel who reviewed the roles were a combination of state program leaders, state specialists, district staff, and county staff, representing all program areas within Extension. The consensus was that the Extension educator roles are still relevant.

Part II-Extension Educator Use of Time

As described in the review of literature, there are many work responsibilities Extension educators are expected to carry out on a daily, weekly, monthly, or possibly a yearly basis. A list of Extension educator work responsibilities based on research as well as the researcher's previous experience working as a county Extension educator for over eight years was initially developed. The list was narrowed to 11 responsibilities. After consulting with an expert panel of Extension employees, two additional work responsibilities were added to the list for a total of 13 work responsibilities. The two added were *conduct programming that responds to client needs* and *conduct programming that responds to client desires.* This list was utilized for the pilot test. After modifications following the pilot test, one item, *work individually as a consultant for clients,* was eliminated, leaving 12 items on the final instrument. Participants were asked to first consider each of the 12 work responsibilities in terms of what is the best use of an Extension educator's time, and then rate each item on a 6-point Likert-type scale ranging from strongly disagree to strongly agree.

Reliability and validity. The same expert panel who examined the Extension educator roles reviewed the list of work responsibilities for face validity in November 2015. County Extension employees in Arkansas were asked to participate in the pilot test via Qualtrics©. A link to the instrument was sent via email on Wednesday, November 25, 2015, to 175 county Extension staff in Arkansas. The response rate was 59%, with 104 out of the 175 county staff responding.

Before completing a factor analysis of the 13 items utilizing Statistical Package for Social Sciences (SPSS©) version 21, previous research and prior experiences led to the hypothesis that the work responsibilities based on the best use of an Extension educator's time would load into two factors, proactive responsibilities and reactive responsibilities. While two internally consistent factors did indeed emerge from the analysis, they were not proactive and reactive responsibilities. Thus, the two factors were not theoretically meaningful for inclusion in the study. In other words, the items did not load into reactive responsibilities and proactive responsibilities. As such, the decision was made to move forward, measuring the work responsibilities as a single factor.

This unidimensional part of the instrument, Part II-Extension Educator Use of Time, had Cronbach's alphas of .77 (Pre-Test), .86 (Post-Test I), and .90 (Post-Test II), indicating acceptable reliability for the three instrument administrations (Green, Lissitz, & Mulaik, 1977). Based on these reliabilities, all 12 items were scaled for each of the three time periods, Pre-Test, Post-Test I, and Post-Test II. These scales were then used for final data analysis.

Data Collection

After creating both the instrument and a consent form for the Extension educators, an application for permission to conduct the experiment was submitted to the Internal Review Board (IRB) at Oklahoma State University. The IRB approved documents are included in Appendices D and E. Participant recruitment and the consent process both followed the approved IRB protocol.

Data collection was conducted during the 2016 Oklahoma Cooperative Extension Service biennial conference, a conference that all county Extension educators were expected to attend. The Oklahoma Cooperative Extension Service biennial conference was held January 14 – 16, 2016, on the campus of Oklahoma State University (Appendix F). Besides providing a venue for all Oklahoma Cooperative Extension Service employees to receive updates and interact with administrators housed on campus, the conference was a time for employees to engage in professional development opportunities.

On the third day of the 2016 conference, Thursday, January 14, a two-part professional development session was scheduled. All county Extension educators in attendance were invited to participate in this session, *Making an Impact as a Change Agent*. It was during this two-part session that data were collected from the county Extension educators.

Prior to data collection, the face-to-face workshop was pilot tested twice. A group of graduate students served as the participants for the first pilot test on Monday, December 14, 2015. Following the workshop, revisions were made including adding an

additional interactive activity and eliminating some of the information included in the PowerPoint© presentation. A second pilot test was conducted on Wednesday, January 13, 2016, with a group of undergraduate students. Final revisions were made to shorten some of the activities prior to data collection on Thursday, January 14, 2016.

The experiment occurred on the campus of Oklahoma State University with the interactive face-to-face workshop taking place in a meeting room in the Student Union Building. The computer simulation activity took place in the computer lab in the Classroom Building, located directly across from the Student Union Building. Because participants were pre-assigned to groups, they went directly to their assigned locations for either Group A or Group B upon arrival at the conference on the morning of Thursday, January 14, 2016. Locations were available on both the printed conference schedule as well as on the conference mobile app. Participants were informed of their group assignment on the first day of the conference via their personalized conference schedule through an app for their smartphones or tablets. Group A participated in the computer simulation activity first, while Group B took part in the interactive face-to-face workshop. The groups then switched for the second part of the professional development session. One and one-half hours were allotted for each part of the professional development session. Part I of the session lasted from 8:30 a.m. to 10:00 a.m., and Part II took place from 10:20 a.m. to 11:50 a.m., with a short break for both groups lasting from 10:00 a.m. to 10:20 a.m.

Upon arrival in both locations, participants were given a consent form approved by IRB to read and then asked to complete a pre-test. The participants' completion of the pre-test signaled their consent to participate in the study. When all pre-tests had been

completed, both the interactive face-to-face workshop and the computer simulation activity began. Following their completion, participants were immediately asked to complete a post-test. Participants were then provided a 20 minute break with refreshments. Breaks were set up in both locations, the Student Union Building and the Classroom Building, to lessen the possibility of the two groups interacting.

Following the break, participants moved to their second location to complete the part of the session they had not previously completed. The instructors and assistants then replicated what they had done during the previous time period, less the pre-test, but with a new group of participants. At the completion of the second one and one-half time period, participants were immediately asked to complete another post-test.

In all, participants were asked to complete a total of three administrations of the instrument: (a) a pre-test, (b) a post-test during their first part of the session, and (c) a post-test during their second part of the professional development session. In order to track all three instrument administrations for each of the participants, participants were asked to put their names on each instrument administration that they completed. Following data collection, all three instrument administrations were assembled for each participant, and each participant was assigned a code number prior to removal of the names.

On Friday, January 15, 2016, a follow-up email message was sent to all of the Extension educators who participated in the professional development session. The message thanked them for their participation and included a link to the computer

simulation activity to encourage continued play. Instructions including how to log in to the simulation and the password were also included in the email message.

Data Analysis

Statistical Package for Social Sciences (SPSS©) version 21 was utilized to analyze all data. As previously described, only the Extension educators (n = 77) who fully completed all three instrument administrations were included for data analysis. Prior to analysis, SPSS© Amos add-on was utilized to impute some missing data from Part II of the instrument. Six data points, .22%, were missing out of 2,772 possible data points and had to be imputed. After all missing items were estimated, each instrument administration was scaled to generate total scores for the 12 work responsibilities at each of the three time periods, Pre-Test, Post-Test I, and Post-Test II, for final data analysis.

To answer research questions one, two, and five, descriptive survey design was employed to describe the makeup of the participants and to determine the Extension educators' perceptions of both the Extension educator roles and the work responsibilities at all three time periods. Frequencies for each of the demographic factors were compiled, and means were calculated for the importance of each of the nine Extension educator roles at each of the three time periods. Frequencies were computed to illustrate the participants' Likert-type scale responses to each of the 12 work responsibility items based on the best use of an Extension educator's time at each of the three time periods.

Descriptive correlational design was used to determine the relationship of both years working in Extension and age (research questions three and six) with both the importance of the Extension educator roles and the work responsibilities based on the

best use of an Extension educator's time at all three time periods. Independent *t*-tests were used to determine the differences in the Extension educators' perceptions of the importance of both the Extension educator roles and the work responsibilities at all three time periods, based on gender and County Extension Director role (research questions three and six). A one-way analysis of variance followed by Tukey's post-hoc test was utilized to determine the differences in the Extension educators' perceptions of the importance of the Extension educator roles and the work responsibilities, based on Extension program area and Extension district (research questions three and six). Again, each time period was considered.

A one-way repeated-measures analysis of variance was used to answer research question four to discern whether or not the Extension educators' perceptions of the importance of the Extension educator roles changed as a result of a two-part professional development session. To answer research questions seven and eight, a one-way factorial repeated-measures analysis of variance was used to determine if Extension educators' perceptions of the work responsibilities based on the best use of an Extension educator's time changed as a result of a two-part professional development session. This statistical test also analyzed the order of administration of the two delivery methods, a workshop and a computer simulation activity, for the two groups to see if order affected how Extension educators perceived the work responsibilities based on the best use of an Extension educator's time. Significant differences were assessed against an a priori alpha level of .05.

Controlling Threats to Validity

Drawing valid conclusions about the effects of independent variables and generalizing to the populations of interest are two goals of research (Kirk, 2013). However, there are certain threats to a study's validity that should be considered, and steps should be taken to mitigate their effect. Even though employing true experimental design controls for most threats to internal and external validity, attention was given to address validity issues within the study (Gay, Mills, & Airasian, 2009).

Internal Validity

Threats to internal validity refer to potential problems when drawing inferences regarding the cause and effect relationship between the independent and dependent variables (Shadish, Cook, & Campbell, 2002). Threats related to the study's participants include history, maturation, statistical regression, selection of participants, mortality, and selection interactions (Creswell, 2015). Random assignment controlled for maturation, statistical regression, selection of participants, and selection interactions. History and mortality were controlled by administering the experiment in a short period of time, as the pre-test and both post-tests were given during the three hours allotted for the professional development session.

When considering threats related to treatments, issues to consider include diffusion of treatments, compensatory equalization, compensatory rivalry, and resentful demoralization (Creswell, 2015). To address diffusion of treatments, the two treatments, the workshop and the computer simulation activity, were administered in different buildings on campus, thus the participants did not interact. Furthermore, participants did

not mingle during the break between the two treatments, as refreshments were available in both treatment locations to keep the groups separate. When considering compensatory equalization, compensatory rivalry, and resentful demoralization, all participants were invited to participate in both treatments, and participants did not know ahead of time exactly what they would be doing during the professional development session, as to reduce predetermined biases.

Another category of threats to internal validity related to the procedures utilized in the study suggests that both testing and instrumentation should be addressed (Creswell, 2015). Testing could be considered a possible threat in the study because a pre-test was utilized that was comprised of the same items in the same order as both post-tests. Additionally, participants completed all three instrument administrations over the course of three hours, thus increasing the possibility of familiarity with instrument items. However, by using the same items on the pre-test and the two post-tests, the instrument was standardized, thus controlling the threat of instrumentation. Testing was controlled by administering a pre-test to both groups, establishing that both groups were essentially the same prior to treatment. Thus, post-test scores for both groups could be compared to pre-test scores to measure the treatment's effect on the participants (Gay et al., 2009).

When considering the order of the items on the instrument, the instrument asked participants to rank and rate items regarding their perceptions as opposed to measuring their gain in knowledge. Because the instrument utilized self-reporting to measure participant perception and not correct and incorrect responses to items measuring knowledge gain, the order of the items for all three testing administrations remained the same (Ary et al., 2002; Howard et al., 1979). Utilizing equivalent forms of an instrument

is recommended when the same content appears on both a pre-test and post-tests measuring knowledge gain, but not when an instrument measures constructs such attitude, personality, or perception, as in the present study (Ary et al., 2002). Due to the limited time frame of the professional development session, participants could have perhaps experienced experimental fatigue due to being asked to participate in a pre-test and two post-tests over the course of only three hours.

External Validity

The generalizability of a study's findings refers to its external validity (Ary et al., 2002). Population external validity, ecological external validity, and external validity of operations are three types of validity to consider (Smith & Glass, 1987). When considering population validity, to what population(s) are the results generalizable, the major threat is participant selection/treatment interaction (Ary et al., 2002). However, due to the experimental nature of the study, this threat was controlled through random assignment of all Extension educators to two groups. It is important to note, however, that the participants' whose data were included in the analysis were mostly female and Family and Consumer Sciences/4-H educators. Therefore, caution should be exercised when generalizing results.

The threats to ecological validity, to what other situations are the results generalizable, are setting/treatment interaction, experimenter effect, pre-test/treatment interaction, and subject effects (Ary et al., 2002). Due to the nature of the Extension conference and time constraints imposed by administration, the amount of time allotted to administer the treatment was limited. Ideally, more time would have been allowed for

such a professional development opportunity. However, in order to have access to all Extension educators in Oklahoma for the study, data were collected at the 2016 biennial conference. By selecting this setting, time was limited for treatment administration. However, experimenter effect was controlled by making sure those who were involved in the administration of the treatment understood their role and acted similarly for both groups. The third and fourth threats previously mentioned could be considered limitations to the study since a pre-test was administered only a short time prior to the post-tests, and the participants were asked to participate in something novel and new.

Lastly, external validity of operations considers the differences in operational definitions of variables among experimenters. This threat was controlled by providing clear definitions of all variables as supported by the review of literature (Ary et al., 2002).

CHAPTER IV

FINDINGS

The purpose of this chapter is to present findings of the research conducted to (a) examine the effects of a two-part professional development session aimed at influencing county Extension educators in Oklahoma of their role as a change agent; and (b) explore the effectiveness of two professional development delivery methods utilized to deliver a two-part professional development session. This chapter includes the findings as they relate to the specific research questions.

Findings Related to Research Question #1: Description of Participants

The six demographic items collected on the pre-test, gender, Extension program area, County Extension Director role, Extension district, years working in Extension, and age are used to describe the sample of 77 Extension educators utilized in this study. Of the 77 participants, 25% were male, while 75% were female (Table 7).

Table 7

Gender of Participants by Group (n = 77)

	Group A		Group B		Total	
Gender	*f*	*%*	*f*	*%*	*f*	*%*
Male	10	29.4	9	20.9	19	24.7
Female	24	70.6	34	79.1	58	75.3
Total	34	100.0	43	100.0	77	100.0

As reported in Table 8, approximately half (51.9%) of the participants classified themselves as Family and Consumer Sciences (FCS)/4-H educators, while 23% identified with the Agriculture (Ag)/4-H classification. 4-H educators comprised 18% of the participants, and 6.5% marked "other." The five participants who marked "other" identified themselves as Agriculture/Horticulture (*n* = 2), Community and Rural Development (*n* = 1), Community Nutrition Extension Program (CNEP) Coordinator (*n* = 1), and Farm to You (*n* = 1).

Table 8

Extension Program Area of Participants by Group (n = 77)

	Group A		Group B		Total	
Program Area	*f*	*%*	*f*	*%*	*f*	*%*
Agriculture/4-H	8	23.5	10	23.3	18	23.4
FCS/4-H	18	52.9	22	51.2	40	51.9
4-H	6	17.6	8	18.6	14	18.2
Other	2	5.9	3	7.0	5	6.5
Total	34	100.0	43	100.0	77	100.0

Additionally, nearly 38% of the participants identified themselves as County Extension Directors (Table 9).

Table 9

County Extension Director Role of Participants by Group (n = 77)

	Group A		Group B		Total	
CED	*f*	*%*	*f*	*%*	*f*	*%*
Yes	10	29.4	19	44.2	29	37.7
No	24	70.6	24	55.8	48	62.3
Total	34	100.0	43	100.0	77	100.0

Representation from the four Extension districts was for the most part evenly distributed, reflecting the number of Extension educators employed in each district

(Table 10). Of the participants, 19.5% were from the Northwest District (NW) and approximately 21% were from the Southwest District (SW). The Northeast District (NE) was represented by 32.5% and 27% were from the Southeast District (SE).

Table 10

Extension District of Participants by Group (n = 77)

	Group A		Group B		Total	
District	*f*	*%*	*f*	*%*	*f*	*%*
NE	8	23.5	17	39.5	25	32.5
NW	6	17.6	9	20.9	15	19.5
SE	12	35.3	9	20.9	21	27.3
SW	8	23.5	8	18.6	16	20.8
Total	34	100.0	43	100.0	77	100.0

Table 11 shows the length of experience of the participants. The mean number of years of experience was 10.5, while the median was 8.5 years. The mode was 2 years. Additionally, half (50%) of the participants were employed for eight years or less with the Oklahoma Cooperative Extension Service.

Table 11

Years Working in Extension of Participants by Group (n = 77)

	Group A			Group B			Total		
Years	*f*	*%*	*C%*	*f*	*%*	*C%*	*f*	*%*	*C%*
< 1	1	2.9	3.0	1	2.3	2.3	2	2.6	2.6
1	0	0.0	3.0	7	16.3	18.6	7	9.1	11.8
2	6	17.6	21.2	2	4.7	23.3	8	10.4	22.4
3	4	11.8	33.3	2	4.7	27.9	6	7.8	30.3
4	3	8.8	42.4	4	9.3	37.2	7	9.1	39.5
5	3	8.8	51.5	3	7.0	44.2	6	7.8	47.4
6	0	0.0	51.5	1	2.3	46.5	1	1.3	48.7
7	0	0.0	51.5	0	0.0	46.5	0	0.0	48.7
8	1	2.9	54.5	0	0.0	46.5	1	1.3	50.0
9	1	2.9	57.6	1	2.3	48.8	2	2.6	52.6
10	1	2.9	60.6	1	2.3	51.2	2	2.6	55.3
11	0	0.0	60.6	4	9.3	60.5	4	5.2	60.5
12	1	2.9	63.6	1	2.3	62.8	2	2.6	63.2
13	1	2.9	66.7	0	0.0	62.8	1	1.3	64.5
14	1	2.9	69.7	1	2.3	65.1	2	2.6	67.1
15	2	5.9	75.8	3	7.0	72.1	5	6.5	73.7
16	2	5.9	81.8	2	4.7	76.7	4	5.2	78.9
17	0	0.0	81.8	0	0.0	76.7	0	0.0	78.9
18	0	0.0	81.8	1	2.3	79.1	1	1.3	80.3

(table continues)

Table 11 (continued)

	Group A			Group B			Total		
Years	*f*	%	*C%*	*f*	%	*C%*	*f*	%	*C%*
19	0	0.0	81.8	1	2.3	81.4	1	1.3	81.6
20	1	2.9	84.8	1	2.3	83.7	2	2.6	84.2
21	1	2.9	87.9	0	0.0	83.7	1	1.3	85.5
22	0	0.0	87.9	1	2.3	86.0	1	1.3	86.8
23	0	0.0	87.9	0	0.0	86.0	0	0.0	86.8
24	0	0.0	87.9	0	0.0	86.0	0	0.0	86.8
25	1	2.9	90.9	1	2.3	88.4	2	2.6	89.5
26	0	0.0	90.9	0	0.0	88.4	0	0.0	89.5
27	2	5.9	97.0	0	0.0	88.4	2	2.6	92.1
28	0	0.0	97.0	2	4.7	93.0	2	2.6	94.7
29	0	0.0	97.0	1	2.3	95.3	1	1.3	96.1
30	0	0.0	97.0	1	2.3	97.7	1	1.3	97.4
31	1	2.9	100.0	0	0.0	97.7	1	1.3	98.7
32	0	0.0		0	0.0	97.7	0	0.0	98.7
33	0	0.0		1	2.3	100.0	1	1.3	100.0
Missing	1	2.9		0	0.0		1	1.3	
Total	34	100.0		43	100.0		77	100.0	

The ages of the participants are described in Table 12. Half (50%) of the participants were age 44 or younger, which was also the median age. The mean age was 42 years and the mode was 50 years old.

Table 12

Age of Participants by Group (n = 77)

	Group A			Group B			Total		
Age in Years	*f*	%	*C%*	*f*	%	*C%*	*f*	%	*C%*
22	0	0.0	0.0	1	2.3	2.4	1	1.3	1.4
23	1	2.9	3.4	1	2.3	4.8	2	2.6	4.2
24	1	2.9	6.9	0	0.0	4.8	1	1.3	5.6
25	2	5.9	13.8	2	4.7	9.5	4	5.2	11.3
26	2	5.9	20.7	1	2.3	11.9	3	3.9	15.5
27	0	0.0	20.7	4	9.3	21.4	4	5.2	21.1
28	1	2.9	24.1	2	4.7	26.2	3	3.9	25.4
29	1	2.9	27.6	1	2.3	28.6	2	2.6	28.2
30	1	2.9	31.0	0	0.0	28.6	1	1.3	29.6
31	0	0.0	31.0	0	0.0	28.6	0	0.0	29.6
32	0	0.0	31.0	0	0.0	28.6	0	0.0	29.6
33	0	0.0	31.0	2	4.7	33.3	2	2.6	32.4
34	2	5.9	37.9	0	0.0	33.3	2	2.6	35.2
35	0	0.0	37.9	1	2.3	35.7	1	1.3	36.6
36	0	0.0	37.9	0	0.0	35.7	0	0.0	36.6
37	0	0.0	37.9	1	2.3	38.1	1	1.3	38.0
38	0	0.0	37.9	1	2.3	40.5	1	1.3	39.4
39	1	2.9	41.4	1	2.3	42.9	2	2.6	42.3
40	0	0.0	41.4	0	0.0	42.9	0	0.0	42.3

(table continues)

Table 12 (continued)

	Group A			Group B			Total		
Age in Years	*f*	%	*C%*	*f*	%	*C%*	*f*	%	*C%*
41	0	0.0	41.4	0	0.0	42.9	0	0.0	42.3
42	0	0.0	41.4	0	0.0	42.9	0	0.0	42.3
43	1	2.9	44.8	2	4.7	47.6	3	3.9	46.5
44	1	2.9	48.3	2	4.7	52.4	3	3.9	50.7
45	0	0.0	48.3	1	2.3	54.8	1	1.3	52.1
46	0	0.0	48.3	1	2.3	57.1	1	1.3	53.5
47	0	0.0	48.3	0	0.0	57.1	0	0.0	53.5
48	0	0.0	48.3	1	2.3	59.5	1	1.3	54.9
49	1	2.9	51.7	2	4.7	64.3	3	3.9	59.2
50	3	8.8	62.1	3	7.0	71.4	6	7.8	67.6
51	1	2.9	65.5	1	2.3	73.8	2	2.6	70.4
52	1	2.9	69.0	4	9.3	83.3	5	6.5	77.5
53	2	5.9	75.9	1	2.3	85.7	3	3.9	81.7
54	0	0.0	75.9	0	0.0	85.7	0	0.0	81.7
55	2	5.9	82.8	2	4.7	90.5	4	5.2	87.3
56	1	2.9	86.2	1	2.3	92.9	2	2.6	90.1
57	1	2.9	89.7	0	0.0	92.9	1	1.3	91.5
58	0	0.0	89.7	0	0.0	92.9	0	0.0	91.5
59	1	2.9	93.1	0	0.0	92.9	1	1.3	93.0
60	1	2.9	96.6	2	4.7	97.6	3	3.9	97.2
61	0	0.0	96.6	0	0.0	97.6	0	0.0	97.2

(table continues)

Table 12 (continued)

	Group A			Group B			Total		
Age in Years	*f*	%	*C%*	*f*	%	*C%*	*f*	%	*C%*
62	0	0.0	96.6	0	0.0	97.6	0	0.0	97.2
63	0	0.0	96.6	0	0.0	97.6	0	0.0	97.2
64	0	0.0	96.6	0	0.0	97.6	0	0.0	97.2
65	0	0.0	96.6	0	0.0	97.6	0	0.0	97.2
66	0	0.0	96.6	0	0.0	97.6	0	0.0	97.2
67	0	0.0	96.6	1	2.3	100.0	1	1.3	98.6
68	1	2.9	100.0	0	0.0		1	1.3	100.0
Missing	5	14.7		1	2.3		6	7.8	
Total	34	100.0		43	100.0		77	100.0	

Findings Related to Research Question #2: Extension Educators' Perceptions of the Importance of Extension Educator Roles

Part I of the instrument asked the participants to rank nine Extension educator roles in order of importance from one to nine, with one being the most important role and nine being the least important role. No items could be assigned the same number. For all three time periods, Pre-Test, Post-Test I, and Post-Test II, none of the nine roles ranked significantly higher or lower in comparison to the others.

