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# Diffusion of Social Media Among County 4-H Programs in Tennessee

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To the Graduate Council:

I am submitting herewith a thesis written by Rebekah Bowen entitled "Diffusion of Social Media Among County 4-H Programs in Tennessee." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Leadership, Education and Communications.

Carrie A. Stephens, Major Professor

We have read this thesis and recommend its acceptance:

Courtney C. Childers, Elizabeth J. Avery

Accepted for the Council:

Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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# **Diffusion of Social Media Among County 4-H Programs in Tennessee**

A Thesis Presented for the  
Master of Science  
Degree  
The University of Tennessee, Knoxville

Rebekah Dawn Bowen  
May 2012

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## **Dedication**

This thesis is sincerely dedicated to my family and friends for being a constant source of love, comfort, support and encouragement over the last two years.

## Acknowledgements

The completion of this thesis would not have been possible without a number of special people whose support and encouragement were integral to my success with this project. While everyone cannot be mentioned here, I would like to acknowledge a few very special people.

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## **Abstract**

Over the past decade, Cooperative Extension and 4-H professionals have been faced with the decision of whether they should adopt new communication technologies such as social media to interact with their rapidly growing audience. Current research on social media and Extension shows that there are some identified risks and barriers (Fuess & Humphreys, 2011; Seger, 2011); however, many Extension professionals believe that social media usage could be very beneficial for Extension and/or 4-H usage (Coates, 2004; Rhoades, Thomas & Davis, 2009; Kinsey, 2010). In order to increase the body of empirical research on this subject, a quantitative study was conducted based on Roger's diffusion of innovation theory (Rogers, 1983). The study was conducted via an online survey distributed to all 4-H program leaders in Tennessee, and received a 49 percent (n=196) response rate. This study sought to describe the usage of social media by county 4-H program leaders in Tennessee, and to identify key perceptions toward current and future usage of social media for 4-H. The most commonly utilized social media services were Facebook, YouTube and Twitter. The results indicated that the majority of program leaders had a positive view of social media usage and felt that it was an efficient and effective way to communicate information to their audience. While program leaders did not indicate lack of knowledge as a problem, they did express willingness to participate in training opportunities to learn more about social media and improve their current usage. Overall, the study determined that social media is gaining widespread usage throughout rural and urban county 4-H programs in Tennessee, and that increased efforts toward training and research in this area are warranted.

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## Chapter 1

### Introduction and General Information

#### Introduction

While few Tennessee 4-H agents describe themselves as public relations practitioners, they are nonetheless responsible for promoting 4-H and its programs to the youth in their county and throughout the state. In today's busy world, it can be a challenge for 4-H leaders to keep up with rapidly changing communication methods of the younger generations. As early as 1943, there were over one million young men and women participating in 4-H projects each year in the United States (Wessel & Wessel, 1982). In 2010, this number has increased to include over six million youth members nationwide (National 4-H Council, 2010). In only 67 years, 4-H enrollment has increased by 600 percent. This rapid growth makes it important for agents to use a wide range of communication methods to stay in touch with the many 4-H members that participate in activities and events on a county, district, state or national level.

Although phone calls, letters or email are the more traditional and widely used means of communication, these types of communication methods are being utilized less by the younger *Millennial Generation* (Howe & Strauss, 2000; Lindbeck & Fodrey, 2010). Comprised of individuals born between 1982 and 2000, this new Millennial Generation exhibits a "constant need to be connected to their social pipelines, have access to digital information and collaborate with their peers" which leads to their increasing involvement with text messaging, blogging, social networking, and micro-blogging (Lindbeck & Fodrey, 2010, p. 11). This has not escaped the notice of professional public relations practitioners who are

beginning to take advantage of social media outlets as a broadening platform for communicating with publics (Eyrich, Padman & Sweetser, 2008; Solis & Breakenridge, 2009; Waters, Burnett, Lamm & Lucas, 2009; B. Smith, 2010; Tindall, Waters & Morton, 2010). In recent studies, social media has proved to be an increasingly effective public relations tool, especially among non-profit organizations (Curtis et al., 2010). As these new types of media start to exhibit positive results for a wide range of businesses and organizations, many other groups, such as 4-H, are beginning to experiment with sites such as Facebook, Twitter and Blogger (Ashton, Galloway & Bordeau, 2010; Bovitz, 2007; Coates, 2004; Rhoades, Thomas & Davis, 2009).

In a recent content analysis study, researchers found that 4-H and Extension did have a presence on social media sites such as Facebook and Myspace, but over 70 percent of involvement on these sites was driven by youth members of the organization and very little adult input was present (Rhoades, Thomas & Davis, 2009). Furthermore, social media is being utilized in some capacity to represent 4-H, but there is no known research to show how Tennessee 4-H programs are using these new forms of media, or if they are using them at all. Therefore, this study seeks to determine which of the 95 county 4-H programs in Tennessee make use of social networking, blogging and micro-blogging as tools for communication and promotion within their programs.

### **Need of Study**

From their beginnings in the late 1800s, the 4-H and Extension programs have been known for helping people in local communities learn to adopt and use new technologies (Van Horn, Flanagan & Thomson, 1998). In the first years of 4-H, Extension specialists found that young people were much more open to adopting new farming practices than their parents, so

they helped teach young people about growing new seed varieties and created corn clubs and corn growing contests (Wessel & Wessel, 1982). These young people then passed on their new growing techniques to their parents, and through this method the new ideas spread much more rapidly than they would have by trying to target adults directly (Van Horn, Flanagan & Thomson, 1998; Wessel & Wessel, 1982).

Over the next hundred years, Extension continued this theme of adopting new practices by diversifying project clubs, incorporating volunteer leaders as an integral part of the organization, developing their own independent foundation to help fund the organization, helping feed Americans with the Victory Garden programs of WWII, engaging students in international affairs, creating rocket building programs during the Race to Space, and incorporating many other cultural issues and ideas into their program to keep it interesting and relevant for their clientele (Wessel & Wessel, 1982). Over the past few years, 4-H and Extension have continued to participate in issues that are relevant to today's society by helping teach senior citizens how to use computers (Kolodinsky, Cranwell & Rowe, 2002), working to make 4-H programs available to special needs youth (Goble & Eyre, 2008), and making 4-H programming available to homeschool audiences (Knutz, 2007). Recently, interest in incorporating social media as a vital part of 4-H has increased and 4-H has begun to use social media sites for communication on national, state and local levels (National 4-H Council, 2010).

Social media networks, such as Facebook and Twitter, have a high percentage of youth participants (Shedletsky & Aitken, 2004). According to a recent study by the Pew Internet and American Life Project, approximately 73 percent of American teens are now using social networking sites (i.e Facebook, Myspace, LinkedIn, etc.), while an almost equal 72 percent of

18 to 29 year olds use social media (Lenhart, Purcell, Smith & Zickuhr, 2010). The study also showed an increased usage of status updating or microblogging sites such as Twitter, with eight percent of teens 12 to 17 and 37 percent of adults 18 to 24 using the site (Lenhart, Purcell, Smith & Zickuhr, 2010).

While studies have been conducted to show that social media is effective as a communication and public relations tool, limited research has been conducted on the usage of social media for Cooperative Extension and the 4-H youth audience. However, a recent study by Rhoades, Thomas and Davis (2009) showed that there is some adoption of social media for 4-H and another study by Fuess and Humphreys (2011) showed that there are some identified barriers and benefits of social media use for Cooperative Extension. However, no known research has been conducted to quantitatively describe usage of social media by county 4-H programs in Tennessee.

### **Purpose of the Study**

The purpose of this study is to describe how county 4-H program leaders in Tennessee utilize social media and to determine perceptions of 4-H program leaders toward current and future usage of social media communication methods (i.e. Twitter, Facebook, or blogging).

### **Scope of the Study**

The survey was distributed to all county 4-H leaders in Tennessee via three regional email listservs. Through this method, the entire population of county 4-H leaders in Tennessee was included as potential participants in the study.

### **Objectives of the Study**

1. Describe demographics of county 4-H program leaders in Tennessee;

2. Describe how county 4-H program leaders currently utilize social media to interact with 4-H members, volunteers and other adults in their county;
3. Describe which types of social media sites are utilized by county 4-H programs; and
4. Determine perspectives towards current and future social media usage for 4-H as shown by the county 4-H program leaders.

### **Definition of Terms**

#### *Social Media:*

*Social Media* is a term that is not as broadly understood as we might expect. While the terms *social* and *media* seem simple, the combined term is a little harder to define. In a recent study of over 600 survey participants, nearly 70 percent were not very familiar with the term *social media* and could not give a concrete definition of what it meant (Safko & Brake, 2009).

According to *The Social Media Bible*, the term social media “refers to activities, practices, and behaviors among communities of people who gather online to share information, knowledge, and opinions using conversational media”(Safko & Brake, 2009, p. 6). According to Safko (2010), there are three main components of a successful social media campaign: social networking (i.e. Facebook or Myspace), blogging (i.e. Wordpress, Blogger, Tumbr, etc.) and micro-blogging (i.e. Twitter).

#### *Social Networking:*

While Myspace and Facebook are now the most easily recognized social networking sites, they owe a great deal of their success to long departed predecessors, such as the first recognized social networking site SixDegrees.com which began in late 1990s and disbanded in 2000 (Boyd & Ellison, 2007; Jue, Marr & Kassotakis, 2009). More recently popular social networking sites include Friendster, LinkedIn and Facebook (Safko, 2010). These sites represent a broad category of social networking sites that can be described as “web-based

services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system” (Boyd & Ellison, 2007, p. 211).

#### *Blogging:*

Blogs, originally known as *web logs*, were one of the earliest forms of social media and allowed people to share information about their life and their interests in the form of an online, public journal (Safko & Brake, 2009). Sites such as WordPress and Blogger supply an avenue for people to share information, photos, web links and other information in longer, more traditional posts (Safko & Brake, 2009).

#### *Micro-Blogging:*

Micro-blogging is the term applied to participation in the form of limited character blogging that takes place on sites such as Twitter. These are described as extremely short text-only posts that are usually limited to 140 characters, which was originally the maximum number of characters allowed in an SMS text message (Brown, 2009). This allows users to update their messages on these sites from their computer, text messages, or a growing number of helpful programs such as TweetDeck. TweetDeck and other similar applications allow you to simultaneously create a new Twitter post (known as a Tweet) and update your Facebook status (Safko, 2010).

#### *Direct Communication, In-Direct Communication and Mass Communication (Sharing):*

The term *direct* can be defined as “without anyone or anything in between,” “by oneself or itself” or “not through others” (Barnhart, 1972). For the purpose of this study, direct

communication refers to the usage of social media channels to communicate directly with one 4-H member, volunteer or parent. This is conducted via Facebook messages, Twitter direct messages, Twitter @ replies, or other messages that allow the message to be directed to an individual recipient with no additional input from others. On the other hand, in-direct can be defined as “circuitous, roundabout” or “not directly connected, secondary” (Barnhart, 1972). In-direct communication is defined in this study as communication from the program leader to a small group of connected individuals by posting to a 4-H interest group, sharing information with followers via Twitter or Facebook status updates, or providing a promotional message to subscribers via a YouTube Channel. Both *direct communication* and *in-direct communication* are used by this study to refer to two-way interpersonal communication that exists when social media sites are being utilized effectively (Safko, 2010).

This study utilizes the terms sharing and mass communication to refer to any social media method that can be utilized to reach a large group of people, regardless of their membership in or relationship with the group or organization. For example, some organizations set-up YouTube, Facebook or Twitter accounts with the express intent of sharing information with the general audience; however, they do not take advantage of the interactive two-way communication capabilities offered by these platforms (Safko, 2010). This type of communication is primarily concerned with the dissemination of information. In most cases where this occurs, social media is being viewed as a type of mass media and is not seen as a way to engage with clientele and stakeholders; however, this is not considered effective usage of social media by experts in the field. Instead, effective usage of social media is made of listening, engaging and participating in conversation with constituents on a regular basis (Safko & Brake, 2009; Safko, 2010).

## Chapter 2

### Literature Review

#### History of 4-H

The idea of 4-H began to surface in the late 1890s, but the official beginning of 4-H is considered to be in 1902 when local boys' corn clubs and girls' canning clubs became the first 4-H projects (Wessel & Wessel, 1982). Early Extension workers helped in the formation of these clubs and encouraged government support of these efforts, because they recognized by working with youth they could most efficiently and effectively share new innovations and farming practices with rural areas (Wessel & Wessel, 1982). Enrollment in these local agricultural and home economics clubs continued to increase and in 1918 there were more than 500,000 young people involved with 4-H club activities (AgriLife Extension, 2010). The organization gained official support with the Smith-Lever Act of 1914, which established the Cooperative Extension Service and provided support for youth education programs such as 4-H (Phipps, Osborne, Dyer & Ball, 2008). Since then, 4-H has grown into a national youth development organization involving more than six million American youth from age 5 to age 19 according to the United States Department of Agriculture (National 4-H Council, 2010). While the 4-H youth development organization began as an agricultural organization, it has gradually expanded to include a wide array of focus areas and a diverse group of youth participants (Wessel & Wessel, 1982). Members can now participate in photography and graphic design competitions, technology team events, recycling projects, Operation Military Kids (a program for children of military service personnel), Health Rocks (a healthy living program), and numerous other opportunities (National 4-H Council, 2010). According to *Clover All Over* (Clark, 1984), it is the ability of 4-H to adapt to the changing needs and

interests of today's youth that makes 4-H involvement highly fulfilling for its members. This adaptability has allowed 4-H to continue to be a thriving, relevant youth organization, even though the projects and the youth participating in them are very different than they were back in 1902.

