COMMUNICATION CHANNELS: EDUCATIONAL PROVIDERS ENGAGING BEGINNING FARMERS AND RANCHERS WITH THE INFORMATION THEY NEED, THE WAY THEY WANT IT

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Katie Jorine Hebel

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APPROVAL

of a professional paper submitted by

Katie Jorine Hebel

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Dr. Carl Igo

Approved for the Division of Agricultural Education

Dr. Jeff Jacobsen

Approved for The Graduate School

Dr. Ronald W. Larsen

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Katie Jorine Hebel

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ABSTRACT

Beginning farmers and ranchers are a critical demographic in the agricultural industry as more and more farmers and ranchers are reaching the age of retirement. As they emerge into this field, they have critical production-oriented educational needs in order to be successful. It is critical for educational providers to consider beginning farmers and ranchers preferred communication channels when transferring this educational information. Programs need to deliver the desired content through the desired communication channel in order to be most effective. This review sought to identify communication channels, beginning farmers and ranchers, and their self-perceived preferences for educational information over the last twenty-five years.

This exhaustive literature review examined research on communication channels, beginning farmers and ranchers and their self-perceived educational needs. The problem identified was what preferred communication channels were most effective in engaging beginning farmers and ranchers with production-oriented educational information.

Beginning farmers and ranchers have a need for educational information, particularly relating to agriculture business management. Even though their need for educational information has not changed in the last twenty-five years, the content of educational information has progressed with the changes in agricultural technology, regulations, practices and services. Educational providers need to consider and continually re-assess the educational content and communication channel when engaging beginning farmers and ranchers. Educational providers need to provide educational information through a variety of communication channels in multiple ways to reach their target demographic.

CHAPTER 1

INTRODUCTION

According to the United States Department of Agriculture (2007a), approximately 26.5% of farms and ranches were operated by those with 10 or fewer years experience operating a farm. This statistic was a clear indicator that beginning farmers and ranchers continued to be an important demographic in the agricultural field. When coupled with another demographic statistic from the same census year, a 20 percent increase in farmers over the age of 75 (USDA, 2007b), the need for support to those beginning agricultural producers was even more evident. As the older generation of farmers retire, the beginning farmers and ranchers will lose an important informal education resource. Therefore, it was important that beginning farmers and ranchers have access to critical educational information delivered in both effective and preferred methods. With the vast skill set required by this audience, it was important to focus on how this critical educational information was communicated as a means to ensure the educational information transmission was effective.

Rapid changes in agricultural services, agricultural regulations and agricultural technology in the last twenty-five years further supported the crucial need to systematically examine and potentially amend historical ways of getting educational information to farmers and ranchers. One hundred and fifty years ago, the United States Department of Agriculture (USDA) was created to gather and distribute agricultural information throughout the nation. The 1887 Hatch Act and the 1914 Smith-Lever Act

later provided funding for agricultural experiment stations in each state and cooperative extension services to assist with dissemination of agricultural research and knowledge (Baker, Rasmussen, Wiser & Porter, 1963). Historical ways of communicating critical information, such as newspapers and family members, were still effective (Trede & Whitaker, 1998). However, the widespread use of emerging mass communications technologies, such as webinars and blogs, opened additional means of disseminating critical information.

Individuals, educational entities, government entities, non-governmental organizations (NGOs), as well as public and private organizations involved in communicating critical educational information had the responsibility to identify and accommodate the preferences of beginning farmers and ranchers. Martin (1987) recommended that "agricultural educators at all levels become facilitators of the educational process by planning and conducting educational programs *with* farmers and not just *for* farmers" (p. 39-40). Educational providers needed to consider how their target audience wanted information in order to effectively meet the needs of constituents.

Beginning farmers and ranchers faced obstacles in initiating their operations, including soaring startup costs and limited land availability (Ahearn & Newton, 2009). Yet, there was not extensive research on their preferred communication channels of critical agricultural educational information and what channels were most beneficial for them. The far-reaching changes in agricultural technology and the changing structure of the agriculture industry supported the need for agricultural educators throughout the world to reassess their role and responsibility of communicating with beginning farmers

and ranchers. Educators must communicate critical educational programs to adequately meet the demands of beginning farmers and ranchers in the next century.

Problem Statement

Providers of the critical information to this specific beginning farmer and rancher demographic need to consider the demographic's preferred communication channels. Through this exhaustive literature review, the following question was addressed: What preferred communication channels were most effective in engaging beginning farmers and ranchers with production-oriented educational information?