Means for all the participants' rankings of the roles ranged from 2.75 to 6.91 after the pre-test. Following the first post-test, means ranged from 3.08 to 6.58, and after the second post-test, means ranged from 3.34 to 6.60. At all three time periods, the

participants ranked *Teach Problem Solving Skills* the lowest. During the first two time periods, the participants ranked *Access Resources of Total University* the highest. *Educational Risk Taker* was ranked the same as *Access Resources of Total University* at the second time period (M = 6.58) and ranked the highest at the third time period (Table 13).

Table 13

Means and Standard Deviations of the Rankings of Extension Educator Roles for Participants (n = 77)

Role	Pre-Test		Post-Test I		Post-Test II	
	M	*SD*	*M*	*SD*	*M*	*SD*
Teach Problem Solving Skills	2.75	2.27	3.08	2.44	3.34	2.65
Good Program Development	3.44	2.65	3.29	2.47	3.58	2.53
Remain Flexible to Meet Needs	4.18	2.17	4.52	2.25	4.42	2.23
Self-Development Plan	4.65	1.91	5.01	2.46	5.05	2.24
Interest in Issues	5.42	2.23	5.36	2.27	5.06	2.37
Alternative Delivery Systems	5.43	2.23	4.71	2.15	4.96	2.21
Involve Volunteers	5.45	2.26	5.75	2.16	5.35	2.22
Educational Risk Taker	6.68	2.29	6.58	2.35	6.60	2.45
Access Resources of Total University	6.91	2.04	6.58	2.15	6.58	2.32

Note. Extension educator roles were ranked on a 1 to 9 scale. 1 = most important; 9 = least important.

Findings Related to Research Question #3

The Relationship of Years Working in Extension and Age to Extension Educators' Perceptions of the Importance of Extension Educator Roles

Correlations between the participants' rankings of the nine Extension educator roles and two demographic factors, years working in Extension and age, were computed. The Pearson's correlation coefficient (r) was calculated to determine the strength of the relationships between the participants' rankings of each of the nine Extension educator roles and both years working in Extension and age.

Pre-Test. During the first time period, Pre-Test, no significant relationships ($p < .05$) were found between any of the participants' rankings of the Extension educator roles and years working in Extension and age (Table 14).

Table 14

The Relationships Between Participants' Rankings of Nine Extension Educator Roles and Years Working in Extension and Age (Pre-Test) (n = 77)

Role	Years (*r*)	Age (*r*)
Teach Problem Solving Skills	.01	.03
Alternative Delivery Systems	-.05	-.01
Interest in Issues	-.01	.06
Involve Volunteers	-.11	.14
Good Program Development	-.16	-.10
Remain Flexible to Meet Needs	.10	-.05
Access Resources of Total University	.09	.03
Self-Development Plan	.18	.13
Educational Risk Taker	.04	-.17

Post-Test I. As reported in Table 15, a positive significant relationship of moderate strength (Cohen, 1988) was found between the participants' ranking of *Access Resources of Total University* and age ($r = .29$) at the second time period, Post-Test I. As age increased or decreased, the rank for *Access Resources of Total University* corresponded in the same direction. As the participants increased in age, importance of this role decreased, as indicated by the assignment of higher numbers to this role. Younger participants ranked this role as more important than older participants, as signified by lower numbers assigned to this role.

Table 15

The Relationships Between Participants' Rankings of Nine Extension Educator Roles and Years Working in Extension and Age (Post-Test I) (n = 77)

Role	Years (*r*)	Age (*r*)
Teach Problem Solving Skills	-.09	-.08
Alternative Delivery Systems	-.06	-.01
Interest in Issues	.03	.01
Involve Volunteers	.11	.11
Good Program Development	-.03	-.00
Remain Flexible to Meet Needs	.14	-.11
Access Resources of Total University	.04	.29*
Self-Development Plan	-.12	-.01
Educational Risk Taker	-.03	-.19

*$p < .05$; ** $p < .01$.

Post-Test II. A negative significant relationship of moderate strength (Cohen, 1988) was found between the participants' ranking of *Alternative Delivery Systems* and years working in Extension ($r = -.33$) at the third time period, Post-Test II (Table 16). As years of service increased or decreased, the rank for *Alternative Delivery Systems* corresponded in the opposite direction. As the years working in Extension increased, the participants' importance of this role increased, as indicated by the assignment of lower numbers to this role. Participants who had been working in Extension longer ranked this role as more important than participants who had not been working in Extension for as many years.

Table 16

The Relationships Between Participants' Rankings of Nine Extension Educator Roles and Years Working in Extension and Age (Post-Test II) (n = 77)

Role	Years (*r*)	Age (*r*)
Teach Problem Solving Skills	.04	.07
Alternative Delivery Systems	-.33**	-.14
Interest in Issues	-.18	.02
Involve Volunteers	-.05	.12
Good Program Development	.06	.03
Remain Flexible to Meet Needs	.22	.05
Access Resources of Total University	.05	.09
Self-Development Plan	.07	-.16
Educational Risk Taker	.13	.25

*$p < .05$; **$p < .01$.

Differences in Extension Educators' Perceptions of the Importance of Extension Educator Roles Based on Gender and County Extension Director Role

Independent *t*-tests were used to determine differences in the participants' rankings of the nine Extension educator roles based on gender and County Extension Director role. Significant differences were assessed at the $p < .05$ level, and all three time periods were considered.

Pre-Test. During the first time period, Pre-Test, no significant differences ($p < .05$) were found between any of the participants' rankings of the Extension educator roles and both gender (Table 17) and County Extension Director role (Table 18). There were no differences in the participants' rankings of the Extension educator roles based on gender or County Extensions Director role during the pre-test. Equal variances were assumed for all calculations, as Levene's test was not violated.

Table 17

Differences in Participants' Rankings of Nine Extension Educator Roles Based on Gender (Pre-Test) (n = 77)

Role	Gender	*n*	*M (SD)*	*t*(75)	*p*
Teach Problem Solving Skills	Male	19	3.05 (2.90)	.66	.512
	Female	58	2.66 (2.05)		
Alternative Delivery Systems	Male	19	4.79 (2.04)	-1.45	.152
	Female	58	5.64 (2.27)		
Interest in Issues	Male	19	6.11 (2.16)	1.57	.120
	Female	58	5.19 (2.22)		
Involve Volunteers	Male	19	5.53 (2.52)	.16	.874
	Female	58	5.43 (2.19)		
Good Program Development	Male	19	3.95 (2.72)	.96	.341
	Female	58	3.28 (2.63)		
Remain Flexible to Meet Needs	Male	19	4.26 (2.10)	.19	.852
	Female	58	4.16 (2.21)		
Access Resources of Total University	Male	19	6.47 (2.32)	-1.07	.287
	Female	58	7.05 (1.94)		
Self-Development Plan	Male	19	4.16 (1.86)	-1.30	.198
	Female	58	4.81 (1.91)		
Educational Risk Taker	Male	19	6.68 (2.38)	.02	.985
	Female	58	6.67 (2.27)		

Table 18

Differences in Participants' Rankings of Nine Extension Educator Roles Based on County Extension Director Role (Pre-Test) (n = 77)

Role	CED	*n*	*M (SD)*	*t*(75)	*p*
Teach Problem Solving Skills	Yes	29	2.45 (2.13)	-.92	.363
	No	48	2.94 (2.36)		
Alternative Delivery Systems	Yes	29	5.52 (2.11)	.27	.789
	No	48	5.38 (2.32)		
Interest in Issues	Yes	29	5.14 (2.23)	-.85	.399
	No	48	5.58 (2.23)		
Involve Volunteers	Yes	29	5.52 (2.16)	.19	.851
	No	48	5.42 (2.33)		
Good Program Development	Yes	29	2.93 (2.27)	-1.32	.190
	No	48	3.75 (2.83)		
Remain Flexible to Meet Needs	Yes	29	4.59 (2.18)	1.27	.207
	No	48	3.94 (2.16)		
Access Resources of Total University	Yes	29	7.17 (1.77)	.88	.382
	No	48	6.75 (2.19)		
Self-Development Plan	Yes	29	4.69 (2.11)	.14	.887
	No	48	4.63 (1.81)		
Educational Risk Taker	Yes	29	7.00 (2.22)	.97	.336
	No	48	6.48 (2.32)		

Post-Test I. A significant difference ($p < .05$) was found between gender and the participants' ranking of *Access Resources of Total University* [$t(62.04) = 2.02$, $p = .048$] during the first post-test. Equality of variances was not assumed for this difference, as

indicated by a violation of Levene's test (p = .001). As described in Table 19, females (M = 6.38) ranked this role significantly lower than males (M = 7.21). As shown in Table 20, a significant difference (p < .05) was found between County Extension Director role and the participants' ranking of *Remain Flexible to Meet Needs* [$t(75) = 2.48$, p = .015] during the first post-test. Equal variances were assumed, as Levene's test was not violated. Those holding the role of County Extension Director (M = 5.31) ranked this role significantly higher than those not serving as a County Extension Director (M = 4.04).

Table 19

Differences in Participants' Rankings of Nine Extension Educator Roles Based on Gender (Post-Test I) (n = 77)

Role	Gender	*n*	*M (SD)*	*t*(75)	*p*
Teach Problem Solving Skills	Male	19	2.95 (2.53)	-.27	.790
	Female	58	3.12 (2.44)		
Alternative Delivery Systems	Male	19	4.21 (2.12)	-.1.18	.241
	Female	58	4.88 (2.14)		
Interest in Issues	Male	19	4.74 (2.54)	-1.40	.167
	Female	58	5.57 (2.16)		
Involve Volunteers	Male	19	5.42 (2.63)	-.77	.443
	Female	58	5.86 (2.00)		
Good Program Development	Male	19	3.37 (2.29)	.17	.868
	Female	58	3.26 (2.54)		
Remain Flexible to Meet Needs	Male	19	4.68 (1.49)	.47[a]	.644[a]
	Female	58	4.47 (2.45)		
Access Resources of Total University	Male	19	7.21 (1.18)	2.02[b]	.048[b]
	Female	58	6.38 (2.35)		
Self-Development Plan	Male	19	5.37 (2.56)	.72	.471
	Female	58	4.90 (2.43)		
Educational Risk Taker	Male	19	6.89 (2.47)	.66	.511
	Female	58	6.48 (2.33)		

[a] equality of variances not assumed *t*(51.22).
[b] equality of variances not assumed *t*(62.04).

Table 20

Differences in Participants' Rankings of Nine Extension Educator Roles Based on County Extension Director Role (Post-Test I) (n = 77)

Role	CED	*n*	*M (SD)*	*t*(75)	*p*
Teach Problem Solving Skills	Yes	29	2.55 (1.97)	-1.48	.143
	No	48	3.40 (2.66)		
Alternative Delivery Systems	Yes	29	4.66 (2.22)	-.19	.852
	No	48	4.75 (2.12)		
Interest in Issues	Yes	29	4.76 (1.94)	-1.85	.069
	No	48	5.73 (2.39)		
Involve Volunteers	Yes	29	5.31 (2.27)	-1.41	.163
	No	48	6.02 (2.07)		
Good Program Development	Yes	29	3.34 (2.42)	.16	.872
	No	48	3.25 (2.52)		
Remain Flexible to Meet Needs	Yes	29	5.31 (2.24)	2.48	.015
	No	48	4.04 (2.13)		
Access Resources of Total University	Yes	29	6.76 (2.39)	.55	.584
	No	48	6.48 (2.01)		
Self-Development Plan	Yes	29	5.14 (2.50)	.35	.731
	No	48	4.94 (2.45)		
Educational Risk Taker	Yes	29	7.00 (2.05)	1.27[a]	.209[a]
	No	48	6.33 (2.50)		

[a] equality of variances not assumed *t*(68.15).

Post-Test II. During the third time period, Post-Test II, no significant differences ($p < .05$) were found between any of the participants' rankings of the Extension educator roles and both gender (Table 21) and County Extension Director role (Table 22). There were no differences in the participants' rankings of the Extension educator roles based on gender or County Extensions Director role during the second post-test.

Table 21

Differences in Participants' Rankings of Nine Extension Educator Roles Based on Gender (Post-Test II) (n = 77)

Role	Gender	*n*	*M (SD)*	*t*(75)	*p*
Teach Problem Solving Skills	Male	19	3.58 (2.93)	.45	.651
	Female	58	3.26 (2.58)		
Alternative Delivery Systems	Male	19	5.21 (2.12)	.57	.574
	Female	58	4.88 (2.25)		
Interest in Issues	Male	19	5.53 (2.39)	.98	.331
	Female	58	4.91 (2.36)		
Involve Volunteers	Male	19	4.53 (2.39)	-1.89	.062
	Female	58	5.62 (2.12)		
Good Program Development	Male	19	3.58 (2.41)	-.01	.991
	Female	58	3.59 (2.59)		
Remain Flexible to Meet Needs	Male	19	4.37 (1.77)	-.12[a]	.903[a]
	Female	58	4.43 (2.38)		
Access Resources of Total University	Male	19	6.84 (2.14)	.56	.580
	Female	58	6.50 (2.39)		
Self-Development Plan	Male	19	4.89 (2.49)	-.35	.726
	Female	58	5.10 (2.17)		
Educational Risk Taker	Male	19	6.26 (2.84)	-.68	.497
	Female	58	6.71 (2.32)		

[a] equality of variances not assumed *t*(41.03).

Table 22

Differences in Participants' Rankings of Nine Extension Educator Roles Based on County Extension Director Role (Post-Test II) (n = 77)

Role	CED	*n*	*M (SD)*	*t*(75)	*p*
Teach Problem Solving Skills	Yes	29	2.69 (2.44)	-1.69	.096
	No	48	3.73 (2.73)		
Alternative Delivery Systems	Yes	29	4.72 (2.42)	-.73	.468
	No	48	5.10 (2.09)		
Interest in Issues	Yes	29	4.62 (2.29)	-1.28	.203
	No	48	5.33 (2.40)		
Involve Volunteers	Yes	29	5.17 (1.97)	-.54	.588
	No	48	5.46 (2.38)		
Good Program Development	Yes	29	3.79 (2.43)	.56	.577
	No	48	3.46 (2.61)		
Remain Flexible to Meet Needs	Yes	29	4.79 (2.09)	1.16	.251
	No	48	4.19 (2.30)		
Access Resources of Total University	Yes	29	7.00 (2.19)	1.23	.224
	No	48	6.33 (2.38)		
Self-Development Plan	Yes	29	5.10 (2.29)	.16	.876
	No	48	5.02 (2.23)		
Educational Risk Taker	Yes	29	7.10 (2.21)	1.42	.160
	No	48	6.29 (2.56)		

Differences in Extension Educators' Perceptions of the Importance of Extension Educator Roles Based on Extension Program Area

A one-way analysis of variance followed by Tukey's post-hoc test was utilized to determine differences in the participants' rankings of the nine Extension educator roles based on Extension program area (Agriculture/4-H, Family and Consumer Sciences/4-H, 4-H, Other). Significant differences were assessed at the $p < .05$ level, and all three time periods were considered.

Pre-Test. As shown in Table 23, two significant differences ($p < .05$) were found during the pre-test between Extension program area and the participants' rankings of the Extension educator roles, *Involve Volunteers* [$F(3,73) = 2.84$, $p = .044$] and *Educational Risk Taker* [$F(3,73) = 3.01$, $p = .036$]. Upon examining the results from Tukey's post-hoc test (Table 24), Family and Consumer Sciences/4-H and 4-H educators ranked *Involve Volunteers* significantly different ($p = .047$). 4-H educators ranked this role significantly lower ($M = 3.93$) than Family and Consumer Sciences/4-H educators ($M = 5.73$). Tukey's post-hoc test also revealed that Agriculture/4-H educators and educators in the "other" category ranked *Educational Risk Taker* significantly different ($p = .033$). Participants classified as "other" ranked this role significantly lower ($M = 4.40$) than Agriculture/4-H educators ($M = 7.50$).

Table 23

Differences in Participants' Rankings of Nine Extension Educator Roles Based on Extension Program Area (Pre-Test) (n = 77)

Role	Source of Variance	Sum of Squares	Mean Square	$F(3,73)$	p
Teach Problem Solving Skills	Group	3.85	1.28	.24	.867
	Error	388.46	5.32		
	Total	392.31			
Alternative Delivery Systems	Group	27.72	9.24	1.92	.134
	Error	351.13	4.81		
	Total	378.86			
Interest in Issues	Group	29.94	9.98	2.10	.107
	Error	346.76	4.75		
	Total	376.70			
Involve Volunteers	Group	40.41	13.47	2.84	.044[a]
	Error	346.68	4.75		
	Total	387.09			
Good Program Development	Group	58.86	19.62	3.02	.035[b]
	Error	474.13	6.50		
	Total	532.99			
Remain Flexible to Meet Needs	Group	8.32	2.77	.58	.632
	Error	351.13	4.81		
	Total	359.46			
Access Resources of Total University	Group	1.67	.56	.13	.942
	Error	314.69	4.31		
	Total	316.36			

(table continues)

Table 23 (continued)

Role	Source of Variance	Sum of Squares	Mean Square	$F(3,73)$	p
Self-Development Plan	Group	6.75	2.25	.61	.613
	Error	270.79	3.71		
	Total	277.53			
Educational Risk Taker	Group	43.69	14.57	3.01	.036[c]
	Error	353.19	4.84		
	Total	396.88			

[a] significant difference revealed by Tukey's post-hoc test between Family and Consumer Sciences/4-H and 4-H educators (p = .047).
[b] no differences revealed by Tukey's post-hoc test.
[c] significant difference revealed by Tukey's post-hoc test between Agriculture/4-H and Other educators (p = .033).

Table 24

Significant Differences Between Extension Program Areas and Participants' Rankings of "Involve Volunteers" and "Educational Risk Taker" (Pre-Test) (n = 77)

Role	Program Area	*n*	*M (SD)*	*p*
Involve Volunteers	Ag/4-H	18	5.89 (2.17)	.047
	FCS/4-H[a]	40	5.73 (2.11)	
	4-H[a]	14	3.93 (1.94)	
	Other	5	6.00 (3.32)	
Educational Risk Taker	Ag/4-H[b]	18	7.50 (1.89)	.033
	FCS/4-H	40	6.43 (2.46)	
	4-H	14	7.14 (1.75)	
	Other[b]	5	4.40 (2.07)	

[a] significant difference revealed between Family and Consumer Sciences/4-H and 4-H educators.
[b] significant difference revealed between Agriculture/4-H and Other educators.

Post-Test I. During the second time period, Post-Test I, no significant differences ($p < .05$) were found between any of the participants' rankings of the Extension educator roles and Extension program area (Table 25). There were no differences in the participants' rankings of the Extension educator roles based on Extension program area during the first post-test.

Table 25

Differences in Participants' Rankings of Nine Extension Educator Roles Based on Extension Program Area (Post-Test I) (n = 77)

Role	Source of Variance	Sum of Squares	Mean Square	*F*(3,73)	*p*
Teach Problem Solving Skills	Group	13.64	4.55	.76	.523
	Error	439.89	6.03		
	Total	453.53			
Alternative Delivery Systems	Group	19.96	6.65	1.47	.229
	Error	329.76	4.52		
	Total	349.71			
Interest in Issues	Group	8.48	2.83	.54	.658
	Error	383.34	5.25		
	Total	391.82			
Involve Volunteers	Group	4.50	1.50.31	.31	.816
	Error	349.81	4.79.30		
	Total	354.31			
Good Program Development	Group	5.64	1.88.87	.30	.826
	Error	458.08	6.28.08		
	Total	463.71			

(table continues)

Table 25 (continued)

Role	Source of Variance	Sum of Squares	Mean Square	$F(3,73)$	p
Remain Flexible to Meet Needs	Group	13.21	4.40	.87	.461
	Error	370.01	5.07		
	Total	383.22			
Access Resources of Total University	Group	1.10	.37	.08	.972
	Error	349.60	4.79		
	Total	350.70			
Self-Development Plan	Group	28.89	9.63	1.63	.189
	Error	430.10	5.89		
	Total	458.99			
Educational Risk Taker	Group	3.66	1.22	.21	.887
	Error	417.04	5.71		
	Total	420.70			

Post-Test II. As displayed in Table 26, a significant difference ($p < .05$) was found between Extension program area and the participants' ranking of the Extension educator role, *Good Program Development*, at the third time period, Post-Test II [$F(3,73) = 3.67$, $p = .016$]. After exploring the results from Tukey's post-hoc test, 4-H educators ranked this role significantly different from both Family and Consumer Sciences/4-H educators ($p = .047$) and participants in the "other" category ($p = .022$). As shown in Table 27, 4-H educators ranked this role significantly higher ($M = 5.29$) than both Family and Consumer Sciences/4-H educators ($M = 3.30$) and participants who identified themselves in the "other" category ($M = 1.60$).