According to their official web site, the Tennessee 4-H program seeks to prepare young people to become strong youth leaders who will strive to *Make the Best Better* for their club, community, country and world. Tennessee 4-H programs achieve these goals by “providing educational experiences for young people to gain knowledge, develop life skills, live healthy lives, make intelligent career choices and form positive attitudes—values young people will rely on throughout their lives” (UT Extension, 2010, para. 1).

### **History of Communication**

Tracing the earliest forms of communication would be quite impossible, as we can only assume that there has been some form of basic communication since the beginning of human life. Researchers, however, tend to mark the beginning of recordable advances in communication with the development of new communication technologies. Historical studies have shown that these new technologies have a strong effect on society:

History bears witness to the cataclysmic effect on society of inventions of new media for the transmission of information among persons. The development of writing and later the development of printing are examples . . . (Eisenstein, 1970, p. 727).

One of the earliest technological advances in communication was the development of written languages “which signifies both a momentous advance in communication technology and the emergence of advanced horticultural and agrarian societies” (Rossides, 2003, p. 11). Better methods of communicating and recording farming methods led to better farming practices and

more successful societies. The advent of writing also led to more hierarchical societies with only higher ranking individuals learning how to read and write (Rossides, 2003).

Later, Johann Gutenberg marked another milestone in communication history by creating the printing press, which allowed books and other important writings to be shared with the masses (Eisenstein, 1970). Writing before the invention of the internet, a historian once said that "the invention and development of printing with movable type brought about the most radical transformation in the conditions of intellectual life in the history of western civilization" (Gilmore, 1962, p. 186). This invention brought about religious, social and political changes that would forever change our world. Such technological innovations as the telegraph, telephone, radio and television all made their marks on society and how it would function (Rossides, 2003).

Now, however, we are progressing toward a new generation of communication. The cell phone, computer and internet were at first thought by some to be fads that would soon disappear, but instead they have seen widespread use and rapid adoption by a majority of the population. According to recent studies, 75 percent of teens 12 to 17 and 93 percent of adults ages 18 to 29 reported having a cell phone while 93 percent of respondents in each age group reported using the internet (Lenhart, Purcell, Smith & Zickuhr, 2010). Continually improving cell phone technologies have allowed people to go from talking to texting to video chatting and emailing on pocket-sized phones in less than three decades. According to a 2010 study by Pew Internet Research, 40 percent of adults 18 and over reported using their phone for accessing the internet, email, or instant messaging, up from 32 percent in 2009 (Smith, 2010). This rapid adoption of fast-paced technology shows how much our communication system has changed over the years. With the advent of the internet and the introduction of computer

mediated communication (i.e. communication through email, social networking, blogging, micro-blogging and other web capabilities), people can converse efficiently and effectively with anyone around the world in a matter of seconds. While some have their doubts about how effective computer mediated communication can truly be, research shows that the quality of work completed via computer mediated communication is just as high as the quality of work completed based on face to face communication (Shedletsky & Aitken, 2004).

Because of these factors, many communication scholars have displayed in their collective body of research a certain level of technological determinism, which is simply the belief that technologies can work to cause change in societies (Lowery & DeFluer, 1995). It is reasonable then that we look to a technology based theory to study the adoption of social media in our sample population.

### **History of Social Media**

Social media, as described earlier, is merely a form of media that is primarily social in nature (Safko, 2010). While no formal history of social media currently exists, the beginnings of social media are generally traced back to the first e-mail transmissions in the early 1970s (O'Dell, 2011). While much different than other forms of social media today, electronic mail or e-mail is recognized as the first true form of social media. As internet usage became widespread over the next twenty years, plans went into motion for the development of more sophisticated online communication. In the late 1990s, these plans began to take shape in the form of early social networking sites such as SixDegrees.com, messaging services like AIM, and free blogging services such as Blogger (Boyd & Ellison, 2007; O'Dell, 2011; Thompson, 2006). Early on, these first social media services saw only limited success. Early adopters complained that many of their friends were not engaging with the same sites or to a level

which would allow them to interact effectively (Boyd & Ellison, 2007). True success of social media arguably began in the early 2000s with the introduction of MySpace and LinkedIn in 2003, Flickr and Facebook (Harvard-only) in 2004, and YouTube and Facebook (high school students) in 2005 (Boyd & Ellison, 2007). These services attracted large followings and now make up some of the frequently used social media services in the United States today (Grove, 2010). While many other new sites were also introduced during this period, very few of them received widespread adoption (Boyd & Ellison, 2007). Another social media success story began in 2006 with the release of Facebook to everyone with no restrictions on age or education, and the introduction of micro-blogging site Twitter. In the past five years, new services have risen to a place of notice within social media including virtual worlds such as SecondLife, check-in applications such as Foursquare and Gowalla, and many other sites with various functions (Qualman, 2011).

### **Social Media and Dialogic Communication**

According to Tufte and Mefalopulos (2009, p. 13), “dialogic communication approaches refer to two-way communication, where the process and its outputs are open-ended and the scope explores issues and generates new knowledge and solutions, rather than just transmits information.” In the world of public relations, the Internet is beneficial partially because it provides organizations with the technological ability to actively engage in dialogic or two-way communication with their members and clientele through websites and other online communication methods to build, strengthen and maintain relationships (Bortree & Seltzer, 2009; Kent & Taylor, 1998; Kent, Taylor & White, 2003; Park & Reber, 2008; Rybalko & Sletzer, 2010). One of the many positive attributes of utilizing social media on a professional level is that it provides for simple facilitation two-way communication between a

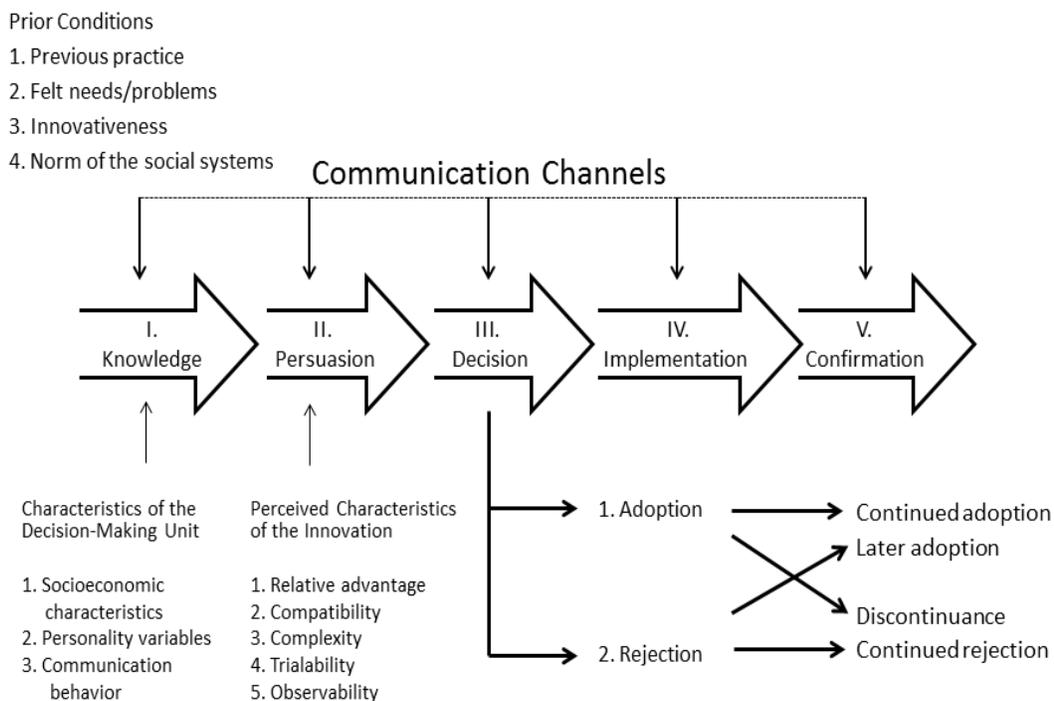
group or organization and its clients or members (Safko, 2010). According to Safko (2010, p. 5), “the reason social media is so much more effective than the conventional marketing we’ve done for the last 6,000 years is that it’s two-way communication, not pontification.” In other words, organizations can now engage with the audience on a personal basis instead of just broadcasting messages and hoping someone will listen. Recent research focused on the American Red Cross’ usage of social media showed that the dialogic communication engaged in through social media helped to generate interaction with the public, as well as representatives from the press: “by having a two-way dialogue through social media, the American Red Cross reports providing faster service for the community, generating more media coverage, and receiving positive and negative feedback from stakeholders to improve the organization” (Briones, Kuch, Liu & Jin, 2011). Engaging in dialogic communication with audiences and publics through social media can help organizations to cultivate and improve relationships with their constituents, as well as enabling them to gain valuable feedback to improve programming and resources provided by the organization (Briones, Kuch, Liu & Jin, 2011).

### **Diffusion of Innovation**

A study of the history of technology in communications and other fields shows that new technology is not embraced automatically by the public, but instead is adopted through a process known as diffusion (Shedletsky & Aitken, 2004). Because technological adoption and diffusion rates are dependent on social change processes, it often takes a reasonable period of time to know if a new medium of communication will be used. Diffusion of a new innovation, such as the internet, can be effected by a large number of variables including social, political, educational, personal and economic factors (Winston, 1995).

According to Rogers (1995, p.10), diffusion describes “the process by which an innovation is communicated through certain channels over time between the members of a social system.” The first recognized usage of a theory similar to the current diffusion of innovation theory was in 1940 when university researchers conducted a classic study of the diffusion of a new hybrid corn variety among corn farmers in Iowa (Lowery & DeFluer, 1995). This study tracked how quickly farmers adopted use of the new hybrid corn variety. Despite the over 5,200 diffusion of innovations studies conducted since then, Ryan and Gross’s 1943 study of hybrid corn is still the most influential diffusion of innovation study (Rogers, 2003).

In his discussion of diffusion of innovation theory, Roger’s posits that there are established characteristics that determine whether a new innovation will suffer rejection or celebrate success (Katz, Levine & Hamilton, 1963). Relative advantage is essentially the degree to which the innovation offers an advantage (faster speed, broader range of functions, etc.) over previous similar technologies. Compatibility is representative of the innovations similarity and consistency with previously established values, former experiences, and current needs. Complexity represents the difficulty of understanding and making use of the new technology. Trialability is the increasingly important degree to which one can experiment with the new innovation before becoming permanently committed to it. Observability is concerned with the new innovation in respect to the visibility of its results (Rogers, 1983). These five characteristics—relative advantage, compatibility, complexity, trialability and observability—have a combined effect on whether or not individuals will choose to adopt a new innovation. Rogers’ model for the innovation-decision process (see Figure 1) incorporates the five perceived characteristics of the innovation with other factors, such as prior conditions and



*Figure 1* The Innovation-Decision Process. From *Diffusion of Innovations* (3rd ed.), by E. M. Rogers, 1983, New York, NY: The Free Press. Copyright 1983 by The Free Press.

characteristics of the decision-making unit (the individual or organization choosing to adopt or reject the innovation). Recently, there have been a growing number of diffusion and adoption studies related to communication and social media. Research has been conducted to measure the social media usage by political officials (Gulati & Williams, 2010), social media usage by public relations practitioners (Avery, Lariscy, Amador, Ickowitz, Primm & Taylor, 2010; Curtis, Edwards, Fraser, Gudelsky, Holmquist, Thornton & Sweetser, 2010; Eyrich, Padman & Sweetser, 2008; Tindall, Waters & Morton, 2010), and social media usage and other internet communication techniques related to student learning (Liao, 2005). It has also proved a valuable resource for

people who are seeking to measure the diffusion of innovations within various systems, such as public service (Avery, Lariscy, Amador, Ickowitz, Primm & Taylor, 2010) and the educational system (Zimmerman & Yohon, 2008).