Purpose and Objectives

The purpose of this literature review was to examine the self-reported preferred communication channels over the last twenty-five years in order to understand how time, technology and selected demographic characteristics have impacted those preferences. Specific objectives of the review were:

1. Examine components of educational communication channels over the last twenty-five years.
2. Examine demographic characteristics of beginning farmers and ranchers over the last twenty-five years.
3. Examine the self-perceived communication channel preferences of beginning farmers and ranchers over the last twenty-five years when receiving educational information.

4. Determine trends and relationships between the demographic characteristics and the communication channel preferences of beginning farmers and ranchers.

Definition of Terms

Beginning farmer and rancher: the terms “farmer” and “rancher” were used synonymously throughout this review, representing those who generated agricultural products. The USDA defined beginning farmers and ranchers as those who have operated a farm or ranch for 10 years or less either as an individual or entity (USDA, 2012). Trede and Whitaker (1998) defined beginning farmers as individuals in the early stages of their farming careers, with no restrictions placed on the person’s age, farm size, or income.

Communication channel: the pathway through which a message is sent. The context of communication was the environment in which a message was sent (West, Turner, Adler, Proctor & Towne, 2006). Communication channels include online dissemination as well as more traditional methods, such as printed material, workshops, and word of mouth. The chosen communication channel delivers critical educational information, but does not ensure that the user prefers, adopts, or thinks it is useful or beneficial.

Delivery method: the way in which educational information can be transferred from a resource to another. The environment can be a physical environment such as a classroom, or an online environment such as a chat room. West, Turner, Adler, Proctor

& Towne (2006) explained the context could also be cultural, social-emotional, or historical in addition to a physical context.

Emerging technologies: the contemporary advances and innovation in the fields of communication and education. These technologies become known and utilized by society to create new efficiencies specifically towards the goals of being more effective communicators and educators.

Significance

There was a lack of research on beginning farmers and ranchers, particularly about their preferred communication channels. There was proposed legislation in the 112th Congress to amend the Food Security Act of 1985 to include a Beginning Farmer and Rancher Opportunity Act of 2011. This was proposed in November 2011, and was a bill designed to expand and improve opportunities for beginning farmers and ranchers (Open Congress, 2011). With the unsure future of a Farm Bill to support America's farmers and ranchers, communicating current and critical information effectively and efficiently to them is imperative during these uncertain times.

The implications for educational providers were immense. Other agencies that assisted this demographic, such as extension providers, industry, and state agencies, may apply the recommendations and implications from this examination to support their educational and promotional efforts. The information learned from the beginning farmers and ranchers' preferences on receiving information makes a more efficient way of

serving their needs. The application of how beginning farmers and ranchers want their education is critical for the future of agriculture.

CHAPTER 2

REVIEW OF LITERATURE

Communication Channels

Models, Context & Structure

Communication channels for dispersing educational information have changed considerably over the last twenty-five years. The historical ways of communicating were not necessarily outdated or ineffective. It was important to understand how the transmission of educational information had changed to help realize the importance of communication channels.

There were several communication models that have been used over the last twenty-five years. Communication can resemble a one-way street, with information flowing from the educational source to the recipient. A communication channel can also resemble a round-about intersection, with information continually being exchanged from both directions of educational source and recipient. Different educational providers selected the specific communication models to best serve the needs of the provider, the information, and the target audience. Three communication models that represented the complex relationship of the communication process were the linear model, the interactional model, and the transactional model (West, Turner, Adler, Proctor & Towne, 2006).

The linear model of communication was the one-way street of communication. This mechanistic thinking was the basic approach of a message being sent and received.

A sender or transmitter, who was the source of a message, passed the message to a receiver over a communication channel (Weaver, 1949). This simplistic method of communicating examined only the sender, not the receiver. Several forms of agricultural education continued to follow this model, including published materials, radio, and television. This model has been criticized in the last twenty-five years because it presumed that communication had a definable beginning and ending and communication was done only by the senders (Anderson & Ross, 2002).