Table 26

Differences in Participants' Rankings of Nine Extension Educator Roles Based on Extension Program Area (Post-Test II) (n = 77)

Role	Source of Variance	Sum of Squares	Mean Square	$F(3,73)$	p
Teach Problem Solving Skills	Group	7.35	2.45	.34	.797
	Error	527.87	7.23		
	Total	535.22			
Alternative Delivery Systems	Group	4.98	1.66	.33	.803
	Error	365.90	5.01		
	Total	370.88			
Interest in Issues	Group	5.26	1.75	.30	.823
	Error	421.41	5.77		
	Total	426.68			
Involve Volunteers	Group	4.60	1.53	.30	.824
	Error	370.93	5.08		
	Total	375.53			
Good Program Development	Group	63.80	21.27	3.67	.016[a]
	Error	422.90	5.79		
	Total	486.70			
Remain Flexible to Meet Needs	Group	17.16	5.72	1.16	.333
	Error	361.54	4.95		
	Total	378.70			
Access Resources of Total University	Group	6.94	2.31	.42	.739
	Error	401.76	5.50		
	Total	408.70			

(table continues)

Table 26 (continued)

Role	Source of Variance	Sum of Squares	Mean Square	$F(3,73)$	p
Self-Development Plan	Group	5.19	1.73	.34	.799
	Error	374.60	5.13		
	Total	379.79			
Educational Risk Taker	Group	15.28	5.09	.84	.843
	Error	441.24	6.04		
	Total	456.52			

[a] significant difference revealed by Tukey's post-hoc test between Family and Consumer Sciences/4-H and 4-H educators (p = .047) and between Other and 4-H educators (p = .022).

Table 27

Significant Differences Between Extension Program Areas and Participants' Ranking of "Good Program Development" (Post-Test II) (n = 77)

Role	Program Area	*n*	*M (SD)*	*p*
Good Program Development	Ag/4-H	18	3.44 (1.89)	.047[a]
	FCS/4-H[a]	40	3.30 (2.50)	.022[b]
	4-H[ab]	14	5.29 (2.97)	
	Other[b]	5	1.60 (0.89)	

[a] significant difference revealed between Family and Consumer Sciences/4-H and 4-H educators.
[b] significant difference revealed between 4-H and Other educators.

Differences in Extension Educators' Perceptions of the Importance of Extension Educator Roles Based on Extension District

To determine the differences in the participants' rankings of the nine Extension educator roles based on Extension district (NE, NW, SE, SW), a one-way analysis of variance followed by Tukey's post-hoc test was utilized. Significant relationships were assessed at the $p < .05$ level, and all three time periods were considered.

Pre-Test. Two significant differences ($p < .05$) were found between Extension district and the participants' rankings of the Extension educator roles, *Alternative Delivery Systems* [$F(3,73) = 3.44$, $p = .021$] and *Interest in Issues* [$F(3,73) = 2.71$, $p = .050$], at the first time period, Pre-Test (Table 28). After examining the output from Tukey's post-hoc test (Table 29), participants in the Northeast (NE) and the Southwest (SW) districts ranked *Alternative Delivery Systems* significantly different ($p = .022$). Northeast (NE) district participants ranked this role significantly lower ($M = 4.36$) than participants in the Southwest (SW) district ($M = 6.38$). Tukey's post-hoc test also revealed a significant difference between how participants in the Southeast (SE) district and the Southwest (SW) district ranked *Interest in Issues* ($p = .032$). Southwest (SW) district participants ranked this role significantly lower ($M = 4.19$) than participants in the Southeast (SE) district ($M = 6.19$).

Table 28

Differences in Participants' Rankings of Nine Extension Educator Roles Based on Extension District (Pre-Test) (n = 77)

Role	Source of Variance	Sum of Squares	Mean Square	$F(3,73)$	p
Teach Problem Solving Skills	Group	17.72	5.91	1.15	.335
	Error	374.60	5.13		
	Total	392.31			
Alternative Delivery Systems	Group	46.95	15.65	3.44	.021[a]
	Error	331.91	4.55		
	Total	378.86			
Interest in Issues	Group	37.69	12.56	2.71	.050[b]
	Error	339.01	4.64		
	Total	376.70			
Involve Volunteers	Group	5.70	1.90	.36	.779
	Error	381.39	5.22		
	Total	387.09			
Good Program Development	Group	20.79	6.93	.99	.403
	Error	512.20	7.02		
	Total	532.99			
Remain Flexible to Meet Needs	Group	34.55	11.52	2.59	.059
	Error	324.90	4.45		
	Total	359.46			
Access Resources of Total University	Group	19.00	6.33	1.56	.208
	Error	297.36	4.07		
	Total	316.36			

(table continues)

Table 28 (continued)

Role	Source of Variance	Sum of Squares	Mean Square	$F(3,73)$	p
Self-Development Plan	Group	8.69	2.89	.79	.505
	Error	268.84	3.68		
	Total	277.53			
Educational Risk Taker	Group	30.67	10.22	2.04	.116
	Error	366.22	5.02		
	Total	396.88			

[a] significant difference revealed by Tukey's post-hoc test between NE and SW district participants (p = .022).
[b] significant difference revealed by Tukey's post-hoc test between SE and SW district participants (p = .032).

Table 29

Significant Differences Between Extension District and Participants' Rankings of "Alternative Delivery Systems" and "Interest in Issues" (Pre-Test) (n = 77)

Role	District	*n*	*M (SD)*	*p*
Alternative Delivery Systems	NE[a]	25	4.36 (2.08)	.022
	NW	15	5.87 (2.59)	
	SE	21	5.67 (1.88)	
	SW[a]	16	6.38 (2.06)	
Interest in Issues	NE	25	5.60 (2.31)	.032
	NW	15	5.33 (2.13)	
	SE[b]	21	6.19 (2.11)	
	SW[b]	16	4.19 (1.97)	

[a] significant difference revealed between NE and SW district participants.
[b] significant difference revealed between SE and SW district participants.

Post-Test I. Table 30 displays a significant difference ($p < .05$) between Extension district and the participants' ranking of the Extension educator role, *Teach Problem Solving Skills*, at the second time period, Post-Test I [$F(3,73) = 2.99$, $p = .037$]. After examining the results from Tukey's post-hoc test (Table 31), Northwest (NW) district participants ranked this role significantly different from Southwest (SW) district participants ($p = .020$). Participants in the Northwest (NW) district ranked this role significantly lower ($M = 1.73$) than Southwest (SW) district participants ($M = 4.25$).

Table 30

Differences in Participants' Rankings of Nine Extension Educator Roles Based on Extension District (Post-Test I) (n = 77)

Role	Source of Variance	Sum of Squares	Mean Square	$F(3,73)$	p
Teach Problem Solving Skills	Group	49.60	16.53	2.99	.037[a]
	Error	403.93	5.53		
	Total	453.53			
Alternative Delivery Systems	Group	40.20	13.40	3.16	.030[b]
	Error	309.52	4.24		
	Total	349.71			
Interest in Issues	Group	15.34	5.11	.99	.402
	Error	376.48	5.16		
	Total	391.82			
Involve Volunteers	Group	5.00	1.67	.35	.791
	Error	349.31	4.79		
	Total	354.31			

(table continues)

Table 30 (continued)

Role	Source of Variance	Sum of Squares	Mean Square	$F(3,73)$	p
Good Program Development	Group	17.92	5.97	.98	.408
	Error	445.80	6.11		
	Total	463.71			
Remain Flexible to Meet Needs	Group	34.09	11.36	2.38	.077
	Error	349.13	4.78		
	Total	383.22			
Access Resources of Total University	Group	11.06	3.69	.79	.502
	Error	339.64	4.65		
	Total	350.70			
Self-Development Plan	Group	13.64	4.55	.75	.529
	Error	445.35	6.10		
	Total	458.99			
Educational Risk Taker	Group	24.21	8.07	1.49	.226
	Error	396.49	5.43		
	Total	420.70			

[a] significant difference revealed by Tukey's post-hoc test between NW and SW district participants ($p = .020$).
[b] no differences revealed by Tukey's post-hoc test.

Table 31

Significant Differences Between Extension District and Participants' Ranking of "Teach Problem Solving Skills" (Post-Test I) (n = 77)

Role	District	*n*	*M (SD)*	*p*
Teach Problem Solving Skills	NE	25	3.20 (2.69)	.020
	NW[a]	15	1.73 (1.22)	
	SE	21	3.00 (2.21)	
	SW[a]	16	4.25 (2.72)	

[a] significant difference revealed between NW and SW district participants.

Post-Test II. During the third time period, Post-Test II, no significant differences ($p < .05$) were found between any of the participants' rankings of the Extension educator roles and Extension district (Table 32). There were no differences in the participants' rankings of the Extension educator roles based on Extension district during the second post-test.

Table 32

Differences in Participants' Rankings of Nine Extension Educator Roles Based on Extension District (Post-Test II) (n = 77)

Role	Source of Variance	Sum of Squares	Mean Square	$F(3,73)$	p
Teach Problem Solving Skills	Group	16.16	5.39	.76	.522
	Error	519.06	7.11		
	Total	535.22			
Alternative Delivery Systems	Group	21.38	7.13	1.49	.225
	Error	349.50	4.79		
	Total	370.88			
Interest in Issues	Group	14.53	4.84	.86	.467
	Error	412.15	5.65		
	Total	426.68			
Involve Volunteers	Group	1.63	.54	.11	.956
	Error	373.91	5.12		
	Total	375.53			
Good Program Development	Group	16.62	554	.86	.466
	Error	470.08	6.44		
	Total	486.70			
Remain Flexible to Meet Needs	Group	5.22	1.74	.34	.796
	Error	373.48	5.12		
	Total	378.70			
Access Resources of Total University	Group	26.38	8.79	1.68	.179
	Error	382.33	5.24		
	Total	408.70			

(table continues)

Table 32 (continued)

Role	Source of Variance	Sum of Squares	Mean Square	$F(3,73)$	p
Self-Development Plan	Group	19.59	6.53	1.32	.273
	Error	360.20	4.93		
	Total	379.79			
Educational Risk Taker	Group	12.35	4.12	.68	.569
	Error	444.17	6.09		
	Total	456.52			

Findings Related to Research Question #4: Change in Extension Educators' Perceptions of the Importance of Extension Educator Roles as a Result of a Two-Part Professional Development Session

A one-way repeated-measures analysis of variance was used to analyze the change in the participants' rankings of the nine Extension educator roles as a result of a two-part professional development session. Significant differences were assessed at the $p < .05$ level.

Alternative Delivery Systems was the only Extension educator role that was ranked significantly different by the participants over the course of the three time periods [$F(2,152) = 3.46$, $p = .034$]. Sphericity was assumed for all calculations, as Mauchly's test was not violated. For all other Extension educator roles, a two-part professional development session did not significantly affect the participants' rankings of the roles (Table 33).

As shown in Table 34, the participants' ranking of *Alternative Delivery Systems* decreased from the pre-test (M = 5.43) to the first post-test (M = 4.71), and remained approximately the same following the second post-test (M = 4.96). After examining the rankings of both Group A (M = 5.24) and Group B (M = 5.58) of *Alternative Delivery Systems* following the pre-test, the ranking of this role increased more in importance for Group B (M = 4.47) than for Group A (M = 5.03) following the first post-test. However, the ranking of *Alternative Delivery Systems* following the second post-test was approximately the same for both Group A (M = 4.94) and Group B (M = 4.98).

Table 33

Change in Participants' Rankings of Nine Extension Educator Roles as a Result of a Two-Part Professional Development Session (n = 77)

Role	Source of Variance	Sum of Squares	Mean Square	$F(2,152)$	p
Teach Problem Solving Skills	Time	13.20	6.60	2.23	.111
	Error	450.80	2.97		
Alternative Delivery Systems	Time	20.27	10.13	3.46	.034
	Error	445.07	2.93		
Interest in Issues	Time	5.52	2.76	.87	.421
	Error	481.15	3.17		
Involve Volunteers	Time	6.73	3.36	1.44	.241
	Error	355.94	2.34		
Good Program Development	Time	3.44	1.72	.42	.659
	Error	623.90	4.11		
Remain Flexible to Meet Needs	Time	4.61	2.30	.76	.467
	Error	458.06	3.01		
Access Resources of Total University	Time	5.41	2.71	1.06	.350
	Error	388.59	2.56		
Self-Development Plan	Time	7.59	3.80	1.18	.312
	Error	491.07	3.23		
Educational Risk Taker	Time	.37	.19	.05	.950
	Error	547.63	3.60		

Table 34

Change in Participants' Ranking of "Alternative Delivery Systems" as a Result of a Two-Part Professional Development Session (n = 77)

Role	Time	Group A (n = 34)	Group B (n = 43)	Total (n = 77)
		M (SD)	*M (SD)*	*M (SD)*
Alternative Delivery Systems	Pre-Test	5.24 (2.19)	5.58 (2.28)	5.43 (2.23)
	Post-Test I	5.03 (2.14)	4.47 (2.14)	4.71 (2.15)
	Post-Test II	4.94 (2.12)	4.98 (2.30)	4.96 (2.21)

Findings Related to Research Question #5: Extension Educators' Perceptions of Work Responsibilities Based on the Best Use of an Extension Educator's Time

Part II of the instrument asked the participants to consider 12 work responsibilities in terms of what is the best use of an Extension educator's time and rate each responsibility on a 6-point Likert-type scale ranging from strongly disagree (1) to strongly agree (6). Prior to analyzing the data for the work responsibilities, total scores for the 12 work responsibilities at each of the three time periods, Pre-Test, Post-Test I, and Post-Test II, were calculated through scaling. These scales were used to analyze the data in Part II. Additionally, for each of the 12 work responsibilities, frequencies for each possible rating at each of the three time periods are reported in Tables 35 – 46.

Table 35

Frequencies of Ratings for "Answer Client Phone Calls" (n = 77)

	Pre-Test			Post-Test I			Post-Test II		
Rating	*f*	*%*	*C%*	*f*	*%*	*C%*	*f*	*%*	*C%*
Strongly Agree	28	36.4	36.4	28	36.4	36.4	33	42.9	42.9
Agree	33	42.9	79.3	35	45.5	81.9	30	39.0	81.9
Somewhat Agree	12	15.6	94.9	7	9.1	91.0	10	13.0	94.9
Somewhat Disagree	1	1.3	96.2	5	6.5	97.5	2	2.6	97.5
Disagree	3	3.9	100.0	1	1.3	98.8	2	2.6	100.0
Strongly Disagree	0	0.0		1	1.3	100.0	0	0.0	
Total	77	100.0		77	100.0		77	100.0	

Table 36

Frequencies of Ratings for "Prepare Newsletters, News Articles, and Post to Social Media" (n = 77)

	Pre-Test			Post-Test I			Post-Test II		
Rating	*f*	%	C%	*f*	%	C%	*f*	%	C%
Strongly Agree	13	16.9	16.9	21	27.3	27.3	22	28.6	28.6
Agree	37	48.1	65.0	38	49.4	76.7	42	54.5	83.1
Somewhat Agree	21	27.3	92.3	16	20.8	97.5	10	13.0	96.1
Somewhat Disagree	4	5.2	97.5	1	1.3	98.8	2	2.6	98.7
Disagree	0	0.0	97.5	0	0.0	98.8	0	0.0	98.7
Strongly Disagree	2	2.6	100.0	1	1.3	100.0	1	1.3	100.0
Total	77	100.0		77	100.0		77	100.0	

Table 37

Frequencies of Ratings for "Respond to Emails from Clients/Parents/Producers" (n = 77)

	Pre-Test			Post-Test I			Post-Test II		
Rating	*f*	*%*	*C%*	*f*	*%*	*C%*	*f*	*%*	*C%*
Strongly Agree	37	48.1	48.1	32	41.6	41.6	33	42.9	42.9
Agree	32	41.6	89.7	35	45.5	87.1	33	42.9	85.8
Somewhat Agree	8	10.4	100.0	9	11.7	98.8	10	13.0	98.8
Somewhat Disagree	0	0.0		1	1.3	100.0	1	1.3	100.0
Disagree	0	0.0		0	0.0		0	0.0	
Strongly Disagree	0	0.0		0	0.0		0	0.0	
Total	77	100.0		77	100.0		77	100.0	

Table 38

Frequencies of Ratings for "Plan Programs to Address Needs of Clientele" (n = 77)

	Pre-Test			Post-Test I			Post-Test II		
Rating	*f*	*%*	*C%*	*f*	*%*	*C%*	*f*	*%*	*C%*
Strongly Agree	54	70.1	70.1	47	61.0	61.0	44	57.1	57.1
Agree	22	28.6	98.7	27	35.1	96.1	29	37.7	94.8
Somewhat Agree	0	0.0	98.7	2	2.6	98.7	3	3.9	98.7
Somewhat Disagree	1	1.3	100.0	1	1.3	100.0	1	1.3	100.0
Disagree	0	0.0		0	0.0		0	0.0	
Strongly Disagree	0	0.0		0	0.0		0	0.0	
Total	77	100.0		77	100.0		77	100.0	

Table 39

Frequencies of Ratings for "Troubleshoot Clientele Problems by Making Client Visits" (n = 77)

	Pre-Test			Post-Test I			Post-Test II		
Rating	*f*	%	*C%*	*f*	%	*C%*	*f*	%	*C%*
Strongly Agree	19	24.7	24.7	26	33.8	33.8	24	31.2	31.2
Agree	27	35.1	59.8	35	45.5	79.3	39	50.7	81.9
Somewhat Agree	26	33.8	93.6	13	16.9	96.2	12	15.6	97.5
Somewhat Disagree	2	2.6	96.2	3	3.9	100.0	2	2.6	100.0
Disagree	3	3.9	100.0	0	0.0		0	0.0	
Strongly Disagree	0	0.0		0	0.0		0	0.0	
Total	77	100.0		77	100.0		77	100.0	

Table 40

Frequencies of Ratings for "Develop Programs Focused on Changing Products and/or Issues" (n = 77)

	Pre-Test			Post-Test I			Post-Test II		
Rating	*f*	%	*C%*	*f*	%	*C%*	*f*	%	*C%*
Strongly Agree	13	16.9	16.9	24	31.2	31.2	24	31.2	31.2
Agree	41	53.2	70.1	42	54.5	85.7	37	48.1	79.3
Somewhat Agree	15	19.5	89.6	7	9.1	94.8	11	14.3	93.6
Somewhat Disagree	6	7.8	97.4	3	3.9	98.7	5	6.5	100.0
Disagree	2	2.6	100.0	1	1.3	100.0	0	0.0	
Strongly Disagree	0	0.0		0	0.0		0	0.0	
Total	77	100.0		77	100.0		77	100.0	

Table 41

Frequencies of Ratings for "Meet with Community/Commodity Groups to Decide What Programs to Implement" (n = 77)

	Pre-Test			Post-Test I			Post-Test II		
Rating	*f*	%	C%	*f*	%	C%	*f*	%	C%
Strongly Agree	19	24.7	24.7	26	33.8	33.8	31	40.3	40.3
Agree	33	42.9	67.6	38	49.4	83.2	33	42.9	83.2
Somewhat Agree	23	29.9	97.5	10	13.0	96.2	11	14.3	97.5
Somewhat Disagree	1	1.3	98.8	3	3.9	100.0	2	2.6	100.0
Disagree	1	1.3	100.0	0	0.0		0	0.0	
Strongly Disagree	0	0.0		0	0.0		0	0.0	
Total	77	100.0		77	100.0		77	100.0	

Table 42

Frequencies of Ratings for "Conduct Programming that Responds to Client Needs" (n = 77)

	Pre-Test			Post-Test I			Post-Test II		
Rating	*f*	*%*	*C%*	*f*	*%*	*C%*	*f*	*%*	*C%*
Strongly Agree	55	71.4	71.4	47	61.0	61.0	45	58.4	58.4
Agree	20	26.0	97.4	29	37.7	98.7	28	36.4	94.8
Somewhat Agree	2	2.6	100.0	1	1.3	100.0	3	3.9	98.7
Somewhat Disagree	0	0.0		0	0.0		1	1.3	100.0
Disagree	0	0.0		0	0.0		0	0.0	
Strongly Disagree	0	0.0		0	0.0		0	0.0	
Total	77	100.0		77	100.0		77	100.0	

Table 43

Frequencies of Ratings for "Form Working Councils or Advisory Groups to Determine Programming" (n = 77)

	Pre-Test			Post-Test I			Post-Test II		
Rating	*f*	*%*	*C%*	*f*	*%*	*C%*	*f*	*%*	*C%*
Strongly Agree	17	22.1	22.1	29	37.7	37.7	28	36.4	36.4
Agree	34	44.2	66.3	36	46.8	84.5	35	45.5	81.9
Somewhat Agree	21	27.3	93.6	8	10.4	94.9	11	14.3	96.2
Somewhat Disagree	4	5.2	98.8	3	3.9	98.8	3	3.9	100.0
Disagree	1	1.3	100.0	1	1.3	100.0	0	0.0	
Strongly Disagree	0	0.0		0	0.0		0	0.0	
Total	77	100.0		77	100.0		77	100.0	

Table 44

Frequencies of Ratings for "Conduct Programming that Responds to Client Desires" (n = 77)

	Pre-Test			Post-Test I			Post-Test II		
Rating	*f*	*%*	*C%*	*f*	*%*	*C%*	*f*	*%*	*C%*
Strongly Agree	29	37.7	37.7	37	48.1	48.1	35	45.5	45.5
Agree	35	45.5	83.2	31	40.3	88.4	32	41.6	87.1
Somewhat Agree	11	14.3	97.5	6	7.8	96.2	10	13.0	100.0
Somewhat Disagree	1	1.3	98.8	2	2.6	98.8	0	0.0	
Disagree	1	1.3	100.0	1	1.3	100.0	0	0.0	
Strongly Disagree	0	0.0		0	0.0		0	0.0	
Total	77	100.0		77	100.0		77	100.0	

Table 45

Frequencies of Ratings for "Help Clientele Become Aware of the Need to/for Change" (n = 77)

	Pre-Test			Post-Test I			Post-Test II		
Rating	*f*	%	*C%*	*f*	%	*C%*	*f*	%	*C%*
Strongly Agree	22	28.6	28.6	23	29.9	29.9	25	32.5	32.5
Agree	27	35.1	63.7	38	49.4	79.3	36	46.8	79.3
Somewhat Agree	21	27.3	91.0	13	16.9	96.2	11	14.3	93.6
Somewhat Disagree	5	6.5	97.5	3	3.9	100.0	5	6.5	100.0
Disagree	1	1.3	98.8	0	0.0		0	0.0	
Strongly Disagree	1	1.3	100.0	0	0.0		0	0.0	
Total	77	100.0		77	100.0		77	100.0	

Table 46

Frequencies of Ratings for "Provide Clientele with Skills to Solve Their Own Problems" (n = 77)

	Pre-Test			Post-Test I			Post-Test II		
Rating	*f*	*%*	*C%*	*f*	*%*	*C%*	*f*	*%*	*C%*
Strongly Agree	43	55.8	55.8	45	58.4	58.4	45	58.4	58.4
Agree	26	33.8	89.6	28	36.4	94.8	27	35.1	93.5
Somewhat Agree	7	9.1	98.7	4	5.2	100.0	4	5.2	98.7
Somewhat Disagree	1	1.3	100.0	0	0.0		1	1.3	100.0
Disagree	0	0.0		0	0.0		0	0.0	
Strongly Disagree	0	0.0		0	0.0		0	0.0	
Total	77	100.0		77	100.0		77	100.0	

Findings Related to Research Question #6

The Relationship of Years Working in Extension and Age to Extension Educators' Perceptions of Work Responsibilities Based on the Best Use of an Extension Educator's Time

The Pearson's correlation coefficient (*r*) was calculated to determine the strength of the relationships between the participants' ratings of the 12 work responsibilities and two demographic factors, years working in Extension and age. No significant relationships ($p < .05$) were found between the participants' ratings of the 12 work responsibilities and years working in Extension and age at any of the three time periods, Pre-Test, Post-Test I, or Post-Test II (Table 47).