### **The Organizational Innovation Process**

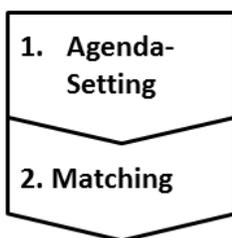
In addition to studying innovation by individuals in the social system, Rogers (1983) also identified a process for measuring the diffusion and adoption of innovations across an organization. As stated by Damanpour (1991, p. 556), “the adoption of innovations is generally intended to contribute to the performance or effectiveness of the adopting organization.” This organizational diffusion process differs from an individual-based model by incorporating organizational factors which cannot be controlled on an individual level (Frambach & Schillewaert, 2002; Rogers, 1983). For instance, system openness and formalization have been shown to have an effect on the adoption of innovations within an organization. Rogers defines system openness as “the degree to which members of a system are linked to others of a system” and formalization as “the degree to which an organization emphasizes following rules and procedures in the role performance of its members (Rogers, 1983, p. 356). Research showed that formalization often had a negative impact on innovation adoption, while system openness had a positive effect on the innovation process (Rogers, 1983). Another factor that sometimes effects the adoption of an innovation is the non-profit or for-profit structure of the organization (Hull & Lio, 2006; Jaskyte & Dressler, 2005). The basic organizational innovation process, however, can be described by the model in Figure 2.

## Stages in the Innovation Process

## Major Activities At Each Stage In The Innovation Process

### I. Initiation

*All of the information-gathering, conceptualizing, and planning for the adoption of an innovation, leading up to the decision to adopt.*



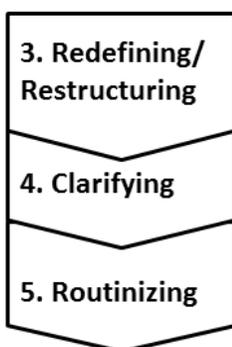
General organizational problems, which may create a perceived need for an innovation, are defined; the environment is searched for innovations of potential value to the organization.

A problem from the organization's agenda is considered together with an innovation, and the fit between them is planned and designed.

### The Decision to Adopt

### II. Implementation

*All of the events, actions, and decisions involved in putting an innovation into use.*



(1) The innovation is modified and re-invented to fit the situation of the particular organization and its perceived problem, and (2) organizational structures directly relevant to the innovation are altered to accommodate the innovation.

The relationship between the innovation and the organization is defined more clearly as the innovation is put into full and regular use.

The innovation eventually loses its separate identity and becomes an element in the organization's ongoing activities.

*Figure 2.* The Organizational Innovation Process. From *Diffusion of Innovations* (3rd ed.), by E. M. Rogers, 1983, New York, NY: The Free Press. Copyright 1983 by The Free Press.

The model created by Rogers identifies two key phases in the innovation process: initiation and implementation. Factors which may prove beneficial during the initiation phase may actually hinder adoption during the implementation stage; therefore, this dual-core model was devised to distinguish between the two phases in the process (Rogers, 1983). The two phases are divided into five stages: agenda-setting, matching, redefining/restructuring, clarifying and routinizing. The first two stages, which make up the initiation phase, consist of gathering information, conceptualizing needs and potential uses for the technology, and planning how

the innovation will be utilized (Rogers, 1983). The final three stages are part of the implementation phase and include all steps necessary to completely integrate the innovation into the organization (Rogers, 1983). This model provides a theoretical framework for studying how innovations are adopted by an organization and its members.

### **Social Media and 4-H**

In the past few years, there has been an evolutionary change towards increased use of social media related to 4-H and Extension. In the early 2000s, members of the Extension community began discussing the possible implications of social media for the field of Extension and 4-H work. In 2004, Deborah Coates, an information technology specialist for Extension, addressed how web logs or blogs could be a disruptive technology for Extension and 4-H. The article stated that “weblogs in Extension offer the potential to promote trust, create new conversations, filter and disseminate knowledge, and build strong internal networks” (Coates, 2004, p. 1). In 2009, research was conducted by Rhoades, Thomas and Davis to determine how social networking sites were being used by Extension and 4-H. They found that while the sites (such as Facebook and MySpace) were being used, very little involvement was seen by adults or Extension employees (Rhoades, Thomas & Davis, 2009). Instead, most groups were created and managed by individual 4-H members, without the permission or consent of the local or state 4-H program they were representing. This gave researchers some concern, because content on these sites was representing Extension and 4-H but it was not being monitored in any way to ensure that the content was appropriate (Rhoades, Thomas & Davis). In 2010, a variety of studies were conducted related to social media including using edublogs for training 4-H camp staff (Ashton, Galloway & Bourdeau, 2010); using self-produced videos as a learning tool (Case & Hino, 2010); engaging adult

populations by using SecondLife as a teaching tool (Woods, 2010); the viability of podcasts for extension education (Hendrickson, Jokela, Gilman, Croymans, Marczak, Zuiker & Olsen, 2010; Xie & Gu, 2007); and using computer mediated communication to disseminate outreach programming (Kudryavtsev, Krasny & Walther, 2010).

In the past few years, 4-H has adopted an official social media policy at the national level and begun training programs to help teach 4-H and Extension personnel about social media (National 4-H Council, 2010). The National 4-H web site provides information on the official social media guidelines for 4-H, and includes links to allow students to easily access the official 4-H Facebook page or follow 4-H on Twitter. According to the *Social Media Guide* developed by the National 4-H Marketing Team, the mission of 4-H social media is as follows:

“The primary purpose of 4-H Social Media is to cultivate an active community of current and future 4-H’ers in a safe online environment. Through these channels we hope to foster engagement through three primary types of measurable activity:

[participation, advocacy and contribution].” (National 4-H Council, 2011, p. 5)

The guidelines describe participation as creating a place where 4-H’ers can connect and communicate with the National 4-H Council and the whole 4-H community through “likes, commentary or feedback” (National 4-H Council, 2011, p. 5). Advocacy is defined as a way to “engage the 4-H community as independent advocates for 4-H-related causes, partnerships and brand” (National 4-H Council, 2011, p. 5). Finally, the organization also seeks to “encourage 4-H’ers to actively contribute their time, dollars and resources to supporting the 4-H movement at large” through the contribution portion of their mission (National 4-H Council, 2011, p. 5). The guide also defines some general content rules, provides an overview

of using Facebook and Twitter, and introduces some social media metrics that can be used to measure effectiveness (National 4-H Council, 2011).

According to the National 4-H website, 4-H has become an active part of the social media community and is involved in building a strong community of youth and adults who wish to participate in a conversation about the organization (National 4-H Council, 2010). In addition to their involvement with frequently updating these sites, the National 4-H Council has also begun working on an initiative to develop Access 4-H, a platform to allow a broader range of internet interaction between 4-H members worldwide:

More than a Web site - greater than an online portal - Access 4-H will offer a comprehensive set of integrated online applications, services and tools. The Access 4-H Platform will aim to create a one-stop home for information, instruction and interaction for the 4-H community to deliver research-driven programs; revitalize and expand the 4-H brand beyond traditional audiences; recruit new youth to 4-H clubs; and increase the capacity to recruit, train, support and retain 4-H volunteers and professionals. (Sutton, 2007, para. 2)

While this initiative is in the very early stages, it does show that there is a national movement toward wide-scale adoption of social media tools in the 4-H Youth Development program.

Based on this movement towards social media usage, a new study was conducted by Jamie Seger of Ohio State University measuring the barriers to adopting new technologies for disseminating information and delivering Extension programming and how to deal with decreasing these barriers (Seger, 2011). The study showed that there were some boundaries to adoption and adaption, primarily time and money, but that the movement towards adopting new technologies was definitely necessary for Extension to continue to be relevant. The

researcher posited that new technologies will bring changes to the way that Extension professionals interact with current and future clientele and will force Extension professionals to reassess their views of traditional programming (Seger, 2011). Further research on the risks, barriers and opportunities of social media was conducted by Fuess and Humphreys (2011) with a group of 27 Extension educators from two Northern states. This study identified some of the key barriers to social media adoption, as described through qualitative research. Some of these barriers and risks included: “lack of training and technological expertise among educators”, “increased time commitment to learn and maintain [the new technology]”, and “decreased control over information and brand” (Fuess & Humphreys, 2011, p. 23). Opportunities of social media, as described by this study, included increases in “breadth of audience”, “interactivity and connections with audience”, “awareness of Extension activities and brand”, “speed of communication”, and “control of information” (Fuess & Humphreys, 2011, p. 23). The low cost of social media was also identified as a key opportunity (Fuess & Humphreys, 2011). The study also showed the contrast of ideas between individuals who currently use social media and those who are unfamiliar with the technology. Generally speaking, those who utilize social media felt that it was efficient and that it provided them with more control over their message; however, those who were unfamiliar with social media technologies felt that it would take a great deal of time and that they were losing control over the brand image and the messages that were being shared (Fuess & Humphreys, 2011).

Based on the knowledge provided by previous investigations, this study seeks to describe the official usage of social media by county 4-H program leaders in the state, as well as their perceptions of social media usage. Are county 4-H leaders utilizing social media sites? If so, what sites are they using and how frequently are they used?

This study will further increase the body of knowledge representing how county 4-H program leaders are using social media sites to share 4-H related content and information. While a few previous studies have been conducted to measure 4-H presence on social media sites and to measure perceptions about the effectiveness of social media use, there is currently little research measuring diffusion of social media tools within county programs.

## **Chapter 3**

### **Materials and Methods**

Researcher conducted a quantitative study utilizing a cross-sectional survey of county 4-H program leaders to determine their professional usage of social media, as well as their perceptions about its usefulness in the workplace to facilitate 4-H communication and promotion (Ary, Jacobs & Sorenson, 2010). Researchers chose to utilize an online survey as the method of delivery due to its lower cost, convenience, and the ability to reach a larger population (Ary, Jacobs & Sorenson, 2010). The entire population of primary county 4-H program leaders was selected as the target sample for this survey. Researchers worked with the State 4-H Office to identify three email listservs by which researchers could email the survey to all Tennessee Extension personnel who have responsibilities working with 4-H on a county level. This included a total of 207 4-H personnel, 11 of which were excluded from participation because of their previous inclusion in the pilot study. By requesting participation by all county 4-H personnel, researchers were able to receive feedback from all counties across Tennessee.

#### **Survey Design**

The survey contained three main sections which were designed to measure demographics, professional usage of social media and perceptions of program leaders toward social media usage. Question design for each section is described below.

#### ***Section 1***

The first section of the survey asked participants to report demographic information that would help provide descriptive statistics for the researchers. Sex and age were asked to allow the researcher to make comparisons based on usage patterns for different genders and generations of social media users in reference to past research. To help determine the effects of population size on social media use, respondents were categorized into pre-established categories as described by the Rural Urban Commuting Area Classification System, which was used in a recent study of social media diffusion among health care professionals (Avery, Lariscy, Amador, Ickowitz, Primm & Taylor, 2010). This method uses a pre-defined population size per area to determine whether participants are part of one of four pre-defined population size categories. This section also asked participants to identify their race based on the categories described as the minimum federal standards for race and ethnicity reporting outlined in *Appendix A: Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity* (Office of Management and Budget, 1997). Finally, participants were asked to identify what electronic forms of technology they owned to allow comparison with results of the Pew Internet and American Life Project study of *Generations and their Gadgets* (Zickuhr, 2011).

## ***Section 2***

The second section of the survey was designed to measure how social media was used by each program leader in relation to 4-H, Extension and other job-related purposes. The questions in this section described which sites were used, how they were used and how often they were used. Since little research has been done on 4-H and social media, there were not pretested scales to use for this portion of the study. A scale was developed using categorical groupings of social media sites, based partially on the Social Media Landscape developed by

Fred Cavazza in 2008 and revised in 2011 (Cavazza, 2010; Cavazza, 2008). Since social media is a rapidly changing field, the researchers found it difficult to identify a small number of sites to list and determined that using categories of sites would allow the research to be more relevant over a period of time. Because this list was not formally tested by earlier researchers, the survey also offered the option for participants to write in their own social media sites for each question. The social media categories used included: blogging, micro-blogging, social networking, video sharing, photo sharing, video chat, text chat, social gaming, virtual worlds, dashboards, analytics, discussion, commerce and check-in. To further clarify the scale, the researchers included examples with each category.

### ***Section 3***

The first questions in section three is used to measure 4-H leaders perceived beliefs about the efficiency and effectiveness of social media and their satisfaction with how their county used social media. The second scale of questions in section three was based on the perceived usefulness scale devised by Kattan and Adams (1994). In a previous study, the scale was tested for reliability and was found to have Chronbach's alpha of 0.93, showing that it was highly reliable (Kattan & Adams, 1994). The scale included five of the six scale questions in which all terms remained the same for this survey, except for replacing the placeholder term *Technology X* with the term *social media* (Kattan & Adams, 1994). Questions in this section were intended to measure the perceived usefulness of social media for county 4-H programs.

### **Reliability, Validity and Non-Response**

Face and content validity of the survey instrument were established through review by an expert panel (Ary, Jacobs & Sorenson, 2010). The panel included one National 4-H staff

member, three members of the State 4-H staff, four university faculty members and a social media specialist. Feedback from these individuals was used to further clarify questions and constructs. A pilot study was then conducted with a purposeful sample of 11 county 4-H program leaders representing all three Extension regions in Tennessee. The sample for the pilot study included males (n=4) and females (n=7) ranging from ages 27 to 63 years old. Participants were contacted via phone and asked to complete the online survey. The survey was then distributed by email and all 11 participants completed the survey. Data was transferred from the online survey tool to statistical software and analyzed to determine internal reliability measures. The method used to measure reliability was coefficient alpha, also known as Cronbach's alpha, which is used to determine reliability based on internal consistency (Ary, Jacobs & Sorenson, 2010).