Figure 1. Linear Model of Communication

The interactional model emphasized the two-way nature of communication between people (Schramm, 1954). This model relied on communication moving in two directions: from sender to receiver and from receiver to sender. This bi-directional process suggested communication was ongoing and considered feedback. Communicators were capable of being both the sender and the receiver in the process. Agricultural education and cooperative extension followed this model through contexts such as interactive classrooms, chat rooms, workshops or webinars. The interactional model was criticized for its categorization of senders and receivers; one person sending a message to another person thus speaking and listening were separate events. In addition, this model did not address the importance of nonverbal messages sent with the verbal

message. If a professor is working with a student one-on-one and finds the student either looking around or remaining silent, the professor will *read* the meaning of the student's nonverbal communication as inattentive or assign some meaning to the student's action or non-action (West, Turner, Adler, Proctor & Towne, 2006).

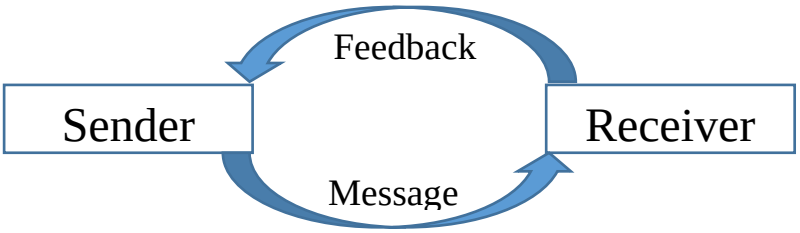

Figure 2. Interactional Model of Communication

The transactional model examined the giving and receiving of messages in a reciprocal, cooperative nature. Both the senders and receivers were responsible for communication effectiveness as they built shared meaning and shared a field of experience (Barnlund, 1970; Watzlawick, Beavin & Jackson, 1967). Shared meaning was found through both verbal and nonverbal behaviors in the transactional model. If a presenter at an agricultural workshop answered questions from farmers, yet still saw puzzled faces or more questions were asked, the presenter can say or do something to clarify the meaning (Wood, 1998). The model described a common field of experience between communicators. West, Turner, Adler, Proctor & Towne (2006) defined field of experience as the "person's culture, past experiences, personal history, and heredity, and how these elements influenced the communication process" (p. 12). When people's field of experience overlapped, communication was more effective. When there was little

overlap, common experiences and more communication was needed to find common ground. Classmates had little overlap in their fields of experience initially, but the overlap in their fields of experience greatly increased as they learned more about one another and developed new common experiences throughout the course (West, Turner, Adler, Proctor & Towne, 2006).

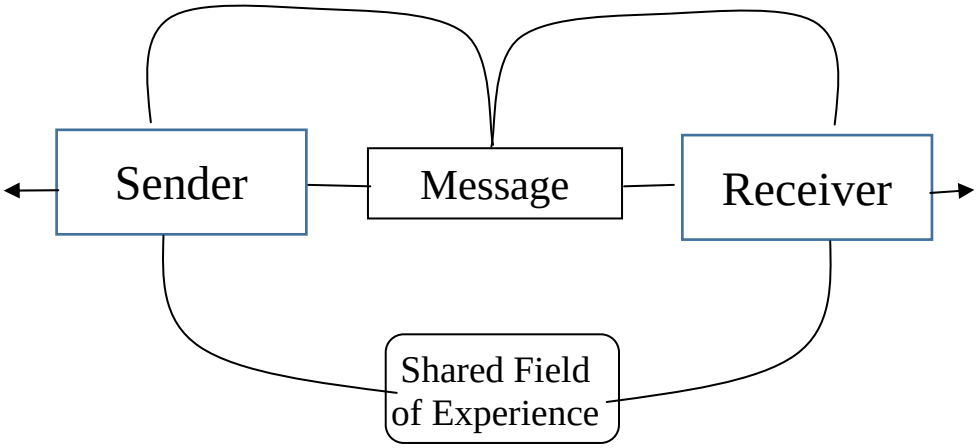

Figure 3. Transactional Model of Communication

Communication context impacted the channel in which communication was performed. The physical context was the tangible environment, such as the classroom, and included environmental conditions such as making the classroom warm, dimly lit, and crowded (West, Turner, Adler, Proctor & Towne, 2006). The dimension of physical context needed to be conducive to have the message received clearly and accurately.

The context of culture also impacted communication. There were unique characteristics of communication to particular cultures and people used that context to varying degrees to determine the meaning of the message (Hall & Hall, 1990).