Table 47

The Relationships Between Participants' Ratings of Twelve Work Responsibilities and Years Working in Extension and Age (n = 77)

Time Period	Years (*r*)	Age (*r*)
Pre-Test	.09	.11
Post-Test I	.09	.13
Post-Test II	.06	.09

Differences in Extension Educators' Perceptions of Work Responsibilities Based on the Best Use of an Extension Educator's Time When Considering Gender and County Extension Director Role

To determine the differences in the participants' ratings of the 12 work responsibilities based on gender and County Extension Director role, independent *t*-tests were used. Significant differences were assessed at the $p < .05$ level, and all three time periods were considered. As displayed in Table 48, significant differences were found in the participants' ratings of the 12 work responsibilities based on gender at all three time periods: Pre-Test [$t(75) = -3.03$, $p = .003$]; Post-Test I [$t(75) = -3.15$, $p = .002$]; Post-Test II [$t(75) = -3.45$, $p = .001$]. For all three time periods, Pre-Test, Post-Test I, and Post-Test II, females rated the work responsibilities significantly higher ($M = 62.08$), ($M = 63.97$), ($M = 64.24$) than males ($M = 58.00$), ($M = 59.37$), ($M = 58.79$), respectively. However, no significant differences were found in the participants' ratings of the 12 work responsibilities based on County Extension Director role (Table 49). Equal variances were assumed for all calculations, as Levene's test was not violated.

Table 48

Differences in Participants' Ratings of Twelve Work Responsibilities Based on Gender (n = 77)

Time Period	Gender	*n*	*M (SD)*	*t*(75)	*p*
Pre-Test	Male	19	58.00 (5.85)	-3.03	.003
	Female	58	62.08 (4.82)		
Post-Test I	Male	19	59.37 (6.40)	-3.15	.002
	Female	58	63.97 (5.24)		
Post-Test II	Male	19	58.79 (7.45)	-3.45	.001
	Female	58	64.24 (5.43)		

Table 49

Differences in Participants' Ratings of Twelve Work Responsibilities Based on County Extension Director Role (n = 77)

Time Period	CED	*n*	*M (SD)*	*t*(75)	*p*
Pre-Test	Yes	29	60.56 (5.61)	-.65	.521
	No	48	61.38 (5.22)		
Post-Test I	Yes	29	63.14 (5.82)	.35	.729
	No	48	62.66 (5.93)		
Post-Test II	Yes	29	64.31 (5.84)	1.52	.132
	No	48	64.04 (6.62)		

Differences in Extension Educators' Perceptions of Work Responsibilities Based on the Best Use of an Extension Educator's Time When Considering Extension Program Area and Extension District

A one-way analysis of variance followed by Tukey's post-hoc test was utilized to determine differences in the participants' ratings of the 12 work responsibilities based on Extension program area (Agriculture/4-H, Family and Consumer Sciences/4-H, 4-H, Other) and Extension district (NE, NW, SE, SW). Significant differences were assessed at the $p < .05$ level at all three time periods. However, after analyzing the data, no significant differences ($p < .05$) were found between the participants' ratings of the work responsibilities and both Extension program area (Table 50) and Extension district (Table 51). There were no differences in the participants' ratings of the work responsibilities based on these two factors.

Table 50

Differences in Participants' Ratings of Twelve Work Responsibilities Based on Extension Program Area (n = 77)

Time Period	Source of Variance	Sum of Squares	Mean Square	$F(3,73)$	p
Pre-Test	Group	117.09	39.03	1.38	.255
	Error	2059.42	28.21		
	Total	2176.50			
Post-Test I	Group	204.28	68.09	2.07	.112
	Error	2401.95	32.90		
	Total	2606.23			
Post-Test II	Group	345.58	115.19	3.05	.034[a]
	Error	2759.70	37.80		
	Total	3105.28			

[a] no differences revealed by Tukey's post-hoc test.

Table 51

Differences in Participants' Ratings of Twelve Work Responsibilities Based on Extension District (n = 77)

Time Period	Source of Variance	Sum of Squares	Mean Square	$F(3,73)$	p
Pre-Test	Group	24.66	8.22	.28	.841
	Error	2151.84	29.48		
	Total	2176.50			
Post-Test I	Group	55.03	18.34	.53	.667
	Error	2551.20	34.95		
	Total	2606.23			
Post-Test II	Group	39.97	13.33	.32	.813
	Error	3065.30	41.99		
	Total	3105.28			

Findings Related to Research Questions #7 and #8

A one-way factorial repeated-measures analysis of variance was utilized to analyze the change in the participants' ratings of the 12 work responsibilities as a result of a two-part professional development session. The same statistical test also analyzed the order of administration of the two delivery methods for the two groups to determine if order affected how the participants rated the work responsibilities. Significant relationships were again assessed at the $p < .05$ level.

Change in Extension Educators' Perceptions of Work Responsibilities Based on the Best Use of an Extension Educator's Time as a Result of a Two-Part Professional Development Session

The participants rated the work responsibilities significantly different over the course of the three time periods [$F(1.68,125.93) = 10.44$, $p < .001$] during a two-part professional development session. Mauchly's test of sphericity was violated ($p < .001$), thus the Greenhouse-Geisser calculation was used (Table 52). However, no significant differences were found in the participants' ratings of the 12 work responsibilities based on the participants' group assignment. As time progressed during a two-part professional development session, the participants increased their ratings for the work responsibilities: Pre-Test ($M = 61.07$), Post-Test I ($M = 62.84$), and Post-Test II ($M = 62.90$).

Table 52

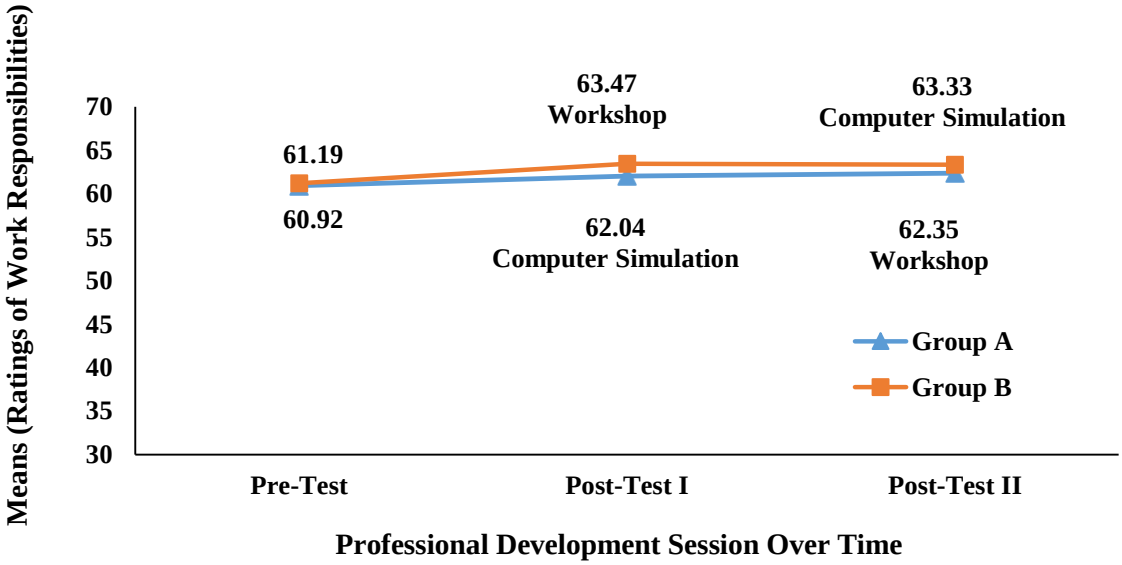
Change in Participants' Ratings of Twelve Work Responsibilities as a Result of a Two-Part Professional Development Session (n = 77)

Source of Variance	*SS*	*df*	*MS*	*F*	*p*
Repeated Measure Effects					
Time	153.87	1.68	91.64	10.44	.000
Error	1105.94	125.93	8.78		
Between Subjects Effects					
Group	44.71	1	44.71	.50	.482
Error	6724.41	75	89.66		
Interaction Effects					
Time x Group	12.95	1.68	7.71	.88	.402
Error	1105.94	125.93	8.78		

Change in Extension Educators' Perceptions of Work Responsibilities Based on the Best Use of an Extension Educator's Time When Considering the Order of Administration of Two Professional Development Delivery Methods (Workshop and Computer Simulation)

No significant differences were found in the participants' ratings of the 12 work responsibilities based on the order of administration of the two professional development delivery methods for the two groups over the course of the three time periods. In other words, no differences were found in the participants' ratings of the work responsibilities based on the order in which they participated in the two treatments, the workshop and the computer simulation.

As described in Figure 3, Group A participated in the computer simulation followed by the workshop, while Group B participated first in the workshop and then the computer simulation. While both groups' pre-test ratings were similar, Group A (*M* = 60.92) and Group B (*M* =61.19), Group A's rating increased only slightly after the first post-test, which followed the computer simulation (*M* = 62.04). However, Group B's rating increased more after the first post-test, which followed the workshop (*M* = 63.47). When considering the second post-test, Group B's rating decreased (*M* = 63.33) following the computer simulation, while Group A's rating increased (*M* = 62.35).



Group A: Participated in the computer simulation then the workshop.
Group B: Participated in the workshop then the computer simulation.

Figure 3. *Means of the ratings by group of the twelve work responsibilities during a two-part professional development session (n = 77).*

CHAPTER V

CONCLUSIONS, LIMITATIONS, RECOMMENDATIONS, DISCUSSION, AND IMPLICATIONS

The purpose of this chapter is to present conclusions from the data provided by Oklahoma Cooperative Extension Service educators and to provide a disclosure of the study's limitations. Further, this chapter addresses recommendations for future research and for the professional development of Oklahoma Extension educators. The chapter concludes with a discussion and the implications of the research conducted and the results that were found.

Prior to developing conclusions, both chi-square tests of association and independent *t*-tests were used to determine if the 77 participants were significantly different from the 79 Extension educators who completed less than three administrations of the instrument. Based on selected demographic factors, significant relationships were assessed at the $p < .05$ level. As described in Table 53, no associations were found between the two groups of Extension educators based on County Extension Director role, Extension district, or age. However, associations based on gender [$\chi^2(1) = 11.17$, $p = .001$], Extension program area [$\chi^2(3) = 15.93$, $p = .001$], and years working in Extension [$t(153) = -2.14$, $p = .034$] were found between the two groups. The mean number of years working in Extension for the 77 Extension educators included in

the study was 10.5 years, while the mean for the remaining 79 Extension educators was 13.8 years. Upon examining the standardized residuals for Extension program area, Family and Consumer Sciences/4-H educators ($z = \pm 2.1$) were significantly more likely than the other three classifications of Extension educators (Agriculture/4-H, 4-H, and Extension educators who did not classify themselves as Agriculture/4-H, Family and Consumer Sciences/4-H, or 4-H) to be included in the study. Therefore, the sample tended to be females who were Family and Consumer Sciences/4-H educators with fewer years working in Extension when compared to the 79 Extension educators who did not fully participate in the study. Thus, the results are only generalizable to the 77 Extension educators who fully participated in the study.

Table 53

Differences Based on Selected Demographic Factors of Extension Educators Who Completed All Three Instrument Administrations and Extension Educators Who Completed Fewer Than Three Instrument Administrations (Pre-Test, Post-Test I, Post-Test II) (n = 156)

Demographic Factor	χ^2 or t	*df*	*p*
Gender	11.17[a]	1	.001
Extension Program Area	15.93[a]	3	.001
County Extension Director Role	.28[a]	1	.600
Extension District	4.29[a]	3	.232
Years Working in Extension	-2.14[b]	153	.034
Age	-.82[b]	142	.413

[a] χ^2
[b] t

Conclusion Related to Research Question #1: Description of Participants

Examining the frequencies of the six demographic items of gender, Extension program area, County Extension Director role, Extension district, years working in Extension, and age led to a description of the participants. Participants for the most part were middle age and lacked experience working in Extension, with more than half having 10 or less years of experience with the Oklahoma Cooperative Extension Service. The typical study participant was an early career female Family and Consumer Sciences/4-H educator in her mid-40s and not serving in the role of County Extension Director.

Conclusions Related to Research Question #2: Extension Educators' Perceptions of the Importance of Extension Educator Roles

Assessing the means of the rankings of the nine Extension educator roles led to the determination of which roles were perceived as most important and least important by the participants. Overall, participants did not perceive any of the nine roles as significantly more or less important in comparison to the others for any of three time periods (Pre-Test, Post-Test I, Post-Test II).

The following conclusions were developed from the data collected:

1. Participants consistently perceived *Teach Problem Solving Skills* as the most important role at all three time periods (Pre-Test, Post-Test I, Post-Test II). Of all the roles, participants perceived it is most important to provide Extension clientele with skills that help them solve their own problems. This study supports

Smalley's (1985) conclusion, as he found the same role to be the most important Extension educator role perceived by Extension educators in Minnesota. This finding is also supported by the literature, as *Teach Problem Solving Skills* aligns with the philosophy of the Cooperative Extension Service. The philosophy is based on the idea that "learning put to use leads to a better life for the individual, family and community" (Seevers et al., 1997, p. 5). Experiential teaching methods and practical education are embedded within this philosophy. Likewise, Seaman A. Knapp inspired early Extension educators that their value was in what they could get other people to do for themselves, not in what they could do for them (Rasmussen, 1989).

2. Participants perceived *Access Resources of Total University* as the least important role at two time periods (Pre-Test & Post Test I). Participants perceived it is least important to seek information outside the Oklahoma Cooperative Extension Service to acquire information and expertise to meet the needs of their clientele. This conclusion is also supported by Smalley (1985), as he too found that *Access Resources of Total University* was perceived as the least important role by Minnesota Extension educators.

3. Participants perceived *Educational Risk Taker* the same as *Access Resources of Total University* at the second time period (Post-Test I), and it was the least important role at the third time period (Post-Test II). Participants perceived it is least important to try new educational approaches and work with non-traditional clientele. The equal perception of *Educational Risk Taker* as a least important role can best be explained by Extension educators relying on the same teaching

methods to relay information to their clientele. In other words, they do not try new educational approaches. Few Extension educators spend time analyzing the situation and picking the most appropriate method from their toolboxes (Cole, 1981).

Conclusions Related to Research Question #3

The following conclusions were developed from the collected data after examining (a) correlations between participants' rankings of the nine Extension educator roles and years working in Extension and age, (b) the *p* values from independent *t*-tests to determine differences in participants' rankings of the nine Extension educator roles based on gender and County Extension Director role, and (c) the *p* values from one-way analysis of variance followed by post-hoc tests to determine the differences in participants' rankings of the nine Extension educator roles based on Extension program area and Extension district.

The Relationship of Years Working in Extension and Age to Extension Educators' Perceptions of the Importance of Extension Educator Roles

1. A positive significant relationship of moderate strength was found between participants' perception of *Access Resources of Total University* and age at the second time period (Post-Test I). Younger participants perceived it is more important to go outside the resources of the Oklahoma Cooperative Extension Service to acquire information to meet the needs of their clientele.

2. A negative significant relationship of moderate strength was found between participants' perception of *Alternative Delivery Systems* and years working in

Extension at the third time period (Post-Test II). Participants who had been working in Extension longer perceived it is more important to utilize a variety of delivery methods. Extension educators are hired primarily based on their technical subject matter expertise, and many have little or no formal training or experience as educators (Bruce & Johnson, 2004; Cole, 1981; Johnson et al., 2007; Seevers, 1995; Seevers & Graham, 2012; Warner, 2014). Many have little training in how to teach in a nonformal manner (Bruce & Johnson, 2004; CCES, 1999; Johnson et al., 2007; Seevers, 1995; Warner, 2014). Thus, Extension educators who have been working in Extension longer have had more time to learn a variety of delivery methods and put them into practice.

Differences in Extension Educators' Perceptions of the Importance of Extension Educator Roles Based on Gender and County Extension Director Role

1. A significant difference was found between gender and participants' perception of *Access Resources of Total University* at the second time period (Post-Test I). Female participants perceived it is more important to go outside the Oklahoma Cooperative Extension Service to acquire information for clientele. In general, females face challenges in a field once traditionally dominated by males. This supports Seevers' and Foster's (2004) finding that females were not accepted by their male colleagues or clients, as they were always having to prove themselves to them.

2. A significant difference was found between the role of County Extension Director and participants' perception of *Remain Flexible to Meet Needs* at the second time

period (Post-Test I). Participants not holding the role of County Extension Director perceived it is more important to remain in touch with and react to the immediate and changing needs of their clientele. County Extension Directors are responsible for the administrative duties of the county Extension office, including managing budgets, working with the county's Board of Commissioners, and overseeing staff. Because these duties are in addition to programmatic responsibilities associated with the Extension educator's area of specialization, County Extension Directors may incur increased stress (Godwin, Diem, & Maddy, 2011). Responsibilities for the overall programming of the Extension office compete for a County Extension Director's time (Diem, 2011), thus limiting the amount of time he or she is able to devote to clientele.

Differences in Extension Educators' Perceptions of the Importance of Extension Educator Roles Based on Extension Program Area

1. A significant difference was found between Extension program area and participants' perception of *Involve Volunteers* at the first time period (Pre-Test). 4-H educators perceived it is more important than Family and Consumer Sciences/4-H educators to recruit, select, train, and give volunteer leaders an important role in Extension programming. This supports Smalley's (1985) conclusion, as he also found that 4-H educators perceived *Involve Volunteers* more importantly than Family and Consumer Sciences/4-H educators. This finding is also supported by the literature, as the 4-H youth development program has always relied on volunteer leaders to lead clubs, projects, and mentor youth. In fact, Diem (2009) found that 4-H staff rated Volunteer Development and

Management as the most important course needed in a formal degree program in youth development.

2. A significant difference was found between Extension program area and participants' perception of *Educational Risk Taker* at the first time period (Pre-Test). Extension educators who did not classify themselves as Agriculture/4-H, Family and Consumer Sciences/4-H, or 4-H educators perceived it is more important than Agriculture/4-H educators to work with non-traditional clientele and try new educational approaches. As criticized in the literature, Extension educators focus their time on traditional agricultural groups at the expense of educating new groups (McDowell, 2001). Participants who did not classify themselves in one of the three program areas work regularly with diverse, non-traditional clientele.

3. A significant difference was found between Extension program area and participants' perception of *Good Program Development* at the third time period (Post-Test II). Both Family and Consumer Sciences/4-H and educators who did not classify themselves as Agriculture/4-H, Family and Consumer Sciences/4-H, or 4-H educators perceived it is more important than 4-H educators to identify clientele needs, set priorities, implement learning experiences, and evaluate and report program impacts. The Oklahoma Cooperative Extension Service's Family and Consumer Sciences program has placed a great emphasis on articulating need driven goals and reporting program impacts (OCES, 2016c). While developing good programs is essential for effective youth programming, the same emphasis

and structured evaluation tools are not in place as they are for the Family and Consumer Sciences/4-H educators to use.

Differences in Extension Educators' Perceptions of the Importance of Extension Educator Roles Based on Extension District

1. A significant difference was found between Extension district and participants' perception of *Alternative Delivery Systems* at the first time period (Pre-Test). Northeast (NE) district participants perceived it is more important than Southwest (SW) district participants to utilize a variety of delivery methods when assisting their clientele.

2. A significant difference was found between Extension district and participants' perception of *Interest in Issues* at the first time period (Pre-Test). Southwest (SW) district participants perceived it is more important than Southeast (SE) district participants to keep aware of issues at all levels that have an impact on their county clientele.

3. A significant difference was found between Extension district and participants' perception of *Teach Problem Solving Skills* at the second time period (Post-Test I). Northwest (NW) district participants perceived it is more important than Southwest (SW) district participants to provide Extension clientele with skills that help them solve their own problems.

Conclusion Related to Research Question #4: Change in Extension Educators' Perceptions of the Importance of Extension Educator Roles as a Result of a Two-Part Professional Development Session

Examining the *p* values from a one-way repeated-measures analysis of variance led to the determination of any changes in participants' rankings of the nine Extension educator roles as a result of the two-part professional development session (Pre-Test, Post-Test I, Post-Test II).