According to Ary, Jacobs and Sorenson (2010), the reliability measure of a survey or test can be affected by (a) the length of the test, (b) the heterogeneity of the group, (c) the ability level of the group, (d) the techniques used to estimate reliability, (e) the nature of the variable, and (f) the objectivity of scoring. Reliability was not calculated for the demographic questions in section 1; however, Coefficient alpha was calculated for the final two sections. According to Nunnally (1978) the Chronbach's alpha measure, which ranges from zero to one, should be higher than a threshold of 0.7. Section 2, which focused on professional usage of social media, was found to have a Chronbach's alpha of 0.742. For section three on perceptions of social media use, a Chronbach's alpha of 0.877 was calculated.

Surveys were sent via three email listservs to a total population of 196 potential participants. After the first mailing, a total of 62 respondents completed the survey for a response rate of 31.6 percent. Two weeks later, a reminder email was sent out based on best

practices established by Ary, Jacobs and Sorenson (2010). The email thanked those who had already completed the survey and included a link to the survey for those who had not yet completed it. This increased the overall response rate of 74 respondents or 37.7 percent. Six weeks after sending out the initial survey, researchers sent a final reminder email which resulted in a total of 81 responses or 41.3 percent. After a two week period, researchers contacted each county that was not represented in the survey by phone and personally invited the primary county 4-H program leader to complete the survey. This method resulted in a final overall response rate of 49 percent or 96 responses with 81 percent of the 95 counties in the state being represented by at least one respondent. Non-response error was addressed by comparing early and late respondents, as suggested in Ary, Jacobs and Sorenson (2010). No significant differences were found in data from early and late respondents, so the results were judged to be fairly representative of the entire sample population.

## Chapter 4

### Results and Discussion

#### *Diffusion of Social Media Among County 4-H Programs in Tennessee*

##### **Abstract**

*Over the past decade, Cooperative Extension and 4-H professionals have been faced with the decision of whether they should adopt new communication technologies such as social media to interact with their rapidly growing audience. Current research on social media and Extension shows that there are some identified risks and barriers; however, many Extension professionals believe that social media usage could be very beneficial for Extension and/or 4-H usage. In order to increase the body of knowledge on this subject, a quantitative study was conducted to determine the diffusion of social media among county 4-H programs in Tennessee. The study was conducted via an online survey distributed to all 4-H program leaders in Tennessee and received a 49 percent (n=196) response rate. Results showed that 84 percent (n=96) of county 4-H program leaders who were surveyed utilized social media for their county program. The results indicated that the majority of program leaders had a positive view of social media usage and felt that it was an efficient and effective way to communicate information to their audience. Overall, the study determined that social media is gaining widespread usage throughout rural and urban county 4-H programs in Tennessee, and that increased efforts toward training and research in this area are warranted.*

##### **Introduction/Theoretical Framework**

###### *A History of Organizational Innovativeness*

The Cooperative Extension Service (Extension) can trace its roots back to the earliest agricultural societies in the early 1800s and the establishment of the Land-grant university system by the Morrill Land Grant Act of 1862 (Rasmussen, 1989). The youth development branch of Extension, known as 4-H, began to develop in the early 1900s as leaders in Extension recognized that youth were much more open to adopting new ideas and technologies than their parents. Extension leaders, such as Dr. Seamann Knapp, utilized this knowledge by organizing youth clubs to grow new varieties of corn and learn new canning methods (Wessel & Wessel, 1982). These young people then passed on their new growing

techniques to their parents, and through this method the new ideas spread much more rapidly than they would have by trying to target adults directly (Van Horn, Flanagan & Thomson, 1998; Wessel & Wessel, 1982). These ideas would later turn into the youth corn and canning clubs which are recognized as the first 4-H clubs.

Official support for Extension and 4-H came with the passing of the Smith-Lever Act of 1914 which established funding for the Cooperative Extension Service through a partnership between the land-grant universities and the United States Department of Agriculture (Rasmussen, 1989). As Extension and 4-H grew, they began to show value to not only the traditional agriculture community but the nation as whole. During World War I, members of the Extension service worked diligently with farmers and youth to increase food production and adapt to a changing landscape of farm labor as many farmers joined the military (Rasmussen, 1989). Extension also played an integral role in the Victory Garden programs that helped feed the nation during World War II (Rasmussen, 1989; Wessel & Wessel, 1982). As early as 1943, there were over one million young men and women participating in 4-H projects each year in the United States (Wessel & Wessel, 1982).

#### *A Changing Communication Landscape*

Today, over six million youth are involved in 4-H projects, clubs and activities nationwide (National 4-H Council, 2010). In recent years, Extension and 4-H personnel have identified a need to adapt to changing communication techniques in order to ensure that their communications and programming remain relevant to new generations of 4-H and Extension clientele (Fuess & Humphreys, 2011). The majority of 4-H youth, ages 8 to 19, are a part of the generation known as the *Millennial Generation* (Howe & Strauss, 2000; Lindbeck & Fodrey, 2010). Typically considered to be born between 1982 and 2000, members of the

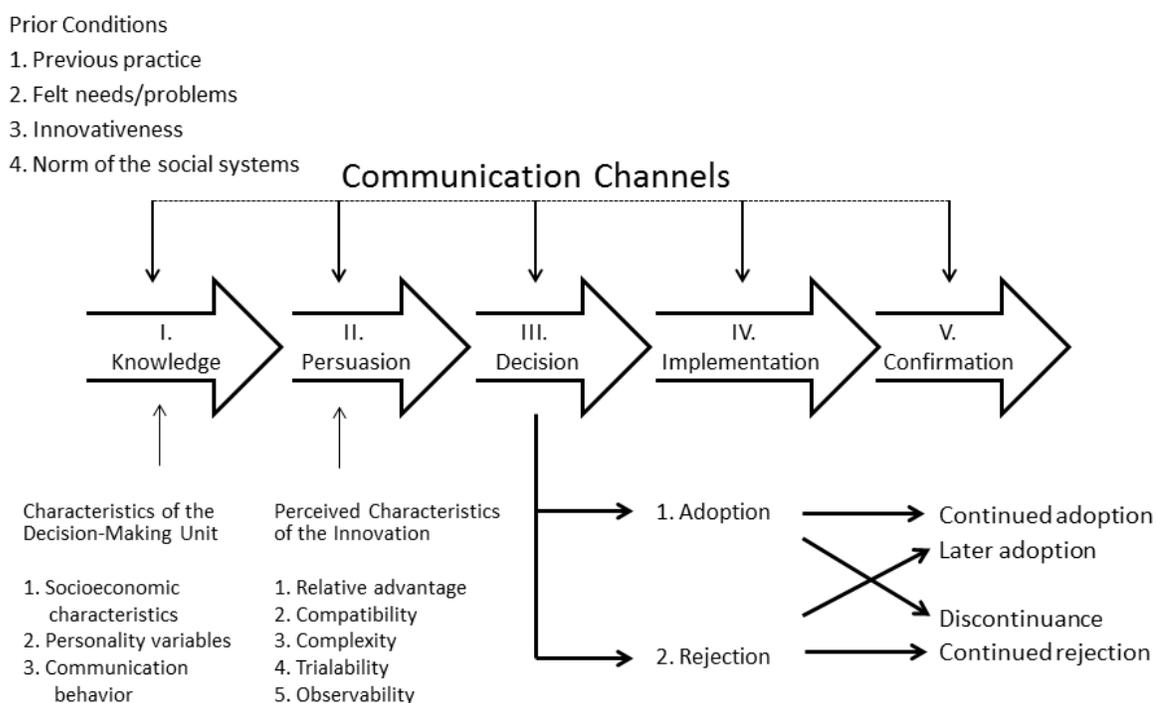
*Millennial Generation* are tech-savvy, community-minded individuals who prefer to communicate via text messaging, blogging, Facebook, and other more *social* types of media (Howe & Strauss, 2000; Lindbeck & Fodrey, 2010). According to a recent study by the Pew Internet and American Life Project, over 70 percent of 18 to 29 year olds use social media and 72 percent of American teens use social networking sites, such as Facebook, Myspace or LinkedIn (Lenhart, Purcell, Smith & Zickuhr, 2010). Because of the widespread usage of social media, Extension and 4-H professionals have begun considering how social media can be effectively utilized to support currently existing methods of communication and information delivery (Coates, 2004; Rhoades, Thomas & Davis, 2009; Kinsey, 2010; Fuess & Humphreys, 2011; Seger, 2011). Extension has proven that they are familiar with helping spread new innovations and integrating those innovations into their organization. From promoting improved corn varieties in the 1900s to hosting 4-H robotics competitions today, Extension and the 4-H youth development program have encouraged innovation and adoption of new, improved technologies (Wessel & Wessel, 1990; National 4-H Council, 2010). According to Rasmussen (1989), integrating new technologies and methodologies for sharing information, communicating with constituents, and delivering programming to meet the rapidly changing needs of their clientele is a key characteristic of the Cooperative Extension System.

#### *Diffusion and Adoption of New Technologies*

Extension and the agricultural industry are familiar with identifying beneficial new technologies and helping spread new innovations to the public. In fact, the first identified study of the diffusion of an innovation was conducted in 1940 to measure the diffusion of a new hybrid corn variety by farmers in Iowa (Lowery & DeFluer, 1995; Rogers, 2003). Since

this initial study, thousands of studies have been conducted to help accurately describe how individuals and organizations adopt new technologies through a process known as diffusion (Rogers, 1989; Rogers, 2003). The diffusion of a new innovation, such as cell phones or the internet, can be affected by many variables, including social, educational, political, economic and personal factors (Winston, 1995). Roger's theory describes diffusion as a process by which innovations or new technologies are communicated and distributed through various channels over time between members of a society or the social system (Rogers & Shoemaker, 1971; Rogers, 1983). According to the theory of diffusion of innovations, there are five key characteristics which moderate technology adoption: *relative advantage*, *compatibility*, *complexity*, *trialability* and *observability* (Rogers & Shoemaker, 1971; Rogers, 1983). *Relative advantage* describes the degree to which adopting the new technology would be more beneficial than continuing to utilize current technologies. If a new technology has no proven advantage relevant to older technologies, the likelihood of adoption is much lower than when a new innovation has an obvious advantage over using older methods (Rogers, 1983). *Compatibility* addresses whether or not the new technology works well with currently established technologies and practices. Individuals and organizations are more likely to adopt a new innovation if it can easily be established into their currently established system (Rogers, 1983). *Complexity* is the difficulty of learning how to utilize a new technology or adopt a new idea. New innovations which are complicated or complex often deter adoption because individuals or organizations lack the knowledge necessary to successfully utilize or experiment with the technology (Rogers, 1983). *Trialability* represents the ability of new users to experiment with the idea or technology and what investment of time and/or money is involved with experimentation. For instance, a new technology that has a free trial or a low

initial cost has a higher level of trialability than a new innovation that must be purchased at a high cost (Rogers, 1983). *Observability* is the ability to see visible results from utilizing the new technology (Rogers & Shoemaker, 1971; Rogers, 1983). In the case of the 4-H corn clubs, farmers were willing to adopt new seed varieties because they were able to observe the positive results in their children's crops. Together these five established characteristics help determine whether a new innovation will be highly successful or face failure (Katz, Levine & Hamilton, 1963). While Rogers' theory was established in the mid-1900s, research has shown that Roger's predictions for adoption and diffusion still hold true for modern technological advances such as social media (Liebrenz-Himes, Dyer & Shamma, 2009). Rogers' theory posits that an individual's decision to adopt or reject a new innovation follows a model known as the innovation-decision process, illustrated in Figure 1.



*Figure 2* The Innovation-Decision Process. From *Diffusion of Innovations* (3rd ed.), by E. M. Rogers, 1983, New York, NY: The Free Press. Copyright 1983 by The Free Press.

The innovation-decision process is “the process through which an individual (or other decision making unit) passes from first knowledge of an innovation, to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision” (Rogers, 2003, p.20).

### *The Organizational Diffusion Process*

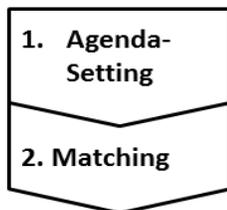
While the acceptance or rejection of innovations by individuals can be described by Rogers’ *innovation-decision process*, the diffusion of innovations in organizations has been shown to follow a slightly different pattern due to factors that cannot be controlled on an individual level (Rogers, 1983; Frambach & Schillewaert, 2002). As indicated by Damanpour (1991, p. 556), “the adoption of innovations is generally intended to contribute to the performance or effectiveness of the adopting organization.” Rogers’ posited, however, that organizational factors such as *system openness* and *formalization* could have an effect on the organizational innovation process. *System openness* was described as “the degree to which members of a system are linked to others of a system” and *formalization* was defined as “the degree to which an organization emphasizes following rules and procedures in the role performance of its members” (Rogers, 1983, p. 356). While a high degree of system openness was found to have a positive effect on organizational innovation, formalization was found to have a negative effect on the innovation process (Rogers, 1983). The profit or non-profit structure of an organization has also been shown to have some impact on the organizational innovation process (Hull & Lio, 2005; Jaskyte & Dressler, 2005). In its most basic form, however, the innovation process in an organization can be described by the model in Figure 2.