Communication involving people was impacted by culture, and it was important to recognize and understand the complexity of culture in communication. There were multiple reasons to study intercultural communication and its importance, as well as multiple obstacles to achieving intercultural effectiveness in communication. Strategies can be implemented to improve intercultural communication and effectiveness of a message.

The social-emotional context was the "relational and emotional environment in which communication occurred"(West, Turner, Adler, Proctor & Towne, 2006, p. 360). In this context, messages were associated with the nature of a relationship and helped to explain the interaction taking place. Communicators that were friendly or unfriendly were factors that explained why a person felt anxious, intimidated, or awkward in one educational setting but very comfortable in another (West, Turner, Adler, Proctor & Towne, 2006).

In the historical context, messages were "understood in relationship to previously sent messages" (West, Turner, Adler, Proctor & Towne, 2006, p. 10). The previous messages were capable of being built upon, or used to revise the understanding of the message. Information throughout the history of agricultural education served in a historical context, as theories and research continue to build and develop understanding between people.

In addition to context, communication channels were exchanged following a formal, non-formal, or informal structure. Formal examples included lecture-based agricultural education classes and course(s) leading to specific certification in a physical

or virtual environment (Redfern & Naughton, 2002). Formal education was most often associated with classroom settings. Non-formal education examples included less structured and curriculum-based workshops and field days (Etling, 1993). Non-formal agricultural education was conducted by organizations such as extension. Informal communication channel structure examples included discussion between farmers and ranchers during breaks at a conference or after a workshop, and social discussion in online communities between producers and seed, feed, fertilizer or chemical company representatives (Redfern & Naughton, 2002). The social aspect of informal communication was crucial to education. Informal communication was an important relationship building channel, which complemented the more formal communication by creating a common context (Pauleen & Yoong, 2001). Redfern & Naughton (2002) noted that the informal communication developed community spirit, which lent to collaborative learning. The construction of communication in these methods, along with the context and channel, allowed the message to be communicated effectively.

Historical Communication

Historical communication channels were examined as more traditional methods of transferring information. In 1889, Farmers Bulletins were a popular format for transferring educational information, and nearly seventy-five years later they remained one of the keys to wide distribution of university research results (Baker, Rasmussen, Wiser & Porter, 1963). This historically important way of transferring information was still used by cooperative extension, making the information bulletins available in printed format or online. State agricultural colleges and universities established through the

Morrill Land-Grant College Act of 1862 have helped farmers and ranchers adapt scientific advances to their own circumstances through their allied experiment stations and extension services (Baker, Rasmussen, Wiser & Porter, 1963). In present day, farmers and ranchers were able to attend field days and glean information on topics of interest from experiment stations and extension service to bring it back to their farm or ranch and implement it into their operation.

In the last twenty-five years, extension services and experiment stations have adapted their ways of communicating. Extension work in 1911 started using college-trained men organized at a district-level that worked closely in conjunction with the state agricultural colleges and experiment stations (Baker, Rasmussen, Wiser & Porter, 1963). Extension agents continued to work through land-grant universities and disperse agricultural information through multiple channels. Extension has adapted throughout the years to meet the changing demands of agriculture. The number of farms in the United States declined from 5.4 million to 1.9 million between 1950 and 1997 (National Institute of Food & Agriculture, 2011). The decline in farms did not result in a decrease in farmland; it was the result of increased production through increased mechanization, use of commercial fertilizers, new hybrid seeds, and other technologies. Cooperative extension served as an important educational provider by extending these emerging technologies to farmers and ranchers nationwide (National Institute of Food & Agriculture, 2011).

Adapting Historical Communication Channels

Cooperative extension adapted in the last twenty-five years to address the wide range of needs at the local, state, and national level. Even though local extension office locations and personnel have declined over the years and some have consolidated into regional extension offices, approximately 2,900 cooperative extension offices remained nationwide (National Institute of Food & Agriculture, 2011). The extension service also developed a web presence to be better able to communicate with producers. Through eXtension, the extension service provided online learning opportunities through a variety of channels organized by communities of experts that offers research-based information on a wide range of topics (National Institute of Food & Agriculture, 2011). Experiment stations, as a facet of the land-grant university system working with cooperative extension, have also adapted as the needs of producers have changed over the last twenty-five years. Baker, Rasmussen, Wiser & Porter (1963) stated "research must be known and applied if it is to achieve its greatest use" (p. 237). The research conducted by experiment stations was communicated by the extension service through online and print publications, but also through more direct communication such as field days held at the respective agricultural experiment stations throughout states.