Alternative Delivery Systems was the only Extension educator role perceived significantly different by participants over the course of the two-part professional development session (Pre-Test, Post-Test I, Post-Test II), as their perceptions of the other eight Extension educator roles were not significantly affected by the professional development. From the pre-test to the first post-test, participants' perception of *Alternative Delivery Systems* became more important for one of the treatment groups than for the other, but their perception of this role following the second post-test was approximately the same for both groups.

As a whole, *Alternative Delivery Systems*, or utilizing a variety of delivery methods when assisting their clientele, increased in importance for participants from the pre-test to the first post-test, but remained approximately at the same level of importance following the second post-test. It is plausible that participants perceived *Alternative Delivery Systems* significantly different over the course of the two-part professional development session due to the two different delivery methods.

The workshop engaged participants in cooperative learning where they participated in a variety of learning activities in small groups (Fleming, 1997; Johnson et al., 1991). Likewise, the computer simulation immersed participants in a game-like environment, relying on experiential learning activities for instruction (Feinstein, 2001). Thus, participants perceived *Alternative Delivery Systems* as more important following their participation in the two-part professional development session.

Conclusion Related to Research Question #5: Extension Educators' Perceptions of Work Responsibilities Based on the Best Use of an Extension Educator's Time

Evaluating the frequencies of the ratings for the 12 work responsibilities led to the determination of which work responsibilities Extension educators considered to be the best use of their time. As a whole, participants perceived all 12 of the work responsibilities as a best use of an Extension educator's time.

While the Extension educator roles describe what educators do in broad terms, the work responsibilities more specifically define their tasks. Quite possibly all of the responsibilities were perceived as a best use of an Extension educator's time because educators are expected to perform all 12 of the responsibilities (OCES Human Resources, 2016). In turn, Extension educators' performance of the responsibilities is evaluated during their annual performance reviews (OCES, 2012).

Conclusion Related to Research Question #6: Differences in Extension Educators' Perceptions of Work Responsibilities Based on the Best Use of an Extension Educator's Time When Considering Gender

Examining the *p* values from independent *t*-tests led to the determination of the differences in participants' ratings of the 12 work responsibilities based on gender. Female participants perceived the work responsibilities as a better use of an Extension educator's time. In fact, over the course of the two-part professional development session, females' perceptions of the work responsibilities increased following each time period (Pre-Test, Post-Test I, Post-Test II).

Conclusions Related to Research Questions #7 and #8:

Change in Extension Educators' Perceptions of Work Responsibilities Based on the Best Use of an Extension Educator's Time as a Result of a Two-Part Professional Development Session

and

Change in Extension Educators' Perceptions of Work Responsibilities Based on the Best Use of an Extension Educator's Time When Considering the Order of Administration of Two Professional Development Delivery Methods (Workshop and Computer Simulation)

The following conclusions were developed from the collected data after examining the *p* values from a one-way factorial repeated-measures analysis of variance (a) to determine the change in participants' ratings of the 12 work responsibilities as a

result of the two-part professional development session and (b) to analyze the order of administration of the two delivery methods to determine if order affected how participants rated the work responsibilities.

1. The two-part professional development session impacted how participants perceived work responsibilities. However, the order in which they participated in the two parts, the workshop and the computer simulation, did not influence how they perceived the work responsibilities. The treatment administered during the two-part professional development session caused participants to perceive all 12 of the work responsibilities as a better use of an Extension educator's time. This finding is supported by the literature, as professional development leads to subject area knowledge, develops skills in employees, transforms perceptions that improve decision-making, and improves practices (Donavant, 2009; Gallucci, Van Lare, Yoon, & Boatright, 2010; Holst, 2009; Kasworm, Rose, & Ross-Gordon, 2010).

2. All participants' perceptions of the work responsibilities increased after the experimental workshop. Additionally, the groups that participants were assigned to did not make a difference in how they perceived the work responsibilities. The increase in perceptions of the work responsibilities for both groups following the workshop could indicate that the computer simulation was less impactful for the participants. Although distance instruction does offer flexibility and access to resources that may not be available utilizing face-to-face instruction (Killion, 2000; Riddle, 2004; Zenger & Uehlein, 2001), drawbacks include frustration, having technical difficulties, and lack of personal interaction with an instructor

(Edmundson, 2002; Gordon, 2003; Schrum & Benson, 2000; Thorson, 2002; Wiesenberg & Willment, 2001). On the other hand, face-to-face instruction has been the preference over distance instruction in several studies, as participants indicated they were more satisfied and preferred the networking and discussion opportunities available in face-to-face instruction (Baker & Hadley, 2014; Johnson et al., 2000; McConnell et al., 2013) This could explain why participants' perceptions of the work responsibilities increased after the workshop. However, although the computer simulation may not have been impactful as a stand-alone delivery method, perhaps paired with the workshop, the two-part professional development session impacted participants' perceptions. This hybrid approach to professional development training is supported by the literature as the most effective delivery method for professional development (Dziuban & Moskal, 2001; Young, 2002).

Limitations

A number of limitations impact the generalizability of the study due to the nature of behavioral research. Caution should be exercised when generalizing the findings to Extension educators outside of Oklahoma. The limitations are as follows:

1. A researcher decision was made to not utilize a more conservative correction for Type I error rates. By not using a more conservative correction, the Type II error rate decreased. However, because a more conservative correction was not used, some of the statistically significant differences reported could be spurious and could have simply occurred by chance.

3. Due to the time constraints of the 2016 Oklahoma Cooperative Extension Service biennial conference, the two-part professional development session was administered in a time frame of three hours. Although controlled experimental design reduces potential nuisance interactions, the short duration of the treatment could have reduced its potency.

4. No deferred post-test was administered to ascertain whether or not participants' perceptions of the Extension educator roles and the work responsibilities remained changed as a result of the two-part professional development session, or if they reverted back to what they were prior to participating in the professional development.

Recommendations

After considering the findings of the study, several recommendations were made for the professional development of Oklahoma Extension educators. Recommendations were also made for further research on this topic.

The following recommendations are based upon findings of the study:

1. Findings and conclusions should be shared with Oklahoma Cooperative Extension Service administrators. Knowledge of the study's results could help administrators plan future professional development sessions for Extension educators. Intentionally designed and easily available forms of communication, such as formal documents and presentations, may help to build buy-in from administrators and promote organizational change (Holz-Clause, Koundinya, Glenn, & Payne, 2012).

2. A follow-up study should be conducted to determine if the study participants have applied the concepts of the professional development session to their work. The concepts included were (a) Innovation-Decision Process, (b) Categories of Adopters, and (c) Opinion Leadership. After collecting quantitative data, more in depth data could be gathered by collecting qualitative data from some of the Extension educators.

3. Future research should explore alternative delivery time frames of the professional development session.

4. Future research should explore Extension educator work responsibilities in depth.

Discussion and Implications

To ensure the Cooperative Extension Service's vitality for another 100 years, it is important that Extension educators participate in professional development aimed at both developing technical skills and non-technical skills. It appears somewhat contradictory, however, that Cooperative Extension Services in most states have developed comprehensive lists of non-technical skills that are important for Extension educators to possess, but yet professional development conferences are filled with sessions focused on technical skills.

Kolb's (1984) Experiential Learning Theory provides an appropriate framework to describe the professional development opportunity in the study that focused on non-technical skills. Extension educators who participated in the study's professional development session completed all four stages in Kolb's (1984) learning cycle. The two-part session served as a concrete experience where Extension educators participated in

experiential learning activities as they experienced concepts related to Rogers' (2003) Diffusion of Innovations Theory. The concrete experience was aimed at helping Extension educators conceptualize their role as agents of change. Extension educators were then asked to reflect upon their experience during the professional development session and complete an assessment related to the concepts covered. This reflective observation was then followed by abstract conceptualization where a change in Extension educators' perceptions was observed. Extension educators experienced the active experimentation stage when they participated in the computer simulation, as they had to make decisions and problem-solve without receiving guidance or first learning the concepts from an instructor. Kolb's (1984) Experiential Learning Theory is cyclical in nature, and learning is easier if the stages are followed sequentially. However, due to the integrated nature of the theory and the cognitive complexity of Extension educators, perhaps the sequential order did not affect the learning process of Extension educators who entered the cycle in the active experimentation stage with the computer simulation, as the study indicated an overall change in Extension educators' perceptions.

Although Extension educators' perceptions of the work responsibilities as a best use of an Extension educator's time did not increase as much following the computer simulation as they did following the workshop, they did not decrease. Because distance instruction has emerged out of the necessity to cut costs (Smith, 2012), the cost effectiveness of utilizing computer simulations as a stand-alone delivery method for Extension educator professional development should be considered. Assuming that an appropriate computer simulation is available that delivers the professional development topics of interest, employing this method would save the Oklahoma Cooperative

Extension Service the thousands of dollars it would cost to bring Extension educators together to participate in face-to-face trainings.

Professional development sessions such as the one employed in the study are important in ensuring that the Cooperative Extension Service stays true to its mission of enabling people to improve their lives by offering practical education and effecting change. However, the Cooperative Extension Service has been criticized regarding the authenticity of this change-based mission (McDowell, 2001). As McDowell (2001) asserted, Extension educators are not being change agents. This fundamental role has eroded away, leaving behind Extension educators who are simply serving as public service agents at the "beck and call" of the local people. Could this be because they do not see themselves as change agents? If the objective of Extension programming is to help clientele adopt practices that will improve their lives, administrators must accept a reduction in one-on-one contacts in exchange for an increased number of impactful programs (Clements, 1999). With Rogers' (2003) Diffusion of Innovations Theory serving as the guide, Extension educators need to find their way back to being agents of change.

REFERENCES

Amend, E. H. (1984). Communication strategies. *Journal of Extension, 22*(2). Retrieved from http://www.joe.org

Aragon, S. R., Johnson, S. D., & Shaik, N. (2002). The influence of learning style preferences on student success in online versus face-to-face environments. *The American Journal of Distance Education, 16*(4), 227 – 244. doi: 10.1207/S15389286AJDE1604_3

Arnold, S. K. (2008). *Career decisions of Florida agricultural Extension agents* (Doctoral dissertation). Available from ProQuest Dissertations and Theses Global. (UMI No. 3281495)

Ary, D, Jacobs, L. C., & Razavieh, A. (2002). *Introduction to research in education* (6th ed.). Belmont, CA: Wadsworth/Thomson Learning.

Baker, L. M., & Hadley, G. (2014). The new agent: A qualitative study to strategically adapt new agent professional development. *Journal of Extension, 52*(5). Retrieved from http://www.joe.org

Beeler, K. D. (1977). Mini-U: A promising model for student affairs staff development. *NASPA Journal, 14*(3), 38 – 43. doi: 10.1080/00220973.1977.11071635

Beeman, C. E., Cheek, J. G., McGhee, M. B., & Grygotis, E. M. (1979). *Professional competencies needed by Extension agents in the Florida Cooperative Extension Service: A report of research.* Gainesville, FL: University of Florida, Institute of Food and Agricultural Sciences.

Belanger, F., & Jordan, D. H. (2000). *Evaluation and implementation of distance learning: Technologies, tools, and techniques.* Hershey, PA: Idea Group Pub.

Benge, M., Harder, A., & Carter, H. (2011). Necessary pre-entry competencies as perceived by Florida Extension agents. *Journal of Extension, 49*(5). Retrieved from http://www.joe.org

Birkenholz, R. J. (1999). *Effective adult learning.* Danville, IL: Interstate Publishers, Inc.

Bishop, A. (2006). Online professional development: Get the facts – Is web-based training for improving instruction the right fit for your district? *Technology & Learning, 27*(4). Retrieved from http://www.techlearning.com

Bliss, R. K. (1952). Introduction to significant Extension papers in agriculture and home economics. In R. K. Bliss (Ed.), *The spirit and philosophy of Extension work: As recorded in significant Extension papers* (pp. 1 – 7). Washington, DC: The Graduate School, United States Department of Agriculture and Epsilon Sigma Phi, National Honorary Extension Fraternity.

Bloir, K., & King, J. (2010). Change, who…me? *Journal of Extension, 48*(1). Retrieved from http://www.joe.org

Boone, E. J. (1989). Philosophical foundations of Extension. In D. J. Blackburn (Ed.), *Foundations and changing practices in Extension* (pp. 1 – 9). Guelph, Ontario, Canada: University of Guelph.

Borady-Ortmann, C. (2002). Teachers' perceptions of a professional development distance learning course. A qualitative case study. *Journal of Research on Technology in Education, 35*(1), 107 – 116. doi: 10.1080/15391523.2002.10782373

Boyd, B. L. (2003). Identifying competencies for volunteer administrators for the coming decade: A national Delphi study. *Journal of Agricultural Education, 44*(4), 47 – 56. doi: 10.5032/jae.2003.04047

Brodeur, C. W., Higgins, C., Galindo-Gonzalez, S., Craig, D. D., & Haile, T. (2011). Designing a competency-based new county Extension personnel training program: A novel approach. *Journal of Extension, 49*(3). Retrieved from http://www.joe.org

Brookfield, S. D. (1986). *Understanding and facilitating adult learning: A comprehensive analysis of principles and effective practices.* San Francisco, CA: Jossey-Bass Publishers.

Brooks-Harris, J. E., & Stock-Ward, S. R. (1999). *Workshops: Designing and facilitating experiential learning.* Thousand Oaks, CA: Sage Publications, Inc.

Brown, N. A. (1980). *Proposal for restructuring and policy change.* Unpublished manuscript, Minnesota Agricultural Extension Service, University of Minnesota, Minneapolis, MN.

Bruce, F. A., Jr., & Johnson, J. E. (2004). Graduate program in forestry and natural resources Extension education: An international needs assessment. *Journal of International Agricultural and Extension Education, 11*(1), 35 – 44. doi: 10.5191/jiaee.2004.11104

Burke, T. B. (2002). *Defining competency and reviewing factors that may impact knowledge, perceived importance and use of competencies in the 4-H professional's job* (Doctoral dissertation). Available from ProQuest Dissertations and Theses Global. (UMI No. 3081698)

Butterfield, K. L. (1952). The social phase of agricultural education. In R. K. Bliss (Ed.), *The spirit and philosophy of Extension work: As recorded in significant Extension papers* (pp. 73 – 81). Washington, DC: The Graduate School, United States Department of Agriculture and Epsilon Sigma Phi, National Honorary Extension Fraternity.

Canon, H. J. (1980). Developing staff potential. In U. Delworth & G. R. Hanson (Eds.), *Student services: A handbook for the profession.* San Francisco, CA: Jossey-Bass Publishers.

Center for American Progress. (2009). *Realigning resources for district transformation: Using the American Recovery and Reinvestment Act funds to advance a strategic education reform agenda.* Retrieved from https://cdn.americanprogress.org/wp-content/uploads/issues/2009/04/pdf/education_stimulus.pdf

Clark, R. C. (1966). Organization for the work. In H. C. Sanders (Ed.), *The Cooperative Extension Service* (pp. 33 – 47). Englewood Cliffs, NJ: Prentice-Hall, Inc.

Clements, J. (1999). Results? Behavior change! *Journal of Extension, 37*(2). Retrieved from http://www.joe.org

Cochran, G. R. (2009). *Ohio State University Extension competency study: Developing a competency model for a 21st century Extension organization* (Doctoral dissertation). Available from ProQuest Dissertations and Theses Global. (UMI No. 3375730)

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Cole, J. M. (1981). Selecting Extension teaching methods. *Journal of Extension, 19*(5), 27 – 32. Retrieved from http://www.joe.org

Committee on the Future of the Colleges of Agriculture in the Land Grant University System. (1995). *Colleges of agriculture at the land grant universities: A profile* [Digital version]. Washington, DC: National Academy Press. doi: 10.17226/4980

Cooper, A. W., & Graham, D. L. (2001). Competencies needed to be successful county agents and county supervisors. *Journal of Extension, 39*(1). Retrieved from http://www.joe.org

Cornell Cooperative Extension System (CCES). (1999). Adult learning and the Extension educator. *Facilitating Adult Learning Sourcebook, Unit 1.* Ithaca, New York: Cornell University.

Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (5th ed.). Boston, MA: Pearson.

Crosby, D. J. (1920). The need of special training for Extension workers. In W. H Beal (Ed.), *Proceedings of the Thirty-Fourth Annual Convention of the Association of Land-Grant Colleges* (pp. 86 – 89). Burlington, VT: Free Press Printing Company. Retrieved from https://babel.hathitrust.org/cgi/pt?id=pst.000021584695;view=1up;seq=5

Cruickshank, D. R., & Telfer, R. (1980). Classroom games and simulations. *Theory Into Practice, 19*(1), 75 – 80. doi: 10.1080/00405848009542875

Dewey, J. (1925). *Experience and nature.* Chicago, IL: Open Court Publishing Company.

Dewey, J. (1934). *Art as experience.* New York, NY: Minton, Balch & Company.

Dewey, J. (1938). *Experience and education.* New York, NY: Collier Books.

Diem, K. G. (2009). Preparing youth development professionals to be successful: How do the needs of Extension/4-H compare to those of other organizations? *Journal of Extension, 47*(1). Retrieved from http://www.joe.org

Diem, K. G. (2011). Are you ready to be an administrator? A self-assessment to help you manage expectations when assuming a new role. *Journal of Extension, 49*(4). Retrieved from http://www.joe.org

Donavant, B. W. (2009). The new, modern practice of adult education: Online instruction in a continuing professional education setting. *Adult Education Quarterly, 59*(3), 227 – 245. doi: 10.1177/0741713609331546

Dziuban, D., & Moskal, P. (2001). Evaluating distributed learning in metropolitan universities. *Metropolitan Universities, 12*(1), 41 – 49. Retrieved from https://journals.iupui.edu/index.php/muj/index

Edmundson, A. L. (2002). Online perspectives: From participant to practitioner. *Academic Exchange Quarterly, 6*(4), 88 – 94.

Enfield, J., Myers, R. D., Lara, M., & Frick, T. W. (2012). Innovation diffusion: Assessment of strategies within the Diffusion Simulation Game. *Simulation and Gaming, 43*(2), 188 – 214. doi: 10.1177/1046878111408024

Enfield, R. P., Schmitt-McQuitty, L., & Smith, M. H. (2007). The development and evaluation of experiential learning workshops for 4-H volunteers. *Journal of Extension, 45*(1). Retrieved from http://www.joe.org

Engel, R. J., & Schutt, R. K. (2014). *Fundamentals of social work research* (2nd ed.). Thousand Oaks, CA: Sage Publications, Inc.

Extension Committee on Organization and Policy (ECOP). (1977). *National guidelines for staff development.* Durham, NH: University of New Hampshire.

Fairbarn, M. S., Kearns, M., & Fair, B. (2000). Online learning and your professional development. *Applied Clinical Trials, 9*(12), 50 – 53.

Feinstein, A. H. (2001). An assessment of the effectiveness of simulation as an instructional system in foodservice. *Journal of Hospitality & Tourism Research, 25*(4), 421 – 443. doi: 10.1177/109634800102500405

Ferrell, C. C. (2005). *An assessment of the professional development needs of Oklahoma Cooperative Extension county staff* (Doctoral dissertation). Available from ProQuest Dissertations and Theses Global. (UMI No. 3202883)

Fetsch, R. J., Flashman, R., & Jeffiers, D. (1984). Up tight ain't right: Easing the pressure on county agents. *Journal of Extension, 22*(3). Retrieved from http://www.joe.org

Fiske, E. P. (1989). From rolling stones to cornerstones: Anchoring land-grant education in the counties through the Smith-Lever Act of 1914. *Rural Sociologist, 9*(4), 7 – 14.

Fleming, J. A. (1997). *New perspectives on designing and implementing effective workshops.* San Francisco, CA: Jossey-Bass Publishers.

Frick, T. W., Kim, K.-J., Ludwig, B. M., & Huang, R. (2003). *A web simulation on educational change: Challenges and solutions for development.* Paper presented at the 2003 Annual Convention of the Association for Educational Communications and Technology (AECT), Anaheim, CA. Retrieved from http://www.indiana.edu/~tedfrick/aect2003/frick_kim_ludwig_huang.pdf

Gallaher, A., Jr. (1967). The agent as an analyst. *Journal of Extension, 5*(4), 214 – 222. Retrieved from http://www.joe.org

Gallaher, A., Jr., & Santopolo, F. A. (1967). Perspectives on agent roles. *Journal of Extension, 5*(4), 223 – 230. Retrieved from http://www.joe.org

Gallucci, C., Van Lare, M. D., Yoon, I. H., & Boatright, B. (2010). Instructional coaching: Building theory about the role and organizational support for professional learning. *American Educational Research Journal, 47*(4), 919 – 963. doi: 10.3102/0002831210371497

Garst, B. A., Hunnings, J. R., Jamison, K., Hairston, J., & Meadows, R. R. (2007). Development of a comprehensive new 4-H Extension agents training program using a multi-module approach and the 4-H Professional Research, Knowledge, and Competencies (4HPRKC) taxonomy. *Journal of Extension, 45*(1). Retrieved from http://www.joe.org

Gay, L. R., Mills, G. E., & Airasian, P. (2009). *Educational research: Competencies for analysis and applications* (9th ed.). Upper Saddle River, NJ: Pearson Education, Inc.