## Stages in the Innovation Process

## Major Activities At Each Stage In The Innovation Process

### I. Initiation

*All of the information-gathering, conceptualizing, and planning for the adoption of an innovation, leading up to the decision to adopt.*



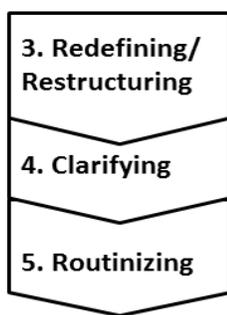
General organizational problems, which may create a perceived need for an innovation, are defined; the environment is searched for innovations of potential value to the organization.

A problem from the organization's agenda is considered together with an innovation, and the fit between them is planned and designed.

### The Decision to Adopt

### II. Implementation

*All of the events, actions, and decisions involved in putting an innovation into use.*



(1) The innovation is modified and re-invented to fit the situation of the particular organization and its perceived problem, and (2) organizational structures directly relevant to the innovation are altered to accommodate the innovation.

The relationship between the innovation and the organization is defined more clearly as the innovation is put into full and regular use.

The innovation eventually loses its separate identity and becomes an element in the organization's ongoing activities.

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This model, created by Rogers (1989), identifies five stages in the innovative process within organizations. Research of innovation adoption in organization indicates that some elements which aid in the first two stages actually have negative effects on the final three stages; therefore, a dual-core model was established that represents the different processes as they occur before and after the decision to adopt (Rogers, 1989). The *initiation* phase of the process consists of gathering information, conceptualizing needs and potential uses and planning for how the innovation will be utilized once adopted (Rogers, 1989). Once the decision to adopt an innovation has been made, the *implementation* phase takes place. The

Implementation phase includes all of the steps necessary to fully integrating the innovation as a natural part of the organization's daily activities (Rogers, 1989).

### *Defining A Need for Social Media Adoption*

Because of the widespread usage of social media, Extension and 4-H professionals have begun considering how social media can be effectively utilized to support currently existing methods of communication and information delivery (Coates, 2004; Rhoades, Thomas & Davis, 2009; Kinsey, 2010; Fuess & Humphreys, 2011; Seger, 2011). Rhoades, Thomas & Davis (2009) found that over 70 percent of profiles and groups on social networking sites (i.e. Facebook and Myspace) which represented 4-H and/or Extension were created and managed by youth. More recently, however, Fuess and Humphreys (2011) reported some county 4-H programs in New York and Wisconsin actually used social media on a regular basis to promote 4-H or Extension activities, events and programming. While social media is being considered by many Extension and 4-H professionals, no known empirical research has been conducted to identify the adoption and diffusion of social media on an organizational level among county 4-H programs or the perceptions of individual Extension professionals about social media.

### **Purpose**

The purpose of this study is to describe how county 4-H program leaders in Tennessee utilize social media and to determine perceptions of 4-H program leaders toward current and future usage of social media communication methods (i.e. Twitter, Facebook, or blogging). The specific objectives of this study include:

1. Describe demographics of county 4-H program leaders in Tennessee;
2. Describe how county 4-H program leaders currently utilize social media to interact with 4-H members, volunteers and other adults in their county;

3. Describe which types of social media sites are utilized by county 4-H programs; and
4. Determine perspectives towards current and future social media usage for 4-H as shown by the county 4-H program leaders.

### **Methods & Procedures**

For this study, a quantitative approach was utilized to investigate the perceptions and usage of social media by county 4-H program leaders in Tennessee. The target population of the study included the entire population of county 4-H personnel in Tennessee, including County Program Assistants, County Extension Agents and County Extension Directors. Including all county 4-H personnel as possible participants in the survey allowed for a more representative sample of responses based on county specific factors (i.e. 4-H enrollment, number of county employees, city/town size, etc.) and individual factors (i.e. age, gender, race, length of employment, position in organization, etc.). State 4-H staff assisted the researchers with contacting all county Extension personnel with 4-H responsibilities by utilizing three regional Extension 4-H listservs. This included a total of 207 4-H personnel, 11 of which were excluded from participation because of their previous inclusion in the pilot study.

A cross-sectional survey design was utilized to measure the current social media usage by program leaders in Tennessee (Ary, Jacobs & Sorenson, 2010). An online survey was chosen as the method of delivery because of its lower cost and convenience, as well as the ability to gain an increased amount of data from a larger population (Ary, Jacobs & Sorenson, 2010). The survey instrument was developed based on a combination and modification of questions and scales measuring similar constructs for previous studies and reports. This included concepts and ideas from the Pew Internet and American Life Project's study on social media and internet usage by teens and young adults (Lenhart, Purcell, Smith & Zickuhr, 2010);

social media categories similar to the Social Media Landscape developed by Fred Cavazza (Cavazza, 2011); determination of population size based on the Rural Urban Commuting Area Classification System (as cited in Avery, Lariscy, Amador, Ickowitz, Primm & Taylor, 2010), and a modification of the Perceived Usefulness Scale (Kattan & Adams, 1994).

In order to determine how social media was being utilized, the researchers developed three categories of communication via social media. Direct communication included using a Facebook message, Twitter direct message, Twitter @ reply, or other method to specifically contact an individual or a targeted group of individuals. In-direct communication was described as posting to a 4-H interest group, sharing information via Facebook or Twitter status updates, or other methods of providing targeted information to a large group of fans or followers. Finally, the sharing and mass communication category was established to include creating a blog, Facebook page, YouTube account, Twitter account or other profile with the general intention of sharing information that would be publicly accessible but had no direct target audience.

Face and content validity for the survey were established through review by an expert panel. The usage of an expert panel was identified by Ary, Jacobs and Sorenson (2010) as a credible way to determine face and content validity of a survey instrument. The expert panel consisted of three members of the state 4-H staff, one National 4-H staff member, four university faculty members and one social media professional. Feedback from the panel members was received individually and combined to identify changes needed to clarify questions and constructs. Panel members indicated that the survey was very lengthy and that some questions seemed repetitive. Questions were combined and streamlined so that the survey was shorter and concepts were clearer.

A pilot study was then conducted with 11 county 4-H program leaders who represented each of the three Extension regions in Tennessee. This pilot study group included males (n=4) and females (n=7) ranging in age from 27 to 63 years old. County leaders were selected from a list provided by the state 4-H office. A purposeful sample was selected to ensure that the pilot study sample would be representative by including each Extension region, as well as male and female participants. Age was unknown at the time of the pilot study and was not used to select pilot study participants. Pilot study participants were contacted via telephone and asked about their willingness to participate in the pilot study survey. Each of the 11 participants who were contacted agreed to participate and they were sent the survey via email with an explanation of the purpose of the study. Participants were asked to complete the survey, and also to contact researchers with any additional feedback about the survey design.

Reliability of the survey was established by conducting statistical analysis of the data using SPSS statistical software. The method used to measure reliability was coefficient alpha, also known as Cronbach's alpha, which is used to determine reliability based on internal consistency (Ary, Jacobs & Sorenson, 2010). According to Ary, Jacobs and Sorenson (2010), the reliability measure of a survey or test can be affected by (a) the length of the test, (b) the heterogeneity of the group, (c) the ability level of the group, (d) the techniques used to estimate reliability, (e) the nature of the variable, and (f) the objectivity of scoring. The results of measuring Chronbach's alpha are reported as a number between 0 and 1, and Nunnally (1978) suggested 0.7 as a minimum threshold for an acceptable coefficient alpha. For the demographic section of the survey, no reliability measures were established due to the independent design of the questions. The professional usage section of the survey was found to have a Chronbach's alpha of 0.742. The final section of the survey measured the

perceptions of program leaders about current and future social media usage. This section was found to have a Chronbach's alpha of 0.877. Through the usage of the three Extension listserves, a total population of 207 county 4-H program leaders, including program assistants, county agents and county extension coordinators, received the survey via email. Eleven recipients were excluded from the number of potential respondents due to their earlier participation in the pilot study. The surveys were distributed with a cover email indicating: a) the purpose of the study, b) instructions for completing the survey, c) clear indication of University sponsorship, and d) information about incentives. A \$25 gift card was awarded to five randomly selected survey participants. After a two week period, 62 responses were received for a response rate of 31.6 percent (n=196). According to best practices suggested by Ary, Jacobs and Sorenson (2010), a second survey was emailed out after two weeks which thanked those who had completed the survey and encouraged responses from those who had not yet completed the survey. This led to an overall response rate of 37.7 percent (n=196) after a three week period. Six weeks after the initial survey was sent, a second reminder email was sent and resulted in an overall response rate of 41.3 percent (n=196). Finally, each county which was not represented by the current respondents was contacted via telephone. Researchers asked to speak with the primary 4-H contact in that county and personally encouraged the 4-H leader to complete the survey. These program leaders were individually emailed an additional copy of the survey to ensure that they had easy access to complete the survey and return it in a timely manner. At the end of a three week period, a total of 15 leaders had completed the survey in response to personal outreach via telephone. Overall, a total of 96 responses were received out of a possible 196 for an overall response rate of 49 percent. A total of 81 percent (n=95) of county 4-H programs in Tennessee were represented in the study,

with some counties having representation by more than one program leader. Non-response error was addressed by comparing early and late respondents, as described by Ary, Jacobs and Sorenson (2010). No significant differences were identified between early and late respondents; therefore, the respondents were determined to represent an unbiased sample of the population allowing researchers to make generalizations for the entire population represented by this sample (Ary, Jacobs & Sorenson, 2010). Survey responses were transferred electronically from the online survey tool to SPSS statistical software. Descriptive statistics including means, frequencies and standard deviations were calculated for results as appropriate.

## **Results**

In this study, county 4-H program leaders from across Tennessee were surveyed to determine how social media was utilized by each program leader, to identify what type of social media services that are used and to describe program leaders' perceptions of social media use.

*Objective 1: Describe demographics of county 4-H program leaders in Tennessee.*

Of the respondents (n=96), a total of 39.6 percent of participants were male and 60.4 percent were female (see Table 1). Participants ranged in age from 22 to 60 years old, and the majority identified themselves as white or Caucasian. A wide variety of geographic areas were represented with the highest percentage of respondents (45.8 percent, n=96) working in a small rural town having a population of 2,500 to 9,999 and approximately 30 percent of respondents representing each Extension region in Tennessee. Table one also indicates data describing the size of the county program where the program leader is employed based on 4-H enrollments and number of Extension employees. The program leaders' position or job title and length of employment with Extension are also included in the results found in Table 1.

Table 1. Demographic Characteristics of County 4-H Program Leaders in Tennessee

<i>Variable</i>	<i>n</i>	<i>f</i>	<i>%</i>
Gender	96		
Male		38	39.6
Female		58	60.4
Age	95		
20-29		21	22.1
30-39		36	37.9
40-49		17	17.9
50 or older		21	22.2
Race\Ethnicity	96		
White\Caucasian		92	3.1
Black\African American		3	95.8
Other		1	1.1
Size of City\Town	96		
Metropolitan\Urban (50,000 or more)		15	15.6
Micropolitan\Large Rural Town (10,000-49,999)		25	26.0
Small Rural Town (2,500-9,999)		44	45.8
Isolated Rural Area (under 2,500)		12	12.5
Extension Region	96		
Western Region		28	29.2
Central Region		36	37.5
Eastern Region		32	33.3
County 4-H Enrollment	96		
Less than 2,000		64	66.7
2,001-4,000		24	25
4,000 or more		8	8.3
Number of Employees	96		
1-5		62	64.6
6-10		26	27.1
11 or more		8	8.3
Position\Job Title	96		
Extension Program Assistant (I, II or III)		4	4.2
Extension Agent I		33	34.7
Extension Agent II		17	17.7
Extension Agent III		19	19.8
County Director		20	20.8
Other\No Response		3	3.1
Length of Employment	96		
Less than 1 year		10	10.4
2-5 years		25	26.0
6-10 years		20	20.8
11-15 years		15	15.6
16-30 years		20	20.8
Over 30 years		6	6.3

*Objective 2: Describe how county 4-H program leaders currently utilize social media to interact with 4-H members, volunteers and other adults in their county.*

Participants were asked to select all devices which they had access to for use with social media services, in order to determine if technology accessibility was an issue (see Table 2). Results showed that a majority of respondents had access to a personal computer of some type, whether it was a desktop PC, laptop or netbook. In addition, 50 percent of respondents had access to social media through a Smartphone with internet. Respondents were also asked to report their approximate total usage of social media for personal and professional purposes

*Table 2. General Usage of Social Media by County 4-H Program Leaders in Tennessee*

<i>Variable</i>	<i>n</i>	<i>f</i>	<i>%</i>
Access to Devices*	96		
Desktop PC		66	68.8
Laptop computer\Netbook		82	85.4
iPad or tablet computer		33	34.4
Cell phone		30	31.3
Smartphone (with internet)		48	50.0
E-book reader (Kindle, etc.)		7	7.3
Total Weekly Usage of Social Media	96		
Do not use		6	6.3
0-2 hrs.		38	39.6
3-4 hrs.		20	20.8
5-6 hrs.		12	12.5
7-8 hrs.		11	11.5
9-10 hrs.		5	5.2
11+ hrs.		4	4.2
Importance of Social Media for 4-H	94		
Not at all important		0	0
Low importance		3	3.2
Slightly important		11	11.7
Neutral		11	11.7
Moderately important		21	22.3
Very important		35	37.2
Extremely important		13	13.8

*Note: \*Participants were asked to select all that apply*

Table 3. Official Social Media Usage by Program Leader and by County Program

<i>Variable</i>	<i>n</i>	<i>f</i>	<i>%</i>
Officially Utilize Social Media by Program Leader	94		
Yes		79	82.3
No, but have considered		14	14.6
No, and have not considered		1	1.0
Officially Utilize Social Media by County	77		
Yes		62	80.5
No, but have considered		11	14.3
No, and have not considered		1	1.3
Mixed Response		3	3.9

(see Table 2). Over 60 percent of respondents reported a total social media usage of less than four hours per week. In addition, 51 percent of respondents felt that the usage of social media for 4-H was *very important* to *extremely important*. An additional 45.7 percent of respondents felt that social media was *slightly important* to *moderately important* (see Table 2).