Telecommunication has changed drastically over the last twenty-five years. Telecommunication channels such as radio and television were still effectively used. In juxtaposition, in the last twenty-five years, the number of households with a home computer increased dramatically, from 15% in 1989 to 77% in 2010 (US Census, 2010). The availability of personal computers, in conjunction with World Wide Web access,

without doubt impacted the range of available communication channels, from electronic mail, instant messaging, discussion forums, blogs, and social networking.

Online Technologies

Online communications technologies were increasingly being used educationally in addition to socially, changing the way people obtained their educational information. Understanding the preferences of communication channels, from historical to emerging technological dissemination mean enabling educational providers to be more effective in reaching their targeted demographic.

Researchers have written of the importance to examine the specific demographic when selecting a channel to communicate educational information, especially when it comes to online technologies. Rhoades, Irani, Telg & Myers (2008) noted research was necessary to determine which online technologies best communicate as an information tool. The production-oriented information required by farmers and ranchers needed to be communicated through the best channel in order to be most effective.

Emerging technologies were an important facet considered in developing effective communication channels. This related to Rogers' (1995) diffusion of innovations theory, which was understood by "diffusion as the process by which an innovation is communicated through certain channels over time among the members of social change" (p. 10). These emerging technologies were perceived as useful and beneficial, but needed to consider effectiveness as a mean of communicating critical information with the target audience. Rhoades, Friedel & Irani (2008) stated that research must be conducted to continue to determine which communication technologies

are “perceived as entertainment tools versus information tools in students’ minds” (p. 37). As adult-learners, beginning farmers and ranchers needed to be asked what communication channels they preferred when developing the transmission of critical information to best serve them.

Countless online technologies were available as communication channels for educational information. Online articles and information, e-mail, webinars, blogs, video sites such as YouTube, social media such as Facebook and Twitter, and discussion boards were few of numerous online technologies available. These and several others were used effectively to communicate educational information to specific target demographics. Niewolny & Lillard (2010) found that the internet opened new possibilities for communicating educational information intended for beginnings farmers. The use of these technologies opened up possibilities and opportunities not available through other channels. Online courses and resources afforded educational opportunities that were accessed anywhere and at the convenience of the learner (Niewolny & Lillard, 2010). The on-demand nature of online technologies made it appealing to farmers and ranchers who do not have the option to gain education from other geographic locations or due to the demand of farm/ranch seasonal work.

Online technologies required input from all stakeholders in the creation and maintenance of these resources. Zimmel & Wilcox (2011) reasoned that this was to develop systems that were "applicable, easily accessible, user friendly and in a format that had a higher probability of being utilized...to increase the likelihood of adoption and

use" (p. 4). These things needed to be considered by educational providers and programmers when working with online technologies for disseminating information.

Existing Delivery Methods

Existing delivery methods and communication channels were used in the present day and over the last twenty-five years because they worked - whether that was for the educational provider or for the recipient. Reddy (2004) noted that the core farm population changed that required a shift of program delivery to other means to reach this demographic. The innovative methods that have emerged and have continued to expand has encouraged educational providers to examine their *tried and true* methods. At the rate of technological change, effective communication channels were quickly outdated and obsolete; others were simply ineffective in reaching the targeted demographic - beginning farmers and ranchers.

While message content was of primary concern, the importance of language and communication was almost as important. Fell (2000) suggested "one aspect of complex communication involved in agricultural extension that was only discussed indirectly was the language used"; if the language was not considered in communication, there could be no assumption the message was understood (p. 503). Cooperative learning through extension service was promoted as a model by which farmers and ranchers were better able to understand the information being communicated, and extension staff in turn learned the farmers and ranchers educational needs. Fell (2000) concluded that electronic mail came across as informal and an individually accountable communication channel. However, the use of electronic mail in delivering some production-oriented information

from extension staff, may not be deemed reliable or an effective way of building a cooperative learning environment with farmers and ranchers. An awareness of communication was essential in allowing cooperative extension to thrive and improve.

Educational providers found different delivery methods that worked best for their respective needs. When trying to reach a target demographic, extension staff were identified as the most respected information source among the targeted demographic. Gamon, Creswell & Harrold (1994) reported that extension staff needed to target their efforts towards agribusiness, as they were a respected source of information and an important partner in the education process. Cooperative extension offered the unbiased, research-based information to assist farmers and ranchers who were also working with various agribusiness entities to gain knowledge and skill about their product. Gamon, Creswell & Harrold (1994) recommended extension staff continue to provide information to agricultural magazines and other print publications, and increase field demonstration days. In light of this information, it was important to examine the delivery methods and communication channels best suited to give farmers and ranchers the production-oriented information that they needed.