Ghimire, N. R., & Martin, R. A. (2011). A professional competency development model: Implications for Extension educators. *Journal of International Agricultural and Extension Education, 18*(2), 5 – 17. doi: 10.5191/jiaee.2011.18201

Gillis, D. E., & English, L. M. (2001). Extension and health promotion: An adult learning approach. *Journal of Extension, 39*(3). Retrieved from http://www.joe.org

Glen, C. D., Moore, G. E., Jayaratne, K. S. U., & Bradley, L. K. (2014). Use of demonstration gardens in Extension: Challenges and benefits. *Journal of Extension, 52*(4). Retrieved from http://www.joe.org

Godwin, D., Diem, K. G., & Maddy, D. J. (2011). Best management practices for a successful transition into an administrative role. *Journal of Extension, 49*(4). Retrieved from http://www.joe.org

Goering, D. H. (1980). The 4-H agent's job: Another look. *Journal of Extension, 18*(1), 23 – 28. Retrieved from http://www.joe.org

Gonzalez, I. M. (1982). *The professional competencies needed by Extension agents in the Pennsylvania Cooperative Extension Service* (Doctoral dissertation). Available from ProQuest Dissertations and Theses Global. (UMI No. 8228891)

Gordon, D. T. (2003). Linking teachers with technology: Online courses and communities provide ways of delivering professional development and support. *Harvard Education Letter, 19*(6). Retrieved from http://hepg.org/hel-home/home

Green, S. B., Lissitz, R. W., & Mulaik, S. A. (1977). Limitations of coefficient alpha as an index of test unidimensionality. *Educational and Psychological Measurement, 37*(4), 827 – 838. doi: 10.1177/001316447703700403

Gregg, J. A., & Irani, T. A. (2004). Use of information technology by county Extension agents of the Florida Cooperative Extension Service. *Journal of Extension, 42*(3). Retrieved from http://www.joe.org

Haahr, M. & Haahr, S. (2016). *Random.org.* Retrieved from https://www.random.org

Harder, A., & Dooley, K. E. (2007). Perceptions of important competencies for early-career and established 4-H agents. *Journal of Southern Agricultural Education Research, (57)*1, 43 – 52. Retrieved from http://www.jsaer.org

Harder, A., Place, N. T., & Scheer, S. D. (2010). Towards a competency-based Extension education curriculum: A Delphi study. *Journal of Agricultural Education, (51)*3, 44 – 52. doi: 10.5032/jae.2010.03044

Hilke, E. V. (1990). *Cooperative learning.* Bloomington, IN: Phi Delta Kappa Educational Foundation.

Holst, J. D. (2009). Conceptualizing training in the radical adult education tradition. *Adult Education Quarterly, 59*(4), 318 – 334. doi: 10.1177/0741713609334140

Holz-Clause, M. S., Koundinya, V. S. C., Glenn, S., & Payne, J. M. (2012). Regionalization of the Iowa State University Extension system: Lessons learned by key administrators. *International Journal of Agricultural Management & Development, 2*(1), 33 – 40. Retrieved from http://www.ijamad.com

Horton, M. (1952). Extension philosophy. In R. K. Bliss (Ed.), *The spirit and philosophy of Extension work: As recorded in significant Extension papers* (pp. 172 – 174). Washington, DC: The Graduate School, United States Department of Agriculture and Epsilon Sigma Phi, National Honorary Extension Fraternity.

Howard, G. S., Ralph, K. M., Gulanick, N. A., Maxwell, S. E., Nance, D. W., & Gerber, S. K. (1979). Internal invalidity in pretest-posttest self-report evaluations and a re-evaluation of retrospective pretests. *Applied Psychological Measurement, 3*(1), 1 – 23. doi:10.1177/014662167900300101

Hubbard, W. G., & Sandmann, L. R. (2007). Using diffusion of innovation concepts for improved program evaluation. *Journal of Extension, 45*(5). Retrieved from http://www.joe.org

Irani, T., Place, N. T., & Mott, C. (2003). Integrating adult learning into Extension: Identifying importance and possession of adult education competencies among county Extension faculty. *Journal of Southern Agricultural Education Research, 53*(1), 164 – 176. Retrieved from http://www.jsaer.org

Johnson, D. W., & Johnson, R. T. (1989). Toward a cooperative effort: A response to Slavin. *Educational Leadership, 46*(7), 80 – 81. Retrieved from http://www.ascd.org/publications/educational-leadership.aspx

Johnson, D. W., Johnson, R. T., & Smith, K. A. (1991). *Cooperative learning: Increasing college faculty instructional productivity* (ASHE-ERIC Higher Education Report No. 4). Washington, DC: The George Washington University, School of Education and Human Development.

Johnson, J. E., Creighton, J. H., & Norland, E. R. (2007). An international perspective on successful strategies in forestry Extension: A focus on Extensionists. *Journal of Extension, 45*(2). Retrieved from http://www.joe.org

Johnson, S. D., Aragon, S. R., Shaik, N., & Palma-Rivas, N. (2000). Comparative analysis of learner satisfaction and learning outcomes in online and face-to-face learning environments. *Journal of Interactive Learning Research, 11*(1), 29 – 49. Retrieved from http://www.aace.org/pubs/jilr

Kasworm, C. E., Rose, A. D., & Ross-Gordon, J. M. (2010). *Handbook of adult and continuing education.* Thousand Oaks, CA: Sage Publications, Inc.

Keita, D., & Luft, V. D. (1987). Professional competencies needed by beginning Cooperative Extension agricultural agents in Minnesota, North Dakota, and South Dakota. *Journal of Agricultural Education, 28*(4), 40 – 49. doi: 10.5032/jaatea.1987.04040

Kidwell, P. K., Freeman, R., Smith, C., & Zarcone, J. (2004). Integrating online instruction with active mentoring to support professionals in applied settings. *The Internet and Higher Education, 7*(2), 141 – 150. doi: 10.1016/j.iheduc.2004.03.003

Killion, J. (2000). Log on to learn: To reap benefits of online staff development, ask the right questions. *Journal of Staff Development, 21*(3), 48 – 53. Retrieved from http://learningforward.org/publications/jsd#.Vxwi1noQHK8

Kirk, R. E. (2013). *Experimental design: Procedures for the behavioral sciences* (4th ed.). Thousand Oaks, CA: Sage Publications, Inc.

Knowles, M. S., Holton, E. F., III., & Swanson, R. A. (2005). *The adult learner: The definitive classic in adult education and human resource development* (6th ed.). Boston, MA: Elsevier Butterworth-Heinemann.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development.* Englewood Cliffs, NJ: Prentice-Hall, Inc.

Kovalik, C. L., & Kuo, C.-L. (2012). Innovation diffusion: Learner benefits and instructor insights with the Diffusion Simulation Game. *Simulation and Gaming, 43*(6), 803 – 824. doi: 10.1177/1046878112444577

Kwon, S., Lara, M., Enfield, J., & Frick, T. W. (2012). Design and evaluation of a prompting instrument to support learning within the Diffusion Simulation Game. *Journal of Educational Technology Systems, 41*(3), 231 – 253. doi: 10.2190/ET.41.3.c

Lakai, D., Jayaratne, K. S. U., Moore, G. E., & Kistler, M. J. (2012). Barriers and effective educational strategies to develop Extension agents' professional competencies. *Journal of Extension, 50*(4). Retrieved from http://www.joe.org

Lang, J. M. (2014). How students learn from games. *The Chronicle of Higher Education, 61*(3), B34 – B35. Retrieved from http://chronicle.com

Lara, M., Enfield, J. W., Myers, R. D., & Frick, T. W. (2011). *Learning assessment in the Diffusion Simulation Game.* Paper presented at the 2011 Annual Meeting of the American Educational Research Association (AERA), New Orleans, LA. Retrieved from http://www.aera.net/Publications/OnlinePaperRepository

Lara, M., Myers, R., Frick, T. W., Aslan, S., & Michaelidou, T. (2009). A design case: Creating an enhanced version of the Diffusion Simulation Game. In M. Simonson (Ed.), *2009 Annual Proceedings of the Annual Convention of the Association for Educational Communications and Technology* (pp. 301 – 310). Fort Lauderdale, FL: Association for Educational Communications and Technology (AECT). Retrieved from http://aect.site-ym.com/?page=ConvProceedings

Lawson, K. (2006). *The trainer's handbook* (2nd ed.). San Francisco, CA: Pfeiffer.

Lessly, R. R. (2005). *Professional growth: A workbook for planning personal development – The University of Tennessee Extension Institute of Agriculture.* Retrieved from https://extension.tennessee.edu/eesd/Documents/StaffDevelopment/UTExtensionProfessionalGrowthDevelopmentPlan.pdf

Lewin, K. (1951). *Field theory in social science: Selected theoretical papers.* New York, NY: Harper & Brothers.

Lewis, L., Snow, K., Farris, E., & Levin, D. (1999). *Distance education at postsecondary education institutions: 1997 – 1998.* Washington, DC: U. S. Department of Education, Office of Education and Research Improvement. Retrieved from http://www.nyu.edu/pages/classes/jepsen/ncesDec99.pdf

Lieberman, A., & Pointer-Mace, D. H. (2008). Teacher learning: The key to educational reform. *Journal of Teacher Education, 59*(3), 226 – 234. doi: 10.1177/0022487108317020

Lionberger, H. F., & Gwin, P. H. (1982). *Communication strategies: A guide for agricultural change agents.* Danville, IL: Interstate Publishers, Inc.

Maddy, D. J., Niemann, K., Lindquist, L., & Bateman, K. (2002). *Core competencies for the Cooperative Extension system.* Retrieved from http://www.msuextension.org/jobs/forms/Core_Competencies.pdf

Maines, W. M. (1987). *Characteristics needed to be a highly successful county Extension agent in agriculture in West Virginia: As perceived by county Extension agents, state Extension specialists, and state Extension administrators* (Unpublished doctoral dissertation). West Virginia University, Morgantown, West Virginia.

Matthews, J. L. (1951). *A method of determining the training needs of county Extension agents as the basis for planning training programs* (Unpublished doctoral dissertation). University of Chicago, Chicago, Illinois.

McCann, B. M. (2007). The effectiveness of Extension in-service training by distance: Perception versus reality. *Journal of Extension, 45*(1). Retrieved from http://www.joe.org

McConnell, T. J., Parker, J. M., Eberhardt, J., Koehler, M. J., & Lundeberg, M. A. (2013). Virtual professional learning communities: Teachers' perceptions of virtual versus face-to-face professional development. *Journal of Science Education and Technology, 22*(3), 267 – 277. doi: 10.1007/s10956-012-9391-y

McCormick, R. W., Cunningham, C. J., & Bender, R. E. (1968). *Communication concepts for developing increased competence among Cooperative Extension and vocational agricultural educators in implementing educational change* (Report No. PROJ-RF-2404). Columbus, OH: Ohio State University Research Foundation.

McDowell, G. R. (1985). The political economy of Extension program design: Institutional maintenance issues in the organization and delivery of Extension programs. *American Journal of Agricultural Economics, 67*(4), 718 – 725. doi: 10.2307/1241810

McDowell, G. R. (2001). *Land-grant universities and Extension into the 21st century: Renegotiating or abandoning a social contract.* Ames, IA: Iowa State University Press.

McDowell, G. R. (2004a). Is Extension an idea whose time has come--and gone? *Journal of Extension, 42*(6). Retrieved from http://www.joe.org

McDowell, G. R. (2004b). The agricultural establishment: Giving farmers too much of what they want and not enough of what they need. *Choices, 19*(1), 39 – 42. Retrieved from http://ageconsearch.umn.edu/handle/93051

McKenzie, J. (1991). Designing staff development for the information age. *The Educational Technology Journal, 1*(4). Retrieved from http://www.fno.org/fno.html

Merkle, H. B., Artman, R. B. (1983). Staff development: A systematic process for student affairs leaders. *NASPA Journal, 21*(1), 55 – 63. doi: 10.1080/00220973.1983.11071867

Meyer, S., & Jones, K. R. (2015). Promoting the essential elements of 4-H youth development through an experiential learning model. *Journal of Extension, 53*(5). Retrieved from http://www.joe.org

Meyer, S. R., & Marsick, V. J. (2003). Professional development in corporate training. *New Directions for Adult and Continuing Education, 2003*(98), 75 – 82. doi: 10.1002/ace.102

Molenda, M., & Rice, J. M. (1979). Simulation review: The Diffusion Simulation Game. Produced and distributed by the University Consortium for Instructional Development and Technology (UCIDT). Syracuse University © 1976. *Simulation & Gaming, 10*(4), 459 – 467. doi: 10.1177/104687817901000407

Morgan, B., Holmes, G. E., & Bundy, C. E. (1976). *Methods in adult education.* Danville, IL: Interstate Publishers, Inc.

Morse, R. S., Brown, P. W., & Warning, J. E. (2006). Catalytic leadership: Reconsidering the nature of Extension's leadership role. *Journal of Extension, 44*(2). Retrieved from http://www.joe.org

Neuhauser, C. (2002). Learning style and effectiveness of online and face-to-face instruction. *American Journal of Distance Education, 16*(2), 99 – 113. doi: 10.1207/S15389286AJDE1602_4

North Carolina Cooperative Extension (NCCE). (2007). *The new NCCE performance instrument.* Retrieved from https://intranet.ces.ncsu.edu/wp-content/uploads/2015/06/Appraisal_Training_PP_03-16-07.pdf?fwd=no

Oklahoma Cooperative Extension Service (OCES). (2012). *County educators performance review.* Retrieved from http://intranet.okstate.edu/staff_development/performance-appraisal-information/PERFORMANCE%20REVIEW-January%202012.pdf/view

Oklahoma Cooperative Extension Service (OCES). (2016a). Retrieved from http://www.oces.okstate.edu

Oklahoma Cooperative Extension Service (OCES). (2016b). *Core competencies.* Retrieved from http://intranet.okstate.edu/staff_development/performance-appraisal-information/core-competencies

Oklahoma Cooperative Extension Service (OCES). (2016c). *Family and consumer sciences.* Retrieved from http://fcs.okstate.edu

Oklahoma Cooperative Extension Service (OCES). (2016d). Oklahoma Cooperative Extension Service administrative districts and area specialists. *OCES County, Area, and District Office Directory.* Retrieved from http://countyext2.okstate.edu/OCES_AdminDistricts_Map.pdf

Oklahoma Cooperative Extension Service (OCES) Human Resources. (2016). *Extension educator duties.* Retrieved from http://hr.dasnr.okstate.edu/OCES-careers/extension-educator-duties

Patrico, J. (2011, March). Extension: Still relevant? Slashed budgets and changing farm demographics have weakened a venerable system. Can it – should it – be saved? *The Progressive Farmer*, 20 – 24. Retrieved from http://www.sdstate.edu/sdces/upload/Progressive-Farmer-CES.pdf

Peabody, F. J. (1968). *An analysis of critical incidents for recently employed Michigan Cooperative Extension agents with implications for training* (Doctoral dissertation). Available from ProQuest Dissertations and Theses Global. (UMI No. 6905928)

Piaget, J. (1971). *Psychology and epistemology.* New York, NY: Grossman.

Piskurich, G. M. (2006). Online learning: E-Learning. fast, cheap, and good. *Performance Improvement, 45*(1), 18 – 24. doi: 10.1002/pfi.2006.4930450105

Powers, R. C. (1967a). Power actors and social change: Part I. *Journal of Extension, 5*(3), 153 – 163. Retrieved from http://www.joe.org

Powers, R. C. (1967b). Power actors and social change: Part II. *Journal of Extension, 5*(4), 238 – 248. Retrieved from http://www.joe.org

Prawl, W., Medlin, R., & Gross, J. (1984). *Adult and continuing education through the Cooperative Extension Service.* Columbia, MO: Extension Division, University of Missouri-Columbia.

Price, R. K. (1960). *An analysis of educational needs of Arkansas Extension agents* (Doctoral dissertation). Available from ProQuest Dissertations and Theses Global. (UMI No. 6001015)

Rasmussen, W. D. (1989). *Taking the university to the people: Seventy-five years of Cooperative Extension.* Ames, IA: Iowa State University Press.

Reynolds, W. B. (1993). *Professional competencies needed by Extension agents in the Louisiana Cooperative Extension Service* (Doctoral dissertation). Available from ProQuest Dissertations and Theses Global. (UMI No. 9419920)

Riddle, E. (2004). Voluntary participation of k – 12 teachers in informal online learning. In R. Ferdig, C. Crawford, R. Carlsen, N. Davis, J. Price, R. Weber, & D. A. Willis (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 665 – 668). Chesapeake, VA: Association for the Advancement of Computing in Education (AACE). Retrieved from https://www.learntechlib.org/j/SITE

Ritsos, P. B., & Miller, L. E. (1985). *Professional competencies needed by Extension employees in urban counties of Ohio: Summary of research 43.* Columbus, OH: Ohio State University.

Rogers, E. M. (1963). The adoption process: Part I. *Journal of Extension, 1*(1), 16 – 22. Retrieved from http://www.joe.org

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

Rogers, V. M., & Goodloe, A. H. (1973). Simulation games as method. *Educational Leadership, 30*(8), 729 – 732. Retrieved from http://www.ascd.org/publications/educational-leadership.aspx

Ryan, B., & Gross, N. C. (1943). The diffusion of hybrid seed corn in two Iowa communities. *Rural Sociology, 8*(1), 15 – 24. Retrieved from http://chla.library.cornell.edu/c/chla/browse/title/5075626.html

Sanders, H. C. (1966a). A brief history. In H. C. Sanders (Ed.), *The Cooperative Extension Service* (pp. 13 – 24). Englewood Cliffs, NJ: Prentice-Hall, Inc.

Sanders, H. C. (1966b). The legal base, scope, functions, and general objectives of Extension work. In H. C. Sanders (Ed.), *The Cooperative Extension Service* (pp. 25 – 32). Englewood Cliffs, NJ: Prentice-Hall, Inc.

Sanderson, D. R. (Ed.). (1988). Understanding Cooperative Extension: Our origins, our opportunities. *Working with Our Publics: In-service Education for Cooperative Extension, Module 1.* Raleigh, NC: North Carolina State University.

Sapp, S. G. (n.d.). *Sociology 415: The Diffusion Game.* Retrieved from http://www.soc.iastate.edu/sapp/soc415DGame.html

Sappington, C. W., Brown, R. A., Cheatham, D. L., Jones, J. W., Jr., Thompson, G., Thornhill, A., & Bonner, J. (1977). *Development of a curriculum for professional youth workers.* Mississippi State, MS: Mississippi State University.

Schrum, L., & Benson, A. (2000). Online professional education: A case study of an MBA program through its transition to an online model. *Journal of Asynchronous Learning Networks, 4*(1), 52 – 61. Retrieved from http://onlinelearningconsortium.org/read/online-learning-journal

Schwartz, R. A., & Bryan, W. A. (1998). What is professional development? *New Directions for Student Services, (1998)*84, 3 – 13. doi: 10.1002/ss.8401

Schwieder, D. (1993). *75 years of service: Cooperative Extension in Iowa*. Ames, IA: Iowa State University Press.

Seevers, B. S. (1995). Extensionists as adult educators: A look at teaching style preference. *Journal of Extension, 33*(3). Retrieved from http://www.joe.org

Seevers, B. S., & Foster, B. B. (2004). A profile of female county agricultural agents in today's CES. *Journal of Extension, 42*(6). Retrieved from http://www.joe.org

Seevers, B. S., & Graham, D. L. (2012). *Education through Cooperative Extension* (3rd ed.). Fayetteville, AR: University of Arkansas.

Seevers, B. S., Graham, D. L., Gamon, J. A., & Conklin, N. L. (1997). *Education through Cooperative Extension.* Albany, NY: Delmar Publishers.

Shachar, M., & Neumann, Y. (2010). Twenty years of research on the academic performance differences between traditional and distance learning: Summative meta-analysis and trend examination. *Journal of Online Learning and Teaching, 6*(2), 318 – 334. Retrieved from http://jolt.merlot.org

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference.* Boston, MA: Houghton Mifflin.

Sims, R. R. (1998). *Reinventing training and development.* Westport, CT: Quorum.

Skees, J. R. (1992). The new political economy of agricultural and rural research: Implications for institutional change. *American Journal of Agricultural Economics, 74*(5), 1241 – 1248. doi: 10.2307/1242796

Slavin, R. E. (1995). *Cooperative learning: Theory, research, and practice* (2nd ed.). Boston, MA: Allyn & Bacon.

Smalley, J. M. (1985). *Perceptions of nine change agent roles and related work variables by county Extension agents in the Minnesota Agricultural Extension Service – 1985* (Doctoral dissertation). Available from ProQuest Dissertations and Theses Global. (UMI No. 8610672)

Smith, C. B. (1952). Work and relationship emphasized in the Smith-Lever Extension Act and in the discussion relating thereto. In R. K. Bliss (Ed.), *The spirit and philosophy of Extension work: As recorded in significant Extension papers* (pp. 100 – 104). Washington, DC: The Graduate School, United States Department of Agriculture and Epsilon Sigma Phi, National Honorary Extension Fraternity.

Smith, M. (2012). How are the cuts affecting training? *The Guardian*. Retrieved from http://www.theguardian.com/public-leaders-network/2012/jan/23/how-cuts-affecting-training

Smith, C. B., & Wilson, M. C. (1930). *The agricultural Extension system of the United States.* New York, NY: John Wiley & Sons, Inc.

Smith, H., & Lever, A. F. (1914). *Smith-Lever Act.* Retrieved from https://nifa.usda.gov/sites/default/files/Smith-Lever%20Act.pdf

Smith, M. L., & Glass, G. V. (1987). *Research and evaluation in education and the social sciences.* Englewood Cliffs, NJ: Prentice-Hall, Inc.

Sorensen, B. H., & Meyer, B. (2007). Serious games in language learning and teaching – A theoretical perspective. In A. Baba (Ed.), *Situated Play: Proceedings of the Third International Conference of the Digital Games Research Association* (pp. 559 – 566). Hongo Bunkyo-ku, Tokyo, Japan: Digital Games Research Association (DiGRA). Retrieved from http://www.digra.org/digital-library

Sork, T. J. (1984). The workshop as a unique instructional format. In T. J. Sork (Ed.), *Designing and implementing effective workshops* (pp. 3 – 10). San Francisco, CA: Jossey-Bass Publishers.

Sottile, J. M., & Brozik, D. (2004). *The use of simulations in a teacher education program: The impact on student development. A critical review.* Paper presented at the 2004 Hawaii International Conference on Education, Honolulu, HI. Retrieved from http://files.eric.ed.gov/fulltext/ED490383.pdf

Stephenson, G. (2003). The somewhat flawed theoretical foundation of the Extension Service. *Journal of Extension, 41*(4). Retrieved from http://www.joe.org

Stone, B. B., & Bieber, S. (1997). Competencies: A new language for our work. *Journal of Extension, 35*(1). Retrieved from http://www.joe.org

Stone, B., & Coppernoll, S. (2004). You, Extension and success: A competency-based professional development system. *Journal of Extension, 42*(2). Retrieved from http://www.joe.org

Strong, R., Harder, A., & Carter, H. (2010). Agricultural Extension agents' perceptions of effective teaching strategies for adult learners in the Master Beef Producer Program. *Journal of Extension, 48*(3). Retrieved from http://www.joe.org

Szczurek, M. (1982). *Meta-analysis of simulation games effectiveness for cognitive learning* (Doctoral dissertation). Available from ProQuest Dissertations and Theses Global. (UMI No. 8220735)

Thomas, W. R. (2004). *Online professional development: Why SREB states should use it.* Atlanta, GA: Southern Regional Education Board. Retrieved from http://publications.sreb.org/2004/04t05-onlineprofdev.pdf

Thorson, A. (Ed.). (2002). By your own design: A teacher's professional learning guide. *ENC Focus, 9*(1).