County program leaders were then asked whether or not they officially used social media to promote their county program or interact with youth, adults and volunteer leaders (see Table 3). Responses showed that 84 percent (n=94) of county 4-H program leaders utilized social media in some way to help promote their county program or interact with their clientele. Further analysis of survey responses by cross-tabulating social media use and county of employment showed that 4-H program leaders in 80.5 percent (n=77) of counties utilized social media in some way to interact with youth and adults. County 4-H leaders in 11 counties (14.3 percent, n=77) reported their county did not currently use social media, but had considered using it in the future.

*Table 4. Description of Usage of Social Media by County 4-H Program Leaders in Tennessee*

<i>Variable</i>	<i>n</i>	<i>f</i>	<i>%</i>
Frequency of Social Media Use	79		
Several times a day		2	2.5
About once a day		5	6.3
3-5 times per week		18	22.8
1-2 times per week		31	39.2
Every few weeks		19	24.1
Less often		4	5.1
How Sites Are Used*	79		
Direct communication with 4-H members		57	72.1
Direct communication with volunteers\adult leaders		53	67.0
In-direct communication with 4-H members		55	69.6
In-direct communication with 4-H volunteers\adult leaders		50	63.3
Sharing\Mass Communication		53	67.0

*Note: \*Participants were asked to select all that apply*

After determining which counties officially utilized social media, program leaders from those counties answered specific questions on how social media was utilized for their county program (see Table 4). A total of 70.8 percent of respondents reported they use social media for their county program at least once per week, while an additional 24.1 percent reported using social media every few weeks. Results showed that social media was most commonly used for direct communication with 4-H members (72.1 percent, n=79), in-direct communication with 4-H members (69.0 percent, n=79) and direct communication with volunteers and adult leaders (67.0 percent, n=79).

*Objective 3: Describe which types of social media sites are utilized by county 4-H programs.*

A scale question was utilized to ascertain which services are currently utilized and included fourteen categories of social media services (see Table 5). The frequency of usage for each category was assessed and researchers found that several categories exhibited very limited usage. As shown in Table 5, only a few of the categories showed usage by greater than five percent of respondents on at least a weekly basis. These included social networking, text

*Table 5. County 4-H Program Leaders' Frequency of Social Media Usage by Social Media Service*

<i>Variable</i>	<i>n</i>	<i>At Least Weekly</i>		<i>Every Few Weeks</i>		<i>Less Often</i>		<i>Never</i>	
		<i>f</i>	<i>%</i>	<i>f</i>	<i>%</i>	<i>f</i>	<i>%</i>	<i>f</i>	<i>%</i>
Blogging (Blogger, Wordpress, Posterous, etc.)	77	3	3.9	3	3.9	4	5.2	67	87.0
Commerce (Groupon, LivingSocial, Swipely, etc.)	77	4	5.2	2	2.6	4	5.2	67	87.0
Micro-Blogging (Twitter, etc.)	77	2	2.6	3	3.9	9	11.7	63	81.8
Video Chat (Skype, etc.)	75	3	4.0	1	1.3	12	16.0	59	78.7
Photo Sharing (Flickr, Picasa, Pinterest, etc.)	76	8	10.5	10	13.2	9	11.8	49	64.5
Text Chat (Yahoo!, Google Talk, Facebook Chat, etc.)	76	17	22.4	9	11.8	6	7.9	44	57.9
Video Sharing (YouTube, SchoolTube, Vimeo, SocialCam, etc.)	77	3	3.9	8	10.4	29	37.7	37	48.1
Social Networking (Facebook, Myspace, LinkedIn, Google+, etc.)	78	58	74.4	10	12.8	5	6.4	5	6.4

*Note:* Categories in which 90 percent or more of respondents indicated they had never utilized the social media service or technology were not included on this chart. These categories included social gaming, virtual worlds, dashboards, analytics, discussion, commerce and check-in.

chat, and photo sharing. A total of 74.4 percent (n=79) of respondents reported using social networking sites, such as Facebook, with many approximately 30 percent reporting that they used social media at least once per day. Text chat was the category with the second highest frequency of weekly usage (22.8 percent, n=79).

*Objective 4: Determine perspectives towards current and future social media usage for 4-H as shown by the county 4-H program leaders.*

The final objective was to assess the perceptions program leaders have of current and future usage of social media. Table six shows results for questions assessing general beliefs about

*Table 6. County Usage of Social Media as Perceived by County 4-H Program Leaders in Tennessee*

<i>Variable</i>	<i>n</i>	<i>M</i>	<i>SD</i>
My county 4-H program has the resources necessary to use social media.	94	5.69	1.25
My county 4-H program has the knowledge necessary to use social media.	94	5.24	1.40
I believe that county 4-H members are satisfied with the way our county uses social media.	94	3.93	1.45
I believe that my county 4-H program uses social media very efficiently.	94	3.89	1.50
I believe that my county 4-H program uses social media very effectively.	94	3.87	1.41
I am very satisfied with the way my county uses social media.	94	3.76	1.58
My county 4-H program feels apprehensive about using social media.	92	3.67	1.53
My county 4-H program hesitates to use social media because of online privacy concerns.	94	3.43	1.57

*Note: 1-Strongly Disagree, 2-Disagree, 3-Somewhat Disagree, 4-Neutral, 5-Somewhat Agree, 6-Agree & 7-Strongly Agree*

the county's ability to successfully utilize social media and their current social media usage.

Results of the study indicated that respondents at least somewhat agreed that their 4-H program had the resources ( $M=5.69$ ,  $SD=1.25$ ) and the knowledge ( $M=5.24$ ,  $SD=1.39$ ) necessary to use social media. Respondents somewhat disagreed that they felt apprehensive about social media use ( $M=3.67$ ,  $SD=1.53$ ) and that they hesitated to use social media because of privacy concerns ( $M=3.43$ ,  $SD=1.57$ ). A neutral to somewhat agreeable response was given to statements about the effectiveness ( $M=3.87$ ,  $SD=1.41$ ) and efficiency ( $M=3.89$ ,  $SD=1.50$ ) of social media use as perceived by county program leaders. Respondents only somewhat agreed they were satisfied with their program's current social media usage ( $M=3.76$ ,  $SD=1.58$ ) and they believed 4-H members in their county were satisfied ( $M=3.93$ ,  $SD=1.45$ ).

*Table 7. County 4-H Program Leaders' Perceptions of the Usefulness of Social Media*

<i>Variable</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Using social media enhances my effectiveness on the job.	94	4.88	1.49
Using social media allows me to accomplish tasks more quickly.	94	4.70	1.65
Using social media makes it easier to do my job.	94	4.70	1.61
Using social media increases my productivity.	94	4.63	1.55
Using social media improves my job performance.	93	4.63	1.54

*Note: 1-Strongly Disagree, 2-Disagree, 3-Somewhat Disagree, 4-Neutral, 5-Somewhat Agree, 6-Agree & 7-Strongly Agree*

Five questions based on the perceived usefulness scale by Kattan & Adams (1994) were utilized to help determine program leaders perceptions of the usefulness of social media (see Table 7). Of the items on the scale, respondents most strongly agreed with the statement that social media enhanced their effectiveness on the job ( $M=4.88$ ,  $SD=1.49$ ). Respondents indicated they were neutral or somewhat agreed with statements that social media allows them to accomplish tasks more quickly ( $M=4.70$ ,  $SD=1.65$ ), makes it easier to do their job ( $M=4.70$ ,  $SD=1.61$ ), improves their job performance ( $M=4.63$ ,  $SD=1.54$ ) and increases their productivity ( $M=4.63$ ,  $SD=1.55$ ).

Questions were also asked to assess the county program leaders' willingness to engage in using social media and participate in training opportunities related to social media (see Table 8). Program leaders disagreed ( $M=1.95$ ,  $SD=1.13$ ) with the question indicating they had no interest in using social media for their county. They also somewhat disagreed ( $M=3.23$ ,  $SD=1.77$ ) that they would like to use social media but lacked the needed knowledge. In reference to participating in social media training, participants' results were slightly above

Table 8. County 4-H Program Leaders' Willingness to Participate in Training

<i>Variable</i>	<i>n</i>	<i>M</i>	<i>SD</i>
I would be willing to participate in an online training session to learn how to use social media for my program.	94	5.27	1.11
I would be willing to learn about social media and then share my knowledge with fellow Extension employees.	94	5.24	1.11
I would be willing to attend a regional training meeting to learn how to use social media for my program.	94	5.24	1.33
I would be willing to attend a statewide training meeting to learn how to use social media for my program.	94	4.52	1.57
I would be willing to use social media for my county program, but do not know how.	94	3.23	1.77
I have no interest in using social media for my county program.	94	1.95	1.13

*Note:* 1-Strongly Disagree, 2-Disagree, 3-Somewhat Disagree, 4-Neutral, 5-Somewhat Agree, 6-Agree & 7-Strongly Agree

neutral to somewhat agree that they would be willing to participate in online (M=5.27, SD=1.11), regional (M=5.24, SD=1.33) and state (M=4.52, SD=1.57) training opportunities. Program leaders somewhat agreed (M=5.24, SD=1.11) that they were willing to learn about using social media and then share their knowledge with colleagues.

#### *Further Analysis*

Four open-ended questions were also asked to help provide a richer insight into the usage of social media by county program leaders, both personally and professionally. First, survey respondents were asked to explain their personal choices to utilize social media or not utilize social media. Some of the positive responses about utilizing social media included:

“I use Facebook to announce 4-H meetings, to shout-out kudos to groups of 4-H’ers (without using names) and [to] praise adults[,] volunteers [and] local

businesses for their support. I do use Facebook because it reaches individuals that I could not get information to otherwise.[. . .]” (Female, 47)

“I use Facebook professionally to market my program. I am able to reach a larger number of youth, parents, and members of the community using Facebook as my tool to announce upcoming events, workshops, and programs.” (Male, 26)

“I use social media to connect with my 4-H youth. Social media is their lifeline, so that is my direct connection to get the word to them on things that are going on in 4-H.” (Female, 36)

“Facebook is used to inform and update clientele quickly with written and visual communication! [. . .] When youth in the county were polled, FB outweighed email, calling and snail mail combined.” (Male, 50)

Some key positive aspects of social media that were mentioned included ease of use, speed of communication, low cost for communication and promotion, ability to reach large audience in a timely manner, relevance of the communication medium to the clientele, opportunities to provide recognition to youth and supporters, and ease of keeping community and parents informed. This question also sought to identify any negative aspects of social media as perceived by respondents. Key negative responses included lack of knowledge and skills with using social media, concerns about privacy and safety, lack of available time to learn about and implement social media in the program, and lack of access to high speed internet by clientele. Some specific responses that highlight these key aspects included:

“I just don't want to use it AND I don't have the skills to actually post info to it.” (Male, 54)

“I do not use Facebook much personally, because it seems like sharing too much information with everybody in the world. [. . .] I do use it sometimes for the announcing of meetings, activities, or events for 4-H. I really see it as more useful for 4-H than personally. I would like to use it more as a recognition tool. But then you run into problems with getting permission from anyone to post their name or picture!” (Female, 56)

“I do not think it is safe to post pictures or meeting times and locations online.”  
(Female, 32)

“A large portion of the county still lacks high speed internet and therefore many clients do not use social media.” (Male, 28)

For the second open-ended question in which participants were asked to identify any specific social media sites or services they felt would be beneficial for 4-H. The majority of respondents indicated that they felt Facebook would be useful for 4-H. YouTube and Twitter were also mentioned repeatedly in the responses as providing a good way to connect with youth on social media. Other responses that were minimally represented as possibly beneficial sites were Pinterest, Vimeo, self-created websites, texting, and others. Responses to this question indicated that some participants were confused about inclusion of texting and self-created websites as social media, although these types of communication were not included in the definition of social media given by the survey. Finally, participants were asked the following open-ended question: “Are you aware of any social media services being used by 4-H members, 4-H volunteers or others to represent your county 4-H program? If so, please explain who is using these services and how they are used?” Based on responses to this question, it was clear that the question was somewhat confusing to participants and results were thus excluded from this study.