Self-Perceived Preferences

The characteristics of the targeted audience must be identified to determine what communication channel to be most in line with the preferences in receiving production-oriented educational information. Bardon, Miller & Hazel (2007) discovered that by connecting farmer characteristics with information delivery preferences, extension educators were more effective in reaching targeted audiences. These self-perceived

preferences among groups of individuals allowed extension staff to increase impact. Examining the self-perceived preferences allowed educators to meet the changing needs of a demographic, and can save time and money by targeting specific individuals and groups (Bardon, Miller & Hazel, 2007).

Specific demographics, even within the agricultural industry, had contrasting self-perceived preferences. Bailey (2013) examined educational programming preferences of young and beginning farmers and ranchers through focus groups at an organizational leadership conference. Participants preferred networking/mentoring opportunities, positive interactive learning environments, and program content that covered a variety of topics (Bailey, 2013). In 2007, Licht and Martin reported on focus groups of corn and soybean producers; participants preferred a variety of communication channels, including mass media like radio for their general information, but preferred interpersonal communication such as consultations for more technical information. While this research was on specific groups, it did examine the importance of identifying farmer characteristics and the changing role of cooperative extension. The corn and soybean producers preference was for using cooperative extension information as a means of verifying and evaluating information provided from other sources (Licht & Martin, 2007). Further, Licht & Martin (2007) concluded the necessity for cooperative extension to continue providing reliable, unbiased, research-based information to agricultural producers.

Education Information Providers

Adelaine and Foster (1989) found that school superintendents, principals and agriculture teachers generally had positive attitudes towards adult education in secondary programs and encouraged the development of such programs Less than favorable or inconsistent attitudes among the different educational providers would have resulted in the termination of adult agricultural education. Whatever the form of communication, whether it be formal or non-formal, important considerations for instructional delivery included the content of the message and the delivery method or communication channel. Bouare & Bowen (1990) recommended extension educators and staff development personnel preparing to design and conduct in-service activities consider the types of content, farmer characteristics, and instructional techniques. Considering all of these aspects - the message, receiver, and channel - allowed educators to more effectively share information. When these multiple aspects of information were not considered, the result was inconsistent in delivering educational content (Bouare & Bowen, 1990).

Receiving Information from Different Sources

Those who engaged in educational information had a plethora of sources in which to choose. Internet usage continued to increase and informational technology use in education was also escalating (Rhoades, Irani, Telg & Myers, 2008). However, this did not mean that the internet equaled the most effective source of educational information. Rhoades, Irani, Telg & Myers (2008) stressed the importance of monitoring attitudes and usage as a means of assessing the audience's ability to effectively use technology, recognize credible sources and select appropriate technology for a particular

circumstance. The attitudes and ability of those that received the information and the creditability of the source needed to be considered when communicating production-oriented information.

Multiple information sources and delivery methods proved most effective in reaching a specific group. Even within a common group of agricultural producers, differences within the group indicated a difference in delivery methods. Radhakrishna, Nelson, Franklin & Kessler (2003) emphasized the importance for extension to examine the current and changing demographic characteristics of the target audience, be willing to adopt efficient technologies, and to not abandon more traditional methods of communicating. The historical methods of communicating served a purpose in agricultural education. Print sources, such as books and magazines, were still found useful by some farmers and ranchers in present day. Conference and workshop formats provided excellent opportunities in continuing production-oriented education for farmers and ranchers (Reetz, 2002). These interactive learning environments allowed for discussion amongst participants and between the educational providers and participants, hands-on learning activities, networking, mentoring, and allowed for farmers and ranchers to get off of the farm and ranch and focus on education.