Torock, J. L. (2009). Experiential learning and Cooperative Extension: Partners in non-formal education for a century and beyond. *Journal of Extension, 47*(6). Retrieved from http://www.joe.org

Truitt, J. W. (1969). *Factors underlying the need for in-service development programs in student personnel work.* Terre Haute, IN: Indiana State University.

United States Department of Agriculture (USDA) National Institute of Food and Agriculture (NIFA). (n.d.). *Extension.* Retrieved from https://nifa.usda.gov/extension

Van Buren, M. E. (2001). *State of the industry report 2001.* Alexandria, VA: American Society for Training and Development.

Ward, B. (1962). *The rich nations and the poor nations.* New York, NY: W. W. Norton & Company.

Warner, L. A. (2014). Enhancing the capacity to create behavior change: Extension key leaders' opinions about social marketing and evaluation. *Journal of Agricultural Education*, *55*(4), 176 – 190. doi: 10.5032/jae.2014.04176

Warner, P. D., & Christenson, J. A. (1994). *The Cooperative Extension Service: A national assessment.* Boulder, CO: Westview Press.

Washbush, J., & Gosen, J. (2001). An exploration of game-derived learning in total enterprise simulations. *Simulation & Gaming*, *32*(3), 281 – 296. doi: 10.1177/104687810103200301

Weatherly, L. A. (2005). Competency models series part I: Competency models – An overview. *Society for Human Resource Management*. Retrieved from https://shrm.org

Wiesenberg, F. P., & Willment, J. H. (2001). Creating continuing professional online learning communities. *Adult Learning, 12*(1), 5 – 6. doi: 10.1177/104515950101200103

Wolfe, J. (1997). The effectiveness of business games in strategic management course work. *Simulation & Gaming, 28*(4), 360 – 376. doi: 10.1177/1046878197284003

Wolfe, J., & Chanin, M. (1993). The integration of functional and strategic management skills in a business game learning environment. *Simulation & Gaming, 24*(1), 34 – 46. doi: 10.1177/1046878193241005

Woodard, D. B., Jr., & Komives, S. R. (1990). Ensuring staff competence. In M. J. Barr & M. L. Upcraft (Eds.), *New futures for student affairs: Building a vision for professional leadership and practice* (pp. 217 – 238). San Francisco, CA: Jossey-Bass Publishers.

Young, J. R. (2002). 'Hybrid' teaching seeks to end the divide between traditional and online instruction. *The Chronicle of Higher Education, 48*(28), A33 – A34. Retrieved from http://chronicle.com

Zenger, J., & Uehlein, C. (2001). Why blended will win. *T + D, 55*(8), 54 – 60. Retrieved from https://www.td.org/Publications/Magazines/TD

APPENDICES

APPENDIX A

WORKSHOP MATERIALS AND PHOTOS

Making an Impact as a Change Agent

Meagan Scott

Oklahoma State University

Low Sodium Diet

What can happen when we consume too much salt?

How do we get people to adopt this sort of diet?

Getting people to adopt a Low Sodium Diet DOES NOT just happen!

We THINK we know how and why people adopt new ideas, BUT there is a science to this. It can be LEARNED.

Rogers' Diffusion of Innovations Theory (1960s)

Topics

Innovation Decision Process

Categories of Adopters

Opinion Leadership

Innovation Decision Process

I. Knowledge

- Morning talk show
- Colleague telling me about reducing salt in her diet
- See "reduced sodium" on food packages
- TV show on serious health risks

Innovation Decision Process

II. Persuasion

- Doctor visit
- Retaining fluids
- Risk of heart attack
- Friend has heart disease and had a recent heart attack
- Friend now on a low sodium diet and is doing much better
- Cue to Action=Family member has a heart attack

Innovation Decision Process

III. Decision

- Tell family members we are reducing salt
- Buy reduced salt Doritos, soups, vegetables, and sauces
- Throw away half of the salt shakers in the house
- Don't salt my beer, watermelon, or chips
- Reducing salt as a family

Innovation Decision Process

IV. Implementation

- I don't salt my watermelon, beer, or chips anymore
- Reduced sodium chicken broth, soups, ketchup, etc. in pantry
- Order reduced sodium entrees at restaurants
- Prepare my own foods rather than eating convenience foods

Innovation Decision Process

V. Confirmation

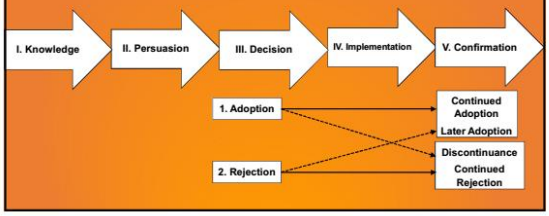
- If everything I eat lacks taste, I may stop the diet
- Still retaining fluid even though I have reduced my sodium intake

OR

- Foods I used to eat now taste way too salty
- I stick with the diet

Innovation Decision Process

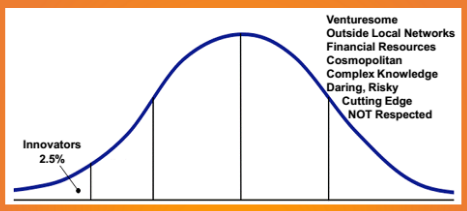
Adapted from: Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York, NY: Free Press. (p. 170)



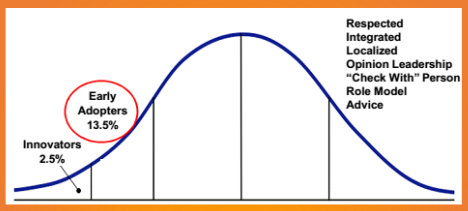
Your Turn

What would the 5 stages of the Innovation Decision Process look like for using a Battery Charged Lawnmower?

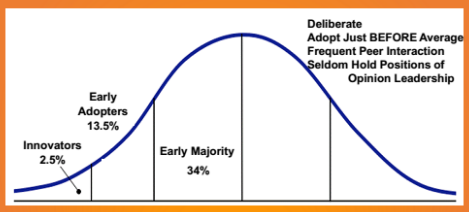
Innovators



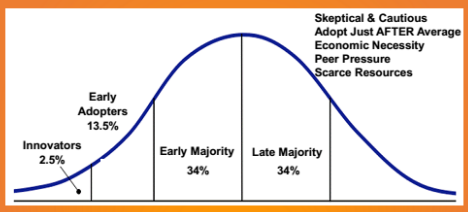
Early Adopters



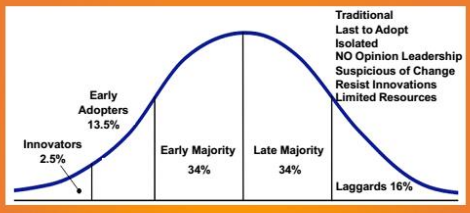
Early Majority



Late Majority



Laggards



Categories of Adopters

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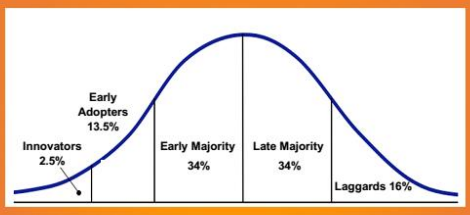
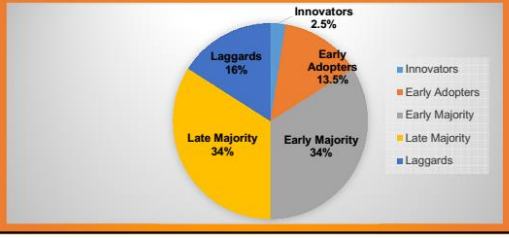


Categories of Adopters



Your Turn

Can you put the following individuals into the correct adopter category?

Alan

Alan grew up in Stillwater and still lives with his parents on a small farm about 10 miles outside of town. He is skeptical about all the "latest and greatest" yard machines he sees on his weekly trips to Lowe's. However, he finally bought a battery charged mower after everyone in his community had been using one for nearly a year.

Late Majority

Elizabeth

Elizabeth is a retired horticulture professor who took an early retirement to spend time gardening. She grows all of her own vegetables and herbs. She bought a battery charged mower when they hit the stores to help her with her gardening projects. Her peers tend to look to her for advice, and she is the "go to person" in her community.

Early Adopter

Natalie

Natalie left graduate school one class short of finishing a PhD in physics so she could follow her dream of backpacking through Europe. After 9 months, she returned home to market her grass fed beef to affluent yuppies. After seeing a battery charged mower during her travels, she ordered one before you could buy them in stores.

Innovator

Stephen

Stephen is a local grade school graduate. At age 50, he lives in a small house on the family farm with his mother. He comes to town only for the necessities—groceries and to buy feed. He has resisted every idea that the Extension educator has told him about. His gas mower is just fine.

Laggard

Micah

Micah is a local 4-H leader and president of the county's Cattlemen's Association. He is open to new ideas and stays in regular contact with his Extension educator. He was one of the first in his neighborhood to buy a battery charged mower.

Early Majority

Cheyenne

Cheyenne has lived in Stillwater all her life. She has a degree in animal science from OSU and now runs the family farm. Being on a limited budget, she is not usually the first to try out new ideas and products. She tends to be very cautious when deciding to make a purchase. However, Cheyenne recently purchased a battery charged mower to save money on gas.

Late Majority

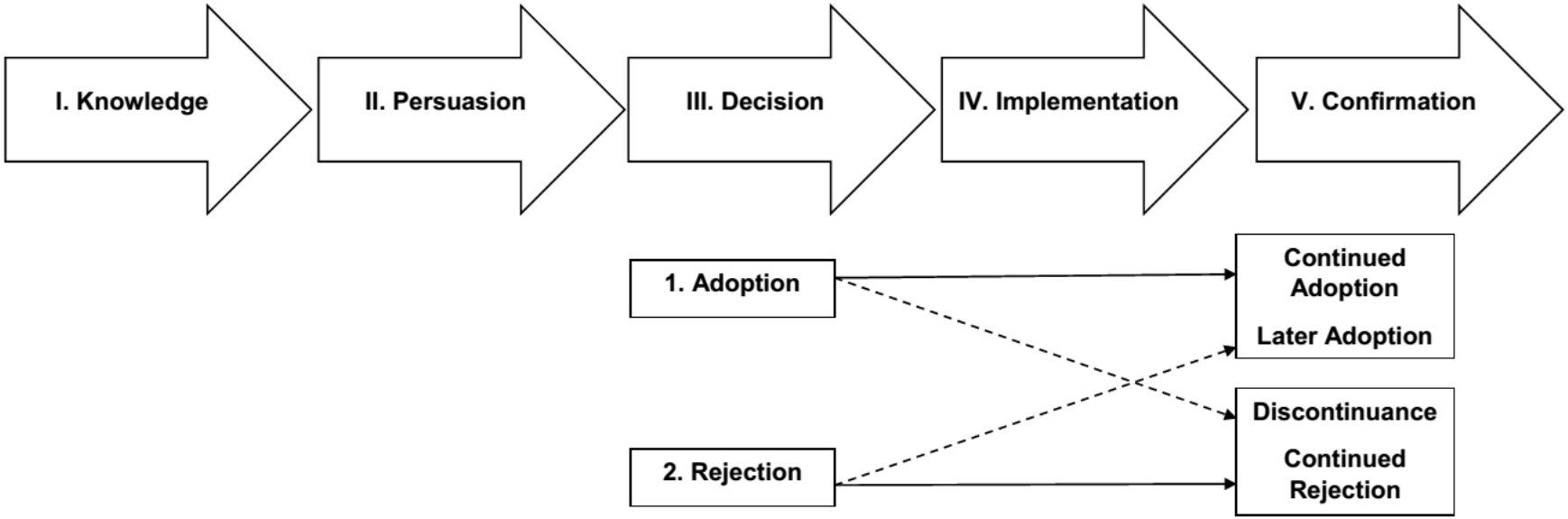
Jessica

Jessica is very active in the community, as she is a member of the young professionals group, leads the music at her church, and serves on the county Farm Bureau board. She likes to try out some of the new ideas that she reads about on the Extension educator's blog. In fact, she read about using a battery powered mower and after thinking it over, she decided to get one for herself.

Early Majority

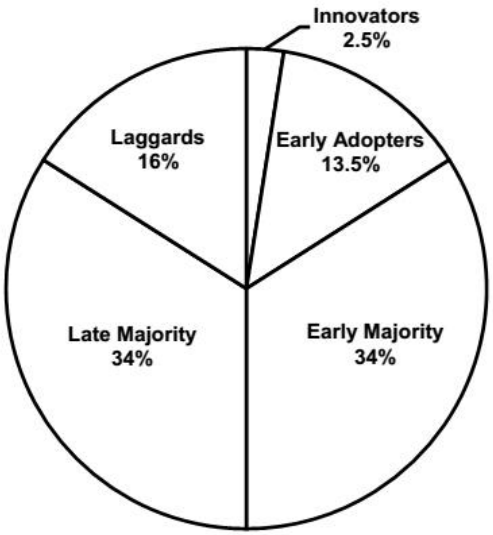
A Model of Five Stages in the Innovation-Decision Process

Adapted from: Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York, NY: Free Press. (p. 170)



Adopter Categorization on the Basis of Innovativeness

Adapted from: Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York, NY: Free Press. (p. 281)



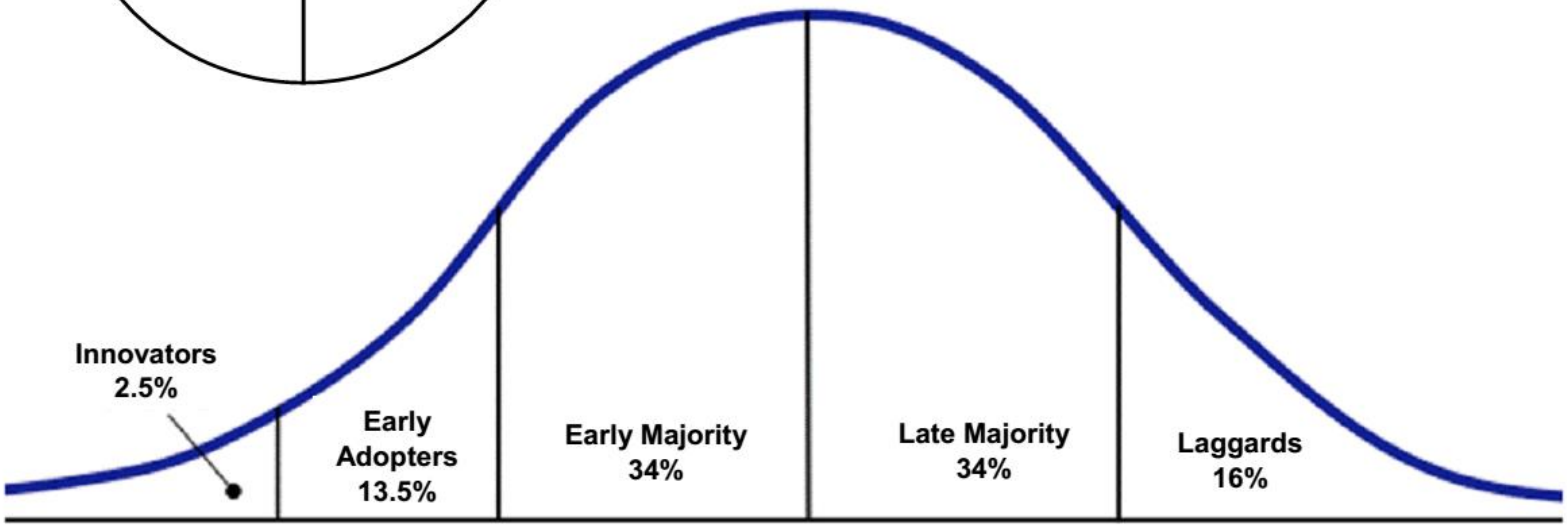
Innovators: Venturesome

Early Adopters: Respect

Early Majority: Deliberate

Late Majority: Skeptical

Laggards: Traditional



MAKING AN IMPACT AS A CHANGE AGENT

INNOVATION-DECSION PROCESS

Utilizing a **battery charged lawnmower**, explain what the stages in the innovation model would look like for this particular innovation.

Innovation	Knowledge	Persuasion	Decision	Implementation	Confirmation
Using a Battery Charged Lawnmower					


Innovators


INNOVATO


Late Majority

APPENDIX B

COMPUTER SIMULATION MATERIALS AND PHOTOS

FARMER'S MARKET DIFFUSION SIMULATION

Website Address: www.indiana.edu/~simgame/research/ag/dsg.html

Login: Your "okstate.edu" Email Address Password: cowboy

OBJECTIVE

In this simulation you will be playing the role of a "change agent" in a hypothetical situation. Your objective is to persuade as many of the agricultural producers who market their products at the farmer's market as possible, to adopt a particular innovation. In this case, the innovation is the use of organic practice or converting traditional production practices to organic practice. You are then to implement a program that is designed to reduce the pesticides used by farmers in controlling weeds and insects in their crops. **Grant funds are available for two years**.

RESOURCES (THE CALENDAR)

Whatever strategies you will use will, as in real life, require an investment of your time and energy. Therefore, you have been given **two years'** time or two growing seasons to achieve your objective. This time period is represented on the game screen by a calendar showing one market year (beginning March 15 and ending November 15) with 36 working weeks. You will cycle through this calendar twice, simulating the passage of two years (a total of 72 weeks).

Each activity of the game will cost you one or more weeks. The game is over when you have used up all your weeks or have achieved 100% adoption, whichever comes first.

GETTING ADOPTERS

Gathering Information

You will undoubtedly want to get to know the producers who come to the farmer's market pretty well before approaching them directly. Who are they? What are their values? What social roles do they play? You can dig out this information by investing some of your time in one or more of the information-gathering activities listed on the game board under "Information Activities."

Diffusion Activities

There are thirteen different "Diffusion Activities" listed on the game board that you can use to get adopters. During the game, you will carry out the activities by clicking the link which corresponds to the title of the activity of your choice. After submitting your selection, you will receive feedback regarding the outcomes of the activities you have chosen.

Influence Points & Adoption

The success of a move can be gauged by the number of influence points it produces. These points will be registered next to the persons that have been influenced. As you can see, each person requires a certain number of points to move from awareness to interest to trial. When a person has completed all of the stages, he or she has been influenced to adopt organic practice, and the adoption column can be marked. You have an adopter!

STARTING PLAY

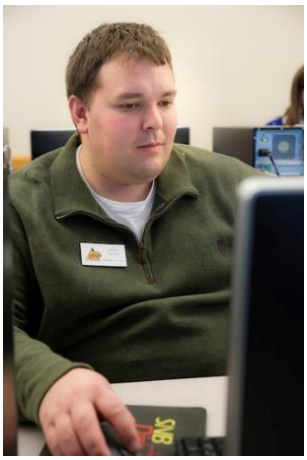
To start play, you must obtain Personal Information for any five people. To do this, go to the information table and select "Get Personal Info." Then you will be prompted to choose the **five people** for whom you want information. Once you have submitted your five choices, the personal information will be displayed in the column next to the titles of the corresponding persons.

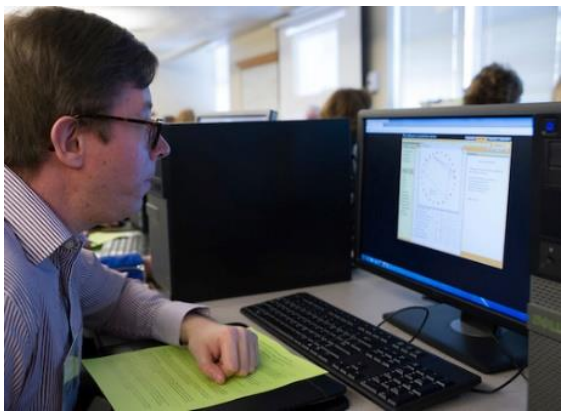
Subsequent Moves - After the first move, you can perform any activities listed in the "Information Activities" or "Diffusion Activities" tables. Continue to perform activities until the two years has been used up. Remember, your goal is to influence as many persons as possible to adopt the innovation during the two years. Good luck.