In addition, an open-ended question was asked to determine whether or not program leaders were aware of any currently available training to help improve their knowledge of social media. Analysis of responses showed that approximately half of respondents were aware of in-service Extension trainings held on a regional, state or

national level to help Extension personnel learn how to effectively utilize social media. Many respondents indicated that they had taken part in these trainings or were planning to do so in the near future. However, at least one-third of respondents indicated that they did not know about any opportunities for receiving training about how to utilize social media. In response to this question, one respondent made this statement about the importance of learning to use social media: “Those of us who are not efficiently using social media just need to take a breath and prioritize reaching our audience through social media” (Female, 59). The lack of knowledge about potential training opportunities may have some influence on the overall usage of social media by these program leaders, as it may be difficult for them to learn how to efficiently use social media or how to prioritize making progress in adopting this new media technology.

### **Conclusions/Implications/Recommendations**

This study adds to the body of knowledge about social media usage by county 4-H programs in Tennessee. It provides insight into how county 4-H program leaders are currently utilizing social media and describes perceptions of program leaders toward current and future usage of social media. In addition, this study indicates that social media has become a widely adopted technology for county 4-H programs in Tennessee. Social media was utilized by 84 percent (n=94) of county 4-H program leaders and 80.5 percent (n=77) of counties represented in the study. While Rhoades, Thomas and Davis (2009) found that 4-H social media use was primarily utilized by youth, this study supports research by Fuess and Humphreys (2011) which indicated there has been some level of adoption of social media for official usage by county 4-H programs leaders.

Social networking sites, especially Facebook, were the key social media service used by county 4-H program leaders. Of the county program leaders who officially utilized social media, 74.2 percent (n=78) indicated that they use social networking sites, such as Facebook, on at least a weekly basis. An additional 12.8 percent (n=78) of program leaders used social networking sites every few weeks and only 6.4 percent (n=78) indicated that they had never used Facebook for their county program. Responses to open-ended questions also indicated that Facebook was the primary social media site that was considered potentially beneficial for 4-H use. This finding is consistent with results found by Curtis, Edwards et al. (2010) in which social networking was the second most commonly used social media service for nonprofits following only email (which was not included in this study).

A potential need for training in social media usage was also identified. While a high percentage of program leaders engaged in using social media for their county, they expressed only a moderate level of agreement that their county possessed the knowledge and resources necessary to utilize social media. Some participants specifically indicated they lacked the technical knowledge necessary to efficiently and effectively utilize social media for their county program. Likewise, respondents only somewhat agreed they were very satisfied with the way their program was currently utilizing social media or believed their 4-H clientele were satisfied by their current usage of social media. Participants also indicated that they would be at least somewhat willing to participate in online, regional or statewide training opportunities; however, responses to open-ended questions indicated that many program leaders were unaware of any type of available trainings related to

social media. Lack of technical knowledge and need for training are consistent with findings from the Fuess and Humphreys (2011) study which identified barriers, risks and opportunities for utilizing social media for Extension.

This research study was designed to measure the diffusion and adoption of social media among county 4-H programs in Tennessee based on the theoretical framework of diffusion theories established by Rogers (1989). As stated earlier, this process of adoption can be viewed from an individual or organizational standpoint. Because this study is intended to measure adoption across an organization, the organizational process of innovation proves to be the most helpful in describing the current state of social media adoption by Extension and 4-H. As described previously, the organizational innovation process can be divided into two key phases (initiation and implementation) and five subordinate stages (agenda-setting, matching, redefining/restructuring, clarifying and routinizing). The changing landscape of communication among constituents has served as a strong agenda-setting motivator for Extension and 4-H to prioritize social media adoption. Based on perceptions of the research participants, social media is more relevant to the large number of youth in 4-H than trying to reach them through traditional means such as phone calls or newspaper announcements. This new communication technology also allows for quick, easy dissemination of information to youth, parents and community members. The National 4-H Council has initiated training programs to encourage adoption of this new technology to help 4-H reach a larger, more diverse audience. In addition, a variety of Extension and 4-H programs have also succeeded in finding effective ways to incorporate social media and match these new technologies to existing

communication needs in their programs (Cornelisse, Hyde, Raines, Kelley, Ollendyke & Remcheck, 2011; Kinsey, 2010; National 4-H Council, 2010). Results of this diffusion study, combined with prior research on Extension and 4-H usage of social media, indicate that the organizational decision to adopt social media technologies has been made and social media adoption may continue to the second phase of the innovation process. This may prove challenging, however, because many of the factors that are beneficial during the initiation phase can prove to be quite negative during the implementation stage. For instance, during the initiation process, organizations may benefit from low centralization, high complexity and low formalization. During the implementation phase, however, an organization would benefit from high centralization, low complexity and high formalization (Rogers, 1983). These factors may have an effect on the successfulness of the implementation of social media by the organization as a whole.

While this study provides some insight into the way that county 4-H programs are currently implementing social media, further research is encouraged to determine how these new technologies can best be utilized to support the Extension system and serve established and new clientele. Analysis of participants overall perceptions of social media showed strong support of previous findings indicating that social media could prove to be a highly beneficial promotional and communication tool for county 4-H programs and other Extension personnel (Coates, 2004; Fuess & Humphreys, 2011; Rhoades, Thomas & Davis, 2009). Further research is suggested to determine best practices for utilizing social media to maximize its benefit to the organization. This may include research on

which social media services are the best fit for 4-H use and/or how to most efficiently and effectively utilize these services.

This study may also provide a foundation for other researchers to more effectively isolate perceived barriers and risks to usage of social media. Results of this study indicate support for several barriers of social media usage as identified by Fuess and Humphreys (2011), including time constraints, privacy concerns, lack of knowledge and lack of access to high speed internet as possible barriers to social media adoption. Additional research should be conducted to further identify how to decrease these barriers in order to improve the social media adoption process in Extension and 4-H.

Finally, this study provides interesting insight into social media adoption by 4-H as part of the Extension organization; however, little attention was given to the non-profit structure of the 4-H organization. According to research by Hull and Lio (2006), visionary, strategic and financial consideration unique to non-profit organizations may have an effect on innovation adoption within the organization. In addition, McDonald (2005) found that the organizational mission can have a strong impact on the adoption or rejection of new innovations. Further research is suggested to determine factors related to the non-profit structure of 4-H and how they relate to the organizational innovation process.

Researchers suggest that further investigation also be conducted on the following questions:

1. Does social media usage by county 4-H programs in Tennessee change over a two to three year period? If so, does it increase or decrease?

2. Are 4-H members in Tennessee and other states satisfied with usage of social media by their county programs? If not, what suggestions are given for improvement?
3. How do other states in the nation utilize social media to promote their program and engage with 4-H members, volunteer leaders, parents and other community members? What key usage patterns can be identified to develop general program guidelines for usage of social media on a county level?
4. Do demographic factors such as age and years of experience with the organization effect 4-H program leader's adoption and usage of social media? If so, are there ways that generational and experience barriers can be addressed to increase effective usage of social media?
5. What key competencies are essential for inclusion in 4-H social media training programs? How can we best deliver training on these competencies to program leaders?
6. How does non-profit mission effect the organizational innovation and adoption of social media by 4-H? How does this compare to social media use by other non-profit organizations?
7. Are the barriers, risks and opportunities of social media identified by Fuess and Humpherys (2011) and Segers (2011), representative of 4-H and Extension on a national level?

## Chapter 5

### Conclusions and Recommendations

This study adds to the body of knowledge about social media usage by county 4-H programs in Tennessee. It provides insight into how county 4-H program leaders are currently utilizing social media and describes perceptions of program leaders toward current and future usage of social media.

This research study was designed to measure the diffusion of social media across county 4-H programs in Tennessee. From an individual program leader standpoint, diffusion and adoption can be assessed using Rogers' (1983) basic innovation decision process. As discussed in Chapter two, the diffusion theory identifies five key characteristics that affect the adoption of new innovations: relative advantage, compatibility, complexity, trialability and observability (Rogers & Shoemaker, 1971; Rogers, 1983). The findings of this study indicate that social media has a high relative advantage with Extension and 4-H programs. Based on perceptions of the research participants, social media is much more relevant to the large number of youth in 4-H than trying to reach them through traditional means such as telephones, newspaper announcements, etc. This new communication technology also allows for quick, easy dissemination of information to youth, parents and community members. This study also indicated that compatibility and trialability did not appear to present barriers to adoption of social media. Respondents did not report concerns over having to change their traditional methods of programming to incorporate social media and many cited the ease of use and low cost of social media as reasons that they were willing to try using it for

their program. Some doubts exist, however, as to the observability of results from using social media. When asked about possible negative barriers of social media, one respondent indicated that “one reason would be [that] you’re not sure if the clientele are actually getting the message” (Male, 38). This suggests that perhaps county programs should develop a more focused plan for utilizing social media involving identification of target audiences and creating a communication strategy with clear objectives as discussed by Robideau and Santl (2011). This would allow for a much more effective and efficient usage of social media, because programs would not be wasting time posting information in places where it is not actually reaching the target audience. Methods for monitoring the reach and impact of social media, as identified by Cornillesse et al. (2011), may also be utilized to help improve observability of social media success by county programs.

Likewise, complexity was identified as a strong possibility for lack of adoption by some program leaders. Program leaders indicated perceived aspects of using the technology—such as maintaining privacy concerns, time spent learning the new technology, selected what should and should not be share, selecting who should be included in online networks, and others—which indicated that they felt that social media was quite complicated. This may be partially due to a lack of training and knowledge about social media in general, as indicated by the inclusion of texting as a type of social media in some participants’ open-ended responses. As discussed by Seger (2011), the complexity of new technologies such as social media can seem incredibly intimidating, especially when an organization has been using more traditional methods for over 100 years. While this study indicates that those who have already adopted social media in

some way felt that it was easy to use, past research by Seger (2011) and Fuess and Humphreys (2011) indicates that the idea of learning how to utilize this new technology on a county basis can be quite overwhelming. Therefore, the researcher posits that the results of this study can be combined with previous research to help develop future training programs to educate county 4-H program leaders and other Extension personnel on how to effectively utilize social media. This can be done by beginning with the basics of what social media is and how to start an account on the more popular sites (i.e. Facebook, YouTube, Twitter, etc.).

From an organizational standpoint, diffusion and adoption should be assessed based on the organizational innovation process, which is discussed in detail in Chapter 2. Based on the social media mission and policy described by the National 4-H organization, as well as individual county program leaders recognizing a need for new communication methods, it can be determined that the agenda-setting stage of the organizational innovation process has been completed (Rogers, 1989). Availability of training on a national and state level also indicates that social media is believed to be an important issue for 4-H. Matching, the stage in which a need or problem is combined with a new technology that can fulfill it, seems to have taken place on a county-by-county level with each program leader finding ways that social media best fit the needs of their constituents (Rogers, 1989). Findings thus indicate that 4-H has made a decision to adopt social media as a new technology. The implementation phase of adoption is already in place in a majority of Tennessee counties, as county 4-H program leaders find ways of restructuring and redefining social media so that it will fit well with previously

established communication methods and can be smoothly integrated into the Extension system.

Key barriers and opportunities identified by Fuess and Humphreys (2011) and Seger (2011) also provided a basis for conducting further research to determine individual factors affecting social media adoption by county program leaders. By identifying the positive and negative factors affecting social media adoption, researchers will enable Extension professionals to better address barriers and threats while highlighting the importance of benefits and opportunities. Therefore, they will be able to develop programming and training opportunities that more directly benefit the agents and program leaders. Results from this study, as well as prior research by Fuess and Humphreys (2011) and Seger (2011), indicate that time constraints and efficiency of use are common concerns when determining whether or not social media is used by a program. One way that social media professionals decrease their time on social media sites and increase efficiency is by utilizing social media dashboards, such as TweetDeck, HootSuite or Seesmic (Safko & Brake, 2009; Safko, 2010). These dashboards would allow program leaders to schedule posts, tweets and status updates. They would also allow program leaders to more easily listen to their audience or track what is being said about their organization (Safko & Brake; Safko). Another possible solution for effectively decreasing time spent on social media sites is for counties to conduct a needs assessment to determine how county 4-H members specifically would like to see the county program utilize social media. An online survey or a focus group could be conducted with 4-H members, adults and community members to identify a) what social

media services they utilize on a regular basis, b) which services they would like to see used for 4-H and c) whether or not they would be willing to contribute their own content to these sites. By limiting social media usage to services that are commonly used by constituents, program leaders will know that their message is being heard by the targeted audience. Also, if 4-H members and volunteers are interested in being involved with providing content, they can help increase efficiency of use by uploading photos of 4-H activities, creating videos for YouTube to promote upcoming events, helping write blog posts about key issues in the county or leading Twitter chat groups. This would allow the county 4-H program to maintain an active presence on social media sites; however, all of the pressure of generating content and engaging the public would not rest solely on the shoulders of one program leader.