Beginning Farmers & Ranchers

Demographics

Beginning farmers and ranchers shared certain specific demographic characteristics. In 2009, the USDA Economic Research Service conducted a study

specific to this demographic to better able design policy and programs for this demographic (Ahearn & Newton, 2009). The author found that "while most beginning farmers tended to be White, non-Hispanic, and male, they were more likely than established farmers to be female, non-White, or Hispanic" (p. 4). Beginning farmers and ranchers also differed from established farmers and ranchers on their age. However, it is not to be assumed that *beginning* meant the same as *young*. The study found that "beginning farmers were typically younger than established farmers, yet 32% were 55 years or older in 2007"(Ahearn & Newton, 2009, p. 4). Some aspects of this demographic changed over the last twenty-five years, but others remained the same. Even with the obstacles of high start-up costs, entry into farming did not decline in recent decades, as entry into farming ranged from 8-11% annually between 1978 and 1997 (Ahearn & Newton, 2009). The report used the Census of Agriculture from 1978 to 1997 and examined numbers of new farmers along with survival rates for those entrants to assess changes over the last twenty-five years.

Education Information Needs

It was important to examine the historical needs of beginning farmers and ranchers over the last twenty-five years. Burhoe and Stewart (1983) found that education in the area of farm/ranch business management was perceived to be the most critical area in the years to come. These informational needs were analyzed and assessed more than a decade ago, but were also applicable to the information needs of beginning farmers and ranchers today. American agriculture has always been on the cutting edge of change, and both farmers and educators recognized the importance of keeping up with this change

(Martin, 1987). Understanding the importance of change twenty-five years ago has kept farmers and agricultural education at the forefront of adapting to emerging technologies. Martin (1987) found education as a critical element in agriculture and put a high priority on educational programs on marketing, credit and financial planning, and found that farmers and ranchers rely on magazines, radio, friends, neighbors and other farmers for information.

Perceptions towards Educational Information

Education information needs were perceived by those that received the information, but also by those that provided the information. Extension professional staff gave low ratings to newspaper and radio, while rating internet as the most useful communication channel for beginning farmers (Nelson & Trede, 2004). Understanding these perceived needs had great implications for educational providers to best serve beginning farmers and ranchers.

Beginning farmers and ranchers viewed extension as a major educational provider and preferred emerging technologies and a variety of instructional techniques (Trede & Whitaker, 1998). Not only did the research help identify the preferred educational providers, but also the content of the message that beginning farmers and ranchers needed. Trede and Whitaker (1998) identified "experiential learning, problem solving and critical thinking" as future skills and programs related to business management as being highly rated by beginning farmers through questionnaires (p. 39). These perceptions towards educational information were identified by beginning farmers as current and future needs for beginning farmers.

Beginning farmers and ranchers had different perceptions on their individual need for educational information. These attitudes, both positive and negative, impacted the effectiveness of educators. When these perceptions were considered, the most effective communication channel was combined by the educational provider and educational information to reach this target demographic. Blezek & Post (1989) found that financial management competencies were a great need for farmers and ranchers. Again, allowing the demographic to identify their own needs and preferred communication channels resulted in more effective communication.

Some of the production-oriented information needs and communication channels were important to beginning farmers and ranchers in present as they were twenty-five years ago. In research from 2010, young farmers and ranchers were most concerned about activist groups, increasing government regulations, and profitability (American Farm Bureau Federation, 2010). American Farm Bureau Federation also concluded that the internet was an important tool for young farmers and ranchers to access both general and farm news and to gather purchasing information for their operation. In addition to internet usage, this survey identified usage of Facebook and Twitter; however, it focused on *young* farmers and ranchers, who were not necessarily characterized as the beginning farmer and rancher demographic and did not identify if the usage was for educational information purposes.

CHAPTER 3

IMPLICATIONS

Objective 1: Communication Channels

Communication, including the channels, context, and language, serves a primary purpose in agricultural education. Although this facet may not be in the front of educational providers' minds, communication continues to show its importance throughout agricultural education. The careful selection of the communication channel for the selected demographic can make all the difference in effective diffusion of information. The delivery of educational information can be just as crucial as the content of the message. Educational providers need to carefully consider the message and audience, and then determine the most effective communication channel in achieving effective communication. Changes in communication channel preferences have occurred over the last twenty-five years among numerous groups. Additional research, especially targeting beginning farmers and ranchers, is needed to determine the latest preferences within this group. When considering face-to-face educational programs, conference-formatted events proved as high-quality educational opportunities (Trede & Whitaker, 1998; Bailey, 2013). Online technologies are a vital tool to communicate agricultural education with more than just beginning farmers and ranchers. However, it is important to assess whether the content of the message is best communicated through that channel, or if the channel will compromise the reliability of the content. Historical methods of communication, including magazines, printed material and radio, can be just as effective

as online technologies. Using multiple channels to send the same message will reach the target audience and will allow educational providers to be most effective in their communication.