CHARACTERS

A	Extension Educator "Aaron"	Aaron has worked in Extension for 32 years. "If it ain't broke, don't fix it" is his motto. He prefers personal contact to email.
B	Extension Secretary "Betty"	Betty started the same year as Aaron and is looking forward to retiring soon. She maintains the Extension website, email, newsletter, regular mail databases, and Aaron's calendar.
C	Manager-Area Research Farm "Cody"	Cody is responsible for coordinating and scheduling all the research plots and workshops at the experiment station.
D	Doty Tomatoes & Peppers "Dan"	Dan Doty is recognized around town by his wide-brimmed straw hat and bib overalls. He tends to be skeptical about new ideas from the research station.
E	Earl's 5 Points Market "Earl"	Earl Doty has resisted every marketing effort of the farmer's market, whether it is a website, email directory, or an expanded parking area for customer parking. If it is new, he fights it.
F	Fay's Goat Cheese "Fay"	Fay Doty is quite ambitious. She has designs on putting goat cheese and goat fajitas on the menu of every Mexican restaurant in town. She travels the world as a goat show judge.
G	Glorious Poultry "Gloria"	Crazy Gloria started raising her own chickens when she found out that most of the eggs in the store were laid by chickens that were housed in wire cages inside buildings. Gloria is known as the "crazy chicken chick" around town.
H	Union Road Vegetables "Harry"	Harry is the most liked and respected merchant at the farmer's market. He is "the one to check with" before trying something new and has held every office in the market association.
I	Tumbleweed Beef Co. "Ike"	Ike is a hard working young man who ranches with his grandfather. He turned to direct marketing of some of his cattle when some of his friends from the Collegiate Cowboy Church asked about buying beef locally. He spends his free time at the Tumbleweed or church.
J	Ingalls Buffalo "Joe Bob"	Joe Bob learned about raising buffalo from a neighbor. After Wal-Mart began carrying bison meat, he sold his herd of cross bred cows and decided he could raise buffalo and market the meat through the market.
K	Karl's Sweet Corn "Karl"	A local grade school graduate, Karl is 59 years old. Karl wholesale markets his corn to the local IGA stores, at his mother's roadside stand, and the farmer's market. He lives with his mother on the family farm.
L	All American Rejected Cheese & Yogurt "Lloyd"	Lloyd left graduate school one class short of finishing an M.S. in Chemistry. With the nationwide contacts he made while working as the road manager for a band, Lloyd caters to affluent yuppies through his own brand of yogurts and cheeses that he developed.
M	Elastic Foods "Max"	Max is a retired economics professor living out his dream of owning his own business where he sells fresh salsas and herbs. He has converted a mobile home to a preparation kitchen, but aspires to building a new facility and buying a commercial kitchen.
N	One a Day Flowers "Naomi"	A botanist by training, Naomi is a junior high science teacher who supplements her income with her cut flower and perennial flower sales. She grew up in Stillwater and lives with her parents on small acreage. She relies on her neighbors and family for advice.
O	Frazzled Mom's Dairy "Olive"	Olive markets her sheep milk products from the back of her mini-van. She is the local 4-H leader and the president of the PTA at her kids' small, rural school.
P	Preston's Heritage Pork "Preston"	With a PhD, Preston is perhaps the most educated purveyor at the market. He rents 320 acres of wooded pasture and raises "old world Berkshire" pork, mostly marketed to upscale restaurants. The other merchants see him as a "nut job" and tolerate his aversion to bathing.
Q	Manure, Naturally "Quinton" "Quincy"	These 16 year old twin brothers started their manure business by marketing manure from their grandfather's horse farm. Popular with the other merchants and students in school, they are working with an agricultural engineering professor to generate ethanol from the manure.
R	Ralph's Moonshadow Vegetables "Ralph"	Ralph plants all his vegetable crops by the phases of the moon and keeps a copy of Poor Richard's Almanac in his back pocket at all times. He saves his own seed and thinks genetically modified crops are a plot by Monsanto to destroy the American food system.
S	Just Peachy-Fruits & Nuts "Sara"	Sara bought an established, but neglected peach and pecan orchard. She often visits family in other states and practices new methods of weed and insect control learned while on her trips. She keeps her radio on NPR.
T	Ted's Dried Mushrooms "Ted"	Ted generally keeps to himself and only participates in the farmer's market because the mail order sales of his dried mushrooms plummeted following 9/11 attacks. He tends to be suspicious of the Extension educator. The Shop and Swap is his sole window to the world.
U	Smelly Flowers and Stuff "Ursula"	This is Ursula's second year at the market. Usually not the first one to try out new ideas, she has patterned her business after her sister's successful lavender farm in Tulsa.
V	New World Veggies "Virginia"	Virginia teaches biology and horticulture at the local junior college. Open to new production methods that are backed by university research, she subscribes to several horticultural trade publications. She takes student groups to Europe and hosts international exchange students.
W	Warren's No Spit Melons "Warren"	Warren was one of the first growers in the state to market seedless watermelons. He helped organize the farmer's market association. He likes the interaction with other producers and is open to new ideas.
X	No Whining Blackberries "Xi"	Xi studied English at the university before returning home to grow berries on the family farm. Xi has served as an officer in the market association for the past five years. She has been invited to speak at the USDA's Know Your Farmer Symposium in Washington, D.C.


The Diffusion Simulation Game
Game Rules
Play Game
Game Log
My Account
Mar Apr May Jun Jul Aug Sep Oct Nov Mar Apr May Jun Jul Aug Sep Oct Nov
Adopters: 0
Information Activities
Cost (Weeks)
Get Personal Info 1
Lunch Crowd 1
Committees 1
Social Network 1
Diffusion Activities
Cost (Weeks)
Talk To 1
Ask Help 1
Pilot Test 2
Site Visit 4
Print 1
Presentation 3
Demonstration 3
Workshop (Self) 5
Workshop (Prof.) 2
Workshop (IPM) 5
Local Mass Media 1
Compulsion 6
Confrontation 6
List View
Detailed View
New Game
Logout
FMA Members
Awareness
Interest
Trial
Adopter
A Extension Educator
B Extension Secretary
C Manager, Area Research Farm
D Doty's Tomatoes & Peppers
E Earl's 5 Points Market
F Fay's Goat Cheese
G Glorious Poultry
H Union Road Vegetables
I Tumbleweed Beef Co.
J Ingalls Buffalo
K Karl's Sweet Corn
L All-American Rejected Cheese
M Elastic Foods
N One a Day Flowers
O Frazzled Mom's Dairy
P Preston's Heritage Pork
Q Manure, Naturally
R Ralph's Moonshadow Veggies
S Just Peachy--Fruits and Nuts
T Ted's Dried Mushrooms
U Smelly Flowers and Stuff
V New World Veggies
W Warren's No Spit Melons
X No Whining Blackberries
Activity Area
Get Personal Info:
Choose FIVE farmers' market producers for whom you would like to obtain personal information. (Cost: 1 week)
Select a member on the left.
To unselect a member click on him/her again.
Member(s) selected:
A Extension Educator
B Extension Secretary
C Manager, Area Research Farm
D Doty's Tomatoes & Peppers
E Earl's 5 Points Market
Continue





APPENDIX C

INSTRUMENT

Name _____

2016 Oklahoma Cooperative Extension Service Conference

"Making an Impact as a Change Agent"

Please provide the following information about yourself:

1. Indicate your program area: AG/4-H _____ FCS/4-H _____ 4-H _____ Other (describe) _____

2. Are you a CED? Yes _____ No _____

3. Total Years Working in Extension: _____

4. Age: _____

5. Male: _____ Female: _____

6. Extension District: Northeast _____ Northwest _____ Southeast _____ Southwest _____

I. Extension Educator Roles

RANK the following statements describing the different roles of an Extension educator from **1 to 9**. From **YOUR** perception, give **1** to the **MOST IMPORTANT** role, and **9** to the **LEAST IMPORTANT** role. **No two items should receive the same number**.

Use the numbers: **Most Important 1-2-3-4-5-6-7-8-9 Least Important**

The Extension educator should…	**Your Ranking**
Provide Extension clientele with skills that help them solve their own problems.	
Develop approaches for assisting Extension clientele in addition to meetings and one-on-one consultations.	
Keep aware of issues at the state, regional (i.e., neighboring states), and national levels that also have impact on Extension clientele at the county level.	
Recruit, select, train, and give volunteers a significant role in the delivery of Extension educational programs.	
Identify educational needs with Extension clientele, set priorities, implement and evaluate learning experiences, and report results.	
Remain in touch with and react to the immediate and changing needs of Extension clientele.	
Go beyond the Extension-related units of Oklahoma State University to acquire information and expertise to meet the needs of Extension clientele at the county level.	
Maintain and improve subject matter and personal skills to continue his/her effectiveness as a county Extension educator.	
Try new educational approaches and attempt to work with non-traditional clientele where there is risk in terms of the educational outcomes **NOT** being successful.	

TURN PAGE OVER ➡

Identification Number _____

A-PreTest **(Researcher Use Only)**

II. Extension Educator Use of Time

Please respond to the following statements regarding the use of an Extension educator's time.

Mark each question with an "X" to indicate your response.

The BEST use of an Extension educator's time is:	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
Answer client phone calls.						
Prepare newsletters, news articles, and post to social media.						
Respond to emails from clients/parents/producers.						
Plan programs to address needs of clientele.						
Troubleshoot clientele problems by making client visits.						
Develop programs focused on changing products and/or issues.						
Meet with community/commodity groups to decide what programs to implement.						
Conduct programming that responds to client needs.						
Form working councils or advisory groups to determine programming.						
Conduct programming that responds to client desires.						
Help clientele become aware of the need to/for change.						
Provide clientele with skills to solve their own problems.						

THANK YOU!

Name _____

2016 Oklahoma Cooperative Extension Service Conference

"Making an Impact as a Change Agent"

I. Extension Educator Roles

RANK the following statements describing the different roles of an Extension educator from **1 to 9**. From **YOUR** perception, give **1** to the **MOST IMPORTANT** role, and **9** to the **LEAST IMPORTANT** role. **No two items should receive the same number**.

Use the numbers: **Most Important 1-2-3-4-5-6-7-8-9 Least Important**

The Extension educator should…	**Your Ranking**
Provide Extension clientele with skills that help them solve their own problems.	
Develop approaches for assisting Extension clientele in addition to meetings and one-on-one consultations.	
Keep aware of issues at the state, regional (i.e., neighboring states), and national levels that also have impact on Extension clientele at the county level.	
Recruit, select, train, and give volunteers a significant role in the delivery of Extension educational programs.	
Identify educational needs with Extension clientele, set priorities, implement and evaluate learning experiences, and report results.	
Remain in touch with and react to the immediate and changing needs of Extension clientele.	
Go beyond the Extension-related units of Oklahoma State University to acquire information and expertise to meet the needs of Extension clientele at the county level.	
Maintain and improve subject matter and personal skills to continue his/her effectiveness as a county Extension educator.	
Try new educational approaches and attempt to work with non-traditional clientele where there is risk in terms of the educational outcomes **NOT** being successful.	

TURN PAGE OVER →

Identification Number _____

A-PostTest(WS) **(Researcher Use Only)**

II. Extension Educator Use of Time

Please respond to the following statements regarding the use of an Extension educator's time.

Mark each question with an "X" to indicate your response.

The BEST use of an Extension educator's time is:	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Answer client phone calls.						
Prepare newsletters, news articles, and post to social media.						
Respond to emails from clients/parents/producers.						
Plan programs to address needs of clientele.						
Troubleshoot clientele problems by making client visits.						
Develop programs focused on changing products and/or issues.						
Meet with community/commodity groups to decide what programs to implement.						
Conduct programming that responds to client needs.						
Form working councils or advisory groups to determine programming.						
Conduct programming that responds to client desires.						
Help clientele become aware of the need to/for change.						
Provide clientele with skills to solve their own problems.						

THANK YOU!

APPENDIX D

IRB APPROVAL LETTER

Oklahoma State University Institutional Review Board

Date:	Wednesday, December 02, 2015
IRB Application No	AG1557
Proposal Title:	Extension educators' perceptions of change agent roles and related work responsibilities
Reviewed and Processed as:	Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 12/1/2018

Principal Investigator(s):

Meagan Scott
445 Ag Hall
Stillwater, OK 74078

William G. Weeks
448 Ag Hall
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1.Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms
2.Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3.Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of the research; and
4.Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Scott Hall (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,

Hugh Crethar, Chair
Institutional Review Board

APPENDIX E

APPROVED ADULT CONSENT FORM

ADULT CONSENT FORM
OKLAHOMA STATE UNIVERSITY

PROJECT TITLE: Extension Educators' Perceptions of Change Agent Roles and Related Work Responsibilities

INVESTIGATORS: Meagan Scott, Oklahoma State University; William Weeks, Ph.D., Oklahoma State University

PURPOSE: The purpose of this study is to ascertain the perceptions of Oklahoma Extension educators regarding nine change agent roles and related work responsibilities.

PROCEDURES: After agreeing to participate in the study, you will complete a questionnaire and then participate in a professional development opportunity consisting of a workshop and a computer simulation game. Each session will last approximately 1.5 hours.

RISKS OF PARTICIPATION: There are no known risks associated with this project which are greater than those ordinarily encountered in daily life.

BENEFITS OF PARTICIPATION: Participating in a professional development opportunity to learn how to better serve the people of Oklahoma will benefit both you professionally as well as the clientele you serve.

CONFIDENTIALITY: The records of this study will be kept private. Any written results will use an identification number and will not include information that will identify you. Research records will be stored securely and only researchers and individuals responsible for research oversight will have access to the records. The researcher will create a temporary list linking participant names and identification numbers while data collection is on-going. This list will be kept on the researcher's password protected computer for one year and then it will be removed. The PI, Meagan Scott, and Advisor, William Weeks, will have access to the list. It is possible that the consent process and data collection will be observed by research oversight staff responsible for safeguarding the rights and well-being of people who participate in research.

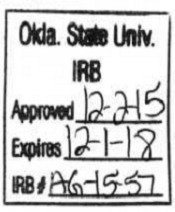
CONTACTS: You may contact us at the following address and phone numbers, should you desire to discuss your participation in the study and/or request information about the results of the study: Meagan Scott or Bill Weeks, Ph.D., 445 Ag Hall, Department of Agricultural Education, Communications, and Leadership, Oklahoma State University, Stillwater, OK 74078, (405) 744-3036 or (405) 744-5129.

If you have questions about your rights as a research volunteer, you may contact Dr. Hugh Crethar, IRB Chair, 223 Scott Hall, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu.

PARTICIPANT RIGHTS: I understand that my participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my consent and participation in this project at any time, without penalty.

CONSENT DOCUMENTATION: I have been fully informed about the procedures listed here. I am aware of what I will be asked to do and of the benefits of my participation. I also understand the following statements:

- I affirm that I am 18 years of age or older.
- I have read and fully understand this consent form. I may retain this form for my records. By filling out the questionnaire, I hereby give permission for my participation in the study.



APPENDIX F

2016 OKLAHOMA COOPERATIVE EXTENSION SERVICE
BIENNIAL CONFERENCE AGENDA

PARTNERS IN EXCELLENCE FOR IMPACT

Oklahoma Cooperative Extension Service

Biennial Conference
OSU Student Union
Stillwater, Oklahoma
January 12-14, 2016

Designated Conference Hotel: Best Western Plus Cimarron Hotel & Suites *315 North Husband Street, Stillwater*

Use **#OCESCONF2016** to share your experience on social media!

The conference evaluation is digital this year. Scan the QR code with a mobile device to access it.

Find the conference app in the Apple App Store, Google Play Store, or online!

Tuesday, January 12

6:30 a.m. - 12:00 p.m.	**Health Screening**	Student Union 470
10:00 a.m. - 12:00 p.m.	**OAE4-HA Meeting**	Student Union 408, Case Study 1
11:00 a.m. - 11:30 a.m.	**Networking**	OSU Campus
	Lunch on your own	
11:30 a.m. - 12:50 p.m.	**Poster Session**	Student Union 265, Ballroom
11:30 a.m. - 1:00 p.m.	**Registration and Professional Photos**	Student Union 265, Ballroom
1:00 p.m. - 2:30 p.m.	**General Session**	Student Union 203, Theater
	Introductions	
	Welcome	
	Updates	
2:30 p.m. - 3:00 p.m.	**Snack and Beverage Break**	Student Union 203, Theater
3:00 p.m.	**Keynote Speaker Steve Siemens**	Student Union 203, Theater
	When You're Through Changing, You're Through	
7:00 p.m.	**Social Time**	Conference Hotel, 4th Floor

Wednesday, January 13

6:00 a.m. - 6:45 a.m.	**Wellness Walk**	Meet in Conference Hotel Lobby
6:30 a.m. - 12:00 p.m.	**Health Screening**	Student Union 470
7:15 a.m. - 8:15 a.m.	**Continental Breakfast**	Outside of Case Study Rooms
8:15 a.m. - 9:15 a.m.	**Concurrent Sessions (1)**	
	No ING Y-OUR R D Progs	Student Union 270, French Lounge
	Making Sense of Money Management	Student Union 280, Sequoyah Room
	Clothing for Special Needs	Student Union 297, Suite 1600
	Master Cattleman Intro and Update	Student Union 408, Case Study 1
	Understanding the Endangered Species Act	Student Union 413, Exhibit Room 1
	Basics of Social Media	Student Union 416, Case Study 2
	Youth Experiencing Science...	Student Union 417, Exhibit Room 2
	Cliff Notes: Three Good Books in One Hour	Student Union 465, Starlight Terrace
9:20 a.m. - 10:20 a.m.	**Concurrent Sessions (2)**	
	Building Leaders for Tomorrow	Student Union 270, French Lounge
	Making Sense of Money Management, cont.	Student Union 280, Sequoyah Room
	Clothing for Special Needs, cont.	Student Union 297, Suite 1600
	Master Cattleman Intro and Update, cont.	Student Union 408, Case Study 1
	Beyond the Numbers...	Student Union 413, Exhibit Room 1
	Advanced Social Media	Student Union 416, Case Study 2
	Water Issues in Oklahoma	Student Union 417, Exhibit Room 2
	4-H Healthy Living Tools of the Trade	Student Union 465, Starlight Terrace
10:20 a.m. - 10:40 a.m.	**Beverage Break**	Outside of Case Study Rooms

10:40 a.m. - 11:40 a.m.	**Concurrent Sessions (3)**	
	Unveiling the Role of Landscape Architects...	Student Union 270, French Lounge
	Making Sense of Money Management, cont.	Student Union 280, Sequoyah Room
	Teen Action and Growth	Student Union 297, Suite 1600
	Veterinary Feed Directives	Student Union 408, Case Study 1
	Me and My Buddy ...	Student Union 413, Exhibit Room 1
	Graphic Design Tips, Tricks and Hacks	Student Union 416, Case Study 2
	Oklahoma Beef Producer….	Student Union 417, Exhibit Room 2
	Master FCS Volunteer Program	Student Union 465, Starlight Terrace
11:45 a.m. - 1:15 p.m.	**Group Luncheon and Awards**	Student Union 265, Ballroom
1:30 p.m. - 2:30 p.m.	**Concurrent Sessions (4)**	
	Promoting Smarter Lunchrooms….	Student Union 270, French Lounge
	Oil/Gas Activity Impacts in Oklahoma	Student Union 280, Sequoyah Room
	Working with Hispanics	Student Union 297, Suite 1600
	Wine for all Occasions	Student Union 408, Case Study 1
	Learning to Lead: Inspire Your Coworkers	Student Union 413, Exhibit Room 1
	Responding to the Largest Animal Health...	Student Union 416, Case Study 2
	Title VII & IX Training	Student Union 417, Exhibit Room 2
	International and Multicultural Experiences...	Student Union 465, Starlight Terrace
2:30 p.m. - 2:50 p.m.	**Snack Break**	Outside of Case Study Rooms
2:50 p.m. - 3:50 p.m.	**Concurrent Sessions (5)**	
	How Do I Work With These People?	Student Union 270, French Lounge
	Oil/Gas Activity Impacts in Oklahoma, cont.	Student Union 280, Sequoyah Room
	Windows 10 and Office 2016: What's Ahead….?	Student Union 297, Suite 1600
	Understanding County Government Funding...	Student Union 408, Case Study 1
	Animal Parasite Detection Workshop	Student Union 413, Exhibit Room 1
	Welcome to the Real World	Student Union 416, Case Study 2
	The Crepe Escape...	Student Union 417, Exhibit Room 2
	Basics of Photography and Video	Student Union 465, Starlight Terrace
3:55 p.m. - 4:55 p.m.	**Concurrent Sessions (6)**	
	How Do I Work With These People?, cont.	Student Union 270, French Lounge
	Do It Yourself Energy Audit	Student Union 280, Sequoyah Room
	Windows 10 and Office 2016… cont.	Student Union 297, Suite 1600
	4-H Online Q & A	Student Union 408, Case Study 1
	Animal Parasite Detection Workshop, cont.	Student Union 413, Exhibit Room 1
	Onigiri and the Bento Box	Student Union 416, Case Study 2
	Eat, Drink and Be Local?...	Student Union 417, Exhibit Room 2
	Using YouTube in Extension Education	Student Union 465, Starlight Terrace
7:00 p.m.	**Bedlam Watch Party**	Conference Hotel, 4th Floor
8:00 p.m.	**OSU Men's Basketball Game vs. Oklahoma**	Gallagher-Iba Arena

Thursday, January 14

6:00 a.m. - 6:45 a.m.	**Wellness Walk**	Meet in Conference Hotel Lobby
6:30 a.m. - 12:00 p.m.	**Health Screening**	Student Union 470
7:30 a.m. - 8:30 a.m.	**Continental Breakfast**	Student Union and Classroom Building, 4th Floor
8:30 a.m. - 10:00 a.m.	**Making an Impact as a Change Agent, Part I**	
	Group A	Classroom Building 406
	Group B	Student Union 408, Case Study 1
10:00 a.m. - 10:20 a.m.	**Beverage Break**	Student Union and Classroom Building, 4th Floor
10:20 a.m. - 11:50 a.m.	**Making an Impact as a Change Agent, Part II**	
	Group A	Student Union 408, Case Study 1
	Group B	Classroom Building 406
12:00 p.m. - 12:30 p.m.	**Box Lunch Pick Up**	Student Union 417, Exhibit Room 2
12:30 p.m. - 2:30 p.m.	**OAEAA Meeting**	Student Union 408, Case Study 1
	OEAFCS Meeting	Student Union 416, Case Study 2
	Networking	OSU Campus

We hope you enjoyed the 2016 Oklahoma Cooperative Extension Service Biennial Conference!

Tell us what you thought. Scan the QR code on the left to get to the conference evaluation.

VITA

Meagan Elizabeth Scott

Candidate for the Degree of

Doctor of Philosophy

Thesis: THE EFFECT OF TWO DIFFERENT PROFESSIONAL DEVELOPMENT METHODS ON OKLAHOMA EXTENSION EDUCATORS' PERCEPTION OF THEIR ROLE AS AGENTS OF CHANGE

Major Field: Agricultural Education

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in Agricultural Education at Oklahoma State University, Stillwater, Oklahoma in May, 2016.

Completed the requirements for the Master of Science in Agricultural and Extension Education at Mississippi State University, Mississippi State, Mississippi in 2004.

Completed the requirements for the Bachelor of Science in Human Sciences at Mississippi State University, Mississippi State, Mississippi in 2002.

Experience:

Assistant Professor/4-H Youth Development Specialist, July 2016 – Present
North Dakota State University Extension Service (Fargo, ND)

Graduate Teaching Associate, August 2013 – May 2016
Ag Education, Communications, & Leadership – Oklahoma State University

Extension 4-H Youth Agent II, September 2004 – December 2012
Mississippi State University Extension Service (Pearl River County, MS)

Professional Memberships:

National Association of Extension 4-H Agents
Epsilon Sigma Phi
Association of Leadership Educators
American Association for Agricultural Education