Researchers would also recommend that further research be conducted to identify key social media competencies that should be taught through Extension social media training programs. Conducting a study with Extension specialists, social media consultants, and 4-H members and volunteers to identify the skills they feel are most important for utilizing social media effectively for 4-H would help allow Extension professionals on the state and national level to establish more efficient and effective training programs. Research may be conducted using a Delphi approach to identify competencies or by selecting programs with highly successful social media usage to participate in interviews and case study type research. Either approach will allow Extension professionals to establish a clearer definition of how social media can best be utilized for county 4-H programs.

Extension professionals can also improve training programs by utilizing a case study approach to identify best practices in social media from other non-profit organizations. Public Relations practitioners commonly utilize case studies of successful organizations to help determine how to effectively integrate new technologies and communication methods into their campaigns and programs (Hendrix & Hayes, 2010). For Extension and 4-H, there are several organizations that can provide good case study examples of how social media can be utilized effectively. *Big Brothers Big Sisters of America* utilizes Facebook, Twitter and YouTube on national, state and local levels to share stories of how their program helps America's youth and how people can help by contributing to the organization. *Boy Scouts of America* utilizes social media to promote its program on local and national levels, and has developed social media guidelines and how to articles to help local chapters effectively use social media. The *Girl Scouts* organization also provides examples of social media marketing as well as social media education for youth that would be beneficial for Extension and 4-H personnel to study. Other organizations that can provide good examples of social media use include *The American Red Cross*, *Charity: Water* and *Doctors Without Borders*. Perhaps more controversial at times, *Invisible Children*, the *Humane Society of the United States* (HSUS) and *People for the Ethical Treatment of Animals* (PETA) also have an active presence on social media sites. These organizations provide positive and negative examples of how social media can be used on a large and small scale to gain attention, increase volunteer involvement, engage with stakeholders, and share information. By studying these and similar organizations, Extension and 4-H professionals can identify

best practices that can be integrated into a successful social media plan for their organization.

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## Appendix

## **Appendix A: Survey**

### *Introduction*

Dear participants,

For the purpose of this study, social media “refers to activities, practices, and behaviours among communities of people who gather online to share information, knowledge, and opinions using conversational media” (Safko & Brake, 2009). Social media includes a variety of sites and services ranging from the better known Facebook, Myspace, YouTube and blogging sites to more recent sites and services such as Twitter, StumbleUpon, Foursquare and other new types of social media. In this survey, we will focus primarily on Facebook, Twitter, YouTube and a few reasonably well known sites that are gaining in popularity.

If you have any questions about social media and how it is defined in relation to this survey, please contact Rebekah Bowen at [rbowen6@utk.edu](mailto:rbowen6@utk.edu) prior to completing the survey.

The survey will contain three sections of survey questions, including a short demographic section. Please complete each section as fully as possible.

Thanks for your participation!

Rebekah D. Bowen

### *Survey Eligibility*

This information will be used for research purposes to ensure that a valid, representative sample is collected; however, this information will be completely confidential and only the primary researcher and committee chair will have access to your information.

Respondents who complete the entire survey will also be entered into a random drawing for a \$25 Amazon gift card. Gift card winners will be contacted using their official University of Tennessee or Tennessee State University email account no later than March 1, 2012.

1. Please enter your official University of Tennessee/Tennessee State University email address for validation of survey eligibility. Your identity will in no way be connected with your survey responses.
2. In what county is your 4-H program located?

*Section 1: Demographic Information*

Please complete the following demographic information.

3. Sex: Male or Female
4. Age in years (as of October 1<sup>st</sup>, 2011)
5. What is your race/ethnicity?
  - American Indian/Alaska Native
  - Asian
  - Black/African American
  - Hispanic or Latino
  - White/Caucasian
  - Bi-racial
  - Other (please specify)
6. How large is the town or city where your county Extension office is located?
  - Metropolitan/Urban (50,000 or more)
  - Micropolitan/Large Rural Town (10,000-49,999)
  - Small Rural Town (2,500-9,999)
  - Isolated Rural (Under 2,500)
7. How many 4-H members are enrolled in your county 4-H program?
  - Less than 2,000
  - 2,001-4,000
  - 4,001-6,000
  - 6,001-8,000
  - 8,001-10,000
  - Over 10,000
8. In which region of Tennessee is your county 4-H program located?
  - Western Region
  - Central Region
  - Eastern Region
9. What is your current position with UT/TSU Extension?
  - Administrative Support Aide/Assistant I
  - Administrative Support Aide/ Assistant II
  - Administrative Support Aide/ Assistant III
  - Extension Program Assistant I
  - Extension Program Assistant II
  - Extension Program Assistant III
  - Extension Agent I
  - Extension Agent II
  - Extension Agent III
  - County Director
  - Other

10. How many UT/TSU Extension employees currently work in your county office?
- 1-5
  - 6-10
  - 11-15
  - 16-20
  - 21-25
  - 26-30
  - More than 30
11. How long have you been employed by your county 4-H program (or another county 4-H program in Tennessee)?
- Less than 1 year
  - 2-5 years
  - 6-10 years
  - 11-15 years
  - 16-30 years
  - Over 30 years
12. Which of the following devices do you have access to for use with social media sites? (Please select all that apply)
- Desktop PC
  - Laptop computer/ Netbook
  - iPad or tablet computer
  - Cell phone
  - Smartphone (with internet)
  - E-book reader (Kindle, etc.)
  - Other (please specify)
13. Please explain as concisely as possible why you DO or DO NOT personally use social media (i.e. Facebook, Myspace, Twitter, YouTube, Wordpress, etc.).
14. On average, how many hours per week do you spend on social media sites for personal and professional usage?
- I do not use social media
  - 0-2 hrs.
  - 3-4 hrs.
  - 5-6 hrs.
  - 7-8 hrs.
  - 9-10 hrs.
  - 11+ hrs.

*Section 2: Professional Usage of Social Media*

15. Based on your personal knowledge and experiences with social media, please list any social media sites which you believe would be useful for 4-H to facilitate communication and information sharing between 4-H members, 4-H volunteers, and county 4-H leaders? Please explain how you would use each of these sites or services.

16. How important do you believe it is for your county to actively engage in social media for 4-H?
17. Are you aware of any social media services being used by 4-H members, 4-H volunteers or other to represent your county 4-H program? If so, please explain who is using these services and how they are used. If not, please type "None."
18. Please indicate your level of agreement to the following statements:
- My county 4-H program has the resources necessary to use social media
  - My county 4-H program has the knowledge necessary to use social media
  - My county 4-H program feels apprehensive about using social media.
  - My county 4-H program hesitates to use social media because of online privacy concerns.

*[Note: Program leaders were asked to answer the question based on one of the following answer choices: 1-Strongly Disagree, 2-Disagree, 3-Somewhat Disagree, 4-Neutral, 5-Somewhat Agree, 6-Agree & 7-Strongly Agree]*

19. Does your county's 4-H program officially utilize social media to interact with 4-H members? If not, have they considered using social media in the future?
- No, but have considered
  - No, and have not considered
  - Yes
20. How often does your county 4-H program use social media to promote 4-H ideas, beliefs, activities and events to 4-H members within your program?
- Several times a day
  - About once a day
  - 3-5 times per week
  - 1-2 times per week
  - Every few weeks
  - Less often
21. How are social media sites/services utilized within your county 4-H program? (Check all that apply)
- Direct communication with 4-H members (i.e. Facebook message, Twitter direct message, Twitter @ reply, etc.)
  - Direct communication with volunteers/adult leaders (i.e. Facebook message, Twitter direct message, Twitter @ reply, etc.)
  - In-direct communication with 4-H members (i.e. posting to a 4-H interest group, sharing information via Twitter or Facebook status updates, etc.)
  - In-direct communication with 4-H volunteers/adult leaders (i.e. posting to a 4-H interest group, sharing information via Twitter or Facebook status updates, etc.)
  - Sharing/Mass Communication (creating a blog, Facebook page, YouTube account, Twitter account, etc. to share general information with a large group)
  - Other (please describe how your program uses social media)

It is important for our study to understand the frequency at which you use a variety of social media services for 4-H and professional use. Please complete the following frequency scale for each social media category.

22. Please select how often you professionally use each of these social media services.

- Blogging (Blogger, Wordpress, Posterous, etc.)
- Micro-blogging (Twitter, etc.)
- Social Networking (Facebook, Myspace, Google+, LinkedIn)
- Video Sharing (YouTube, SchoolTube, Vimeo, SocialCam, etc.)
- Photo Sharing (Flickr, Picasa, Pinterest, etc.)
- Video Chat (Skype, etc.)
- Text Chat (Yahoo! Google Talk, Facebook chat, etc.)
- Social Gaming (Farmville, Words with Friends, World of Warcraft, etc.)
- Virtual Worlds (SecondLife, The Sims, etc.)
- Dashboards (TweetDeck, Seesmic, HootSuite, etc.)
- Analytics (Sitemeter, Google analytics, Bit.ly, Klout, etc.)
- Discussion (Discuss, Quora, Mahalo, etc.)
- Commerce (Groupon, LivingSocial, Swipely, etc.)
- Check-In (Foursquare, Gowalla, GetGlue, ShopKick, etc)

*[Note: Program leaders were asked to answer the question based on one of the following answer choices: several times a day, about once a day, 3-5 times per week, 1-2 times per week, every few weeks, less often, or never.]*

23. Are you aware of any social media training programs available to help you efficiently and effectively use social media for your county program? If so, please describe these programs and who they are provided by (i.e. National 4-H Council, University of Tennessee Extension, online social media courses not affiliated with 4-H, etc.) If not, please type, "No".

24. Please indicate your level of agreement with each of the following statements:

- I have no interest in using social media for my county program.
- I would be willing to use social media for my county program, but I do not know how.
- I would be willing to participate in an online training session to learn how to use social media for my program.
- I would be willing to attend a regional training meeting to learn how to use social media for my program.
- I would be willing to attend a statewide training meeting to learn how to use social media for my program.
- I would be willing to learn about social media and then share my knowledge with fellow Extension employees.

*[Note: Program leaders were asked to answer the question based on one of the following answer choices: 1-Strongly Disagree, 2-Disagree, 3-Somewhat Disagree, 4-Neutral, 5-Somewhat Agree, 6-Agree & 7-Strongly Agree]*

*Section 3: Perceptions of Social Media Use*

25. Please indicate your level of agreement with each of the following statements as they relate to your professional usage of social media:

- Using social media allows me to accomplish tasks more quickly.
- Using social media enhances my effectiveness on the job.
- Using social media improves my job performance.
- Using social media makes it easier to do my job.
- Using social media increases my productivity.

*[Note: Program leaders were asked to answer the question based on one of the following answer choices: 1-Strongly Disagree, 2-Disagree, 3-Somewhat Disagree, 4-Neutral, 5-Somewhat Agree, 6-Agree & 7-Strongly Agree]*

26. Please indicate your agreement with each of the following statements:

- I believe that my county 4-H program uses social media effectively.
- I believe that my county 4-H program uses social media efficiently.
- I am very satisfied with the way my county uses social media.
- I believe that county 4-H members are satisfied with the way that our county uses social media.

*[Note: Program leaders were asked to answer the question based on one of the following answer choices: 1-Strongly Disagree, 2-Disagree, 3-Somewhat Disagree, 4-Neutral, 5-Somewhat Agree, 6-Agree & 7-Strongly Agree]*

*Thank You*

We greatly appreciate your participation in this research study! Your input is very valuable to us. Your responses will help us to add to the body of knowledge about how social media is used in 4-H programs across Tennessee.

Thanks again for your help!

Sincerely,  
Rebekah Bowen

### **Vita**

Rebekah D. Bowen was born in 1988 in the small town of Garfield, Georgia. She and her three siblings were homeschooled and grew up actively involved in agriculture and 4-H. After high school, Rebekah attended Abraham Baldwin Agricultural College where she discovered her passion for journalism and received her Associate of Science degree in Agricultural Communications. She then attended the University of Georgia where she earned her Bachelor of Science degree in Agricultural Communications and a minor in Poultry Science. In 2010, Rebekah was accepted into the Agricultural Leadership, Education and Communication graduate program at the University of Tennessee, Knoxville, where she has served as a graduate teaching assistant for the past two years.