Educational providers need to examine the structure of communication and consider the structure of formal, non-formal, and informal communication. By considering the structure, and working to implement more than one way of communicating, they can be more effective when engaging their target demographic. More research is needed on communication and incorporating these three forms of communication to be able to put it into educational program practice.

The field of experience is an important consideration for educational providers and beginning farmers and ranchers. Educational providers must find ways to build opportunities to overlap fields of experience to communicate more effectively. The fields of experience can be developed between the demographic and educational provider as well as within the demographic. By demonstrating how experiences are interconnected and can be built upon will allow beginning farmers and ranchers to see the shared field of experience and learn more effectively through the formal, non-formal, and informal communication channels.

Objective 2: Beginning Farmers & Ranchers

Beginning farmers and ranchers are a specific demographic to consider for educational providers. In examining this audience, it is important to first look at the characteristics that make up this group as they come in all ages and farm sizes. This

demographic does not look like the existing farmer and rancher demographic, which causes even a greater need to examine educational content and communication. Beginning farmers and ranchers have multiple educational needs, particularly related to production-oriented information, business management, and current affairs. It is important for educational providers to be conscientious of these needs to best serve them. This could mean working directly with this demographic or indirectly as a partner with the source that the beginning farmer and rancher seeks information. Educational providers catering to this demographic need to consider not only the content, but the channel of their message. Extension service has specific implications, as the historical and current validity of the unbiased, research-based information has been and continues to be a staple source. The extension service currently serves a different role than it did twenty-five years ago. Extension must continue to partner with agribusiness and embrace cooperative learning with farmers and ranchers to be effective in their agricultural education efforts.

Objective 3: Self-Perceived Preferences

Production-oriented educational information is sought after by beginning farmers and ranchers as they adopt and adapt to their livelihood. The critical information that they require is used to develop the vast skill set spanning technology, regulations, and agricultural services to be productive in the changing agriculture industry. Beginning farmers and ranchers have a variety of information needs. A common education need over the last twenty-five years has been for education relating to agriculture business

management (Trede & Whitaker, 1998; Nelson & Trede, 2004). This is a critical skill and competency that beginning farmers and ranchers need from educational providers.

With the older generation of farmers retiring, it is important to preserve their information as an informal educational resource for beginning farmers and ranchers. Developing mentoring or networking opportunities can maintain this important educational resource so as not to lose this informal farmer-to-farmer communication channel based on years of practical knowledge and experience. Educational service providers may be able to facilitate formalized or non-formalized mentor programs in a way that will both inform and supplement their formal or non-formal programming.

Objective 4: Trends & Relationships between Demographics & Preferences

Educational providers need to assess how they can use these needs to best serve this demographic. The implications for educational providers is to utilize needs-assessments to determine and prioritize the critical information needed and wanted by beginning farmers and ranchers. The need for educational information has not changed over the last twenty-five years, however the content of the information has evolved as agriculture has changed in that time period, especially for the beginning farmer and rancher demographic. However, the rapid changes of technology, agricultural practices, and other obstacles facing beginning farmers and ranchers requires continual assessment of current educational information transmission by educational providers. Educational providers need to consider communication and the effectiveness of the channel in delivering the content. The extension service, farm service agencies, commodity groups,

and NGOs must provide unbiased research-based information working directly with beginning farmers and ranchers through a variety of channels, as well as provide information to industry and other agencies. Through collaboration, agencies and organizations can form essential partnerships and educational programs can be developed that provide the depth of information and encompass more topics that are wanted and needed by beginning farmers and ranchers. Cooperative extension must maintain its integrity when partnering with industry and other agencies to maintain credibility while providing reliable educational information. Educational providers need to make information available through a variety of channels - duplicating their efforts in order for producers to get the information when they want it, the way they want it. The format of the educational delivery is dependent on the type and depth of information to best reach the targeted demographic.

The lack of focused research on self-perceived preferences of communication channels by beginning farmers and ranchers points directly to the need for additional research targeting this demographic group. The research conducted on more specific demographics, based on their age, production or organizational involvement, can assist educational providers in better understanding their preferences. With the changes in emerging technologies and changes in agriculture, it is important to regularly re-assess the self-perceived communication channel preferences of beginning farmers and ranchers.

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