Identifying Agriculturists' Online Communication Tool Training Needs

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Abstract

Online communication tools, specifically social media, have provided new ways for agriculturists to promote and advocate for agriculture. Although agricultural producers find value in using social media to communicate about agriculture, many are not comfortable using these tools. The purpose of this study was to identify and prioritize training needs of agriculturists regarding use of various online communication tools. The USDA's Beginning Farmers and Ranchers Development Program provided funding to develop workshops that would help agriculturists learn to use online communication tools effectively. Members of seven agricultural organizations in three states were sent a link to an online questionnaire, and 185 completed responses were analyzed for this study. Across all tasks, the highest means for perceived importance dealt with website tasks while Twitter and blogging tasks had the lowest means for perceived importance. Many of the tasks respondents were most competent completing were the beginning steps and they were least competent completing more complex uses of social media. Using the Borich needs assessment model, respondents indicated a greater need for training on topics related to websites, other online communication tasks, and Facebook. These results were used to develop a daylong online communications training workshop in each of the states.

Key Words

Social media, online communication, needs assessment, farmers, ranchers

Introduction/Literature Review

The advent of online technology provides unprecedented opportunities for those in agriculture to communicate with many different publics in new ways (Irani, 2000). Grassroots environmental organizations have reported being better able to spread information to voters and supporters through Internet channels (Kutner, 2000), while home horticulturists have indicated they use online resources for gardening tips and information (Ellis, Gordon, & Johnson, 2012). Social media sites, in particular, have the ability to serve as a forum for personalized and targeted communications as well as reach large audiences quickly (Anderson-Wilk, 2009). Social media sites are

> [W]eb-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. 1)

Duggan and Smith (2014) found 73% of online adults now use some sort of social media tool and found 42% use multiple sites.

Some of the most popular social media tools currently include Facebook, Twitter, and blogs. Facebook has more than 1 billion monthly active users (Facebook, 2015), including near 870 million mobile users. Twitter has 302 million active users who log in at least once a month (Twitter, 2015). Blogs are websites maintained by a web user where posts may contain commentary, news, photos, videos, or other content (Kaye, 2010). The Nielsen Company (2012) reported there are more than 181 million blogs online, an increase from 36 million blogs identified in 2006. Social media use also accelerated due to smartphones, which facilitate access to social networking sites, without being tied to a wired Internet connection (Smith, 2009). The Pew Research Center (2014) reported 90% of all adult Americans own a cell phone and more than half (64%) own a smartphone.

In agriculture, Lohr (2011) said social media tools are a farming revolution in the same way the advent of radio was able to share market prices and weather information. Both can and have been used to make farming more profitable and depict agriculture in a positive manner. Through social media, farmers have the opportunity to interact, promote, and advocate for agriculture (Lohr, 2011). Agriculturists are able to share a realistic picture of agriculture with the public and create awareness for important issues (Meyers, Irlbeck, Graybill-Leonard, & Doerfert, 2011). Baumgarten (2012) said agribusinesses are using social media in revolutionary ways. Agricultural business owners have reported using Twitter to put a face with the farmer, encourage dialogue between agriculturists and those unfamiliar with agriculture, and connect members of the agricultural industry (Payn-Knoper, 2009). Agricultural commodity organizations are using blogs successfully to reach both traditional and new audiences (Moore, Meyers, Irlbeck, & Burris, 2013). Some agriculturists state social media will serve as "agriculture's newest survival tool" (Wisconsin State Farmer, 2011, para. 4). "With less than two percent of the U.S. population involved in farming, we have to take our stories directly to the consumer" (Lohr, 2011, para. 10).

Many agriculturists are not against participating in social media discussions, but they simply may not understand the benefits of using social media tools to promote or enhance business (Baumgarten, 2012). Although farmers may have access to the Internet through smartphones and other wireless-capable technology, many still are not realizing the full power social media can have on their business or agriculture as a whole (Graber, 2010). Agriculturists should broaden the scope of their social media efforts and begin to focus efforts externally to better communicate the message of agriculture to non-agriculture publics (Telg & Barnes, 2012). Graber (2010) found most agricultural producers see the importance of social media to communicate the message of agriculture, but many were uncomfortable using the technology or felt they did not have the time to contribute.

To help agriculturists more effectively utilize these online communication tools, the researchers organized social media training workshops through a grant from the USDA's Beginning Farmers and Ranchers Development Program. The free, daylong workshops were offered in three different states: Florida, Georgia, and Texas. The researchers targeted areas adjacent to metropolitan areas that had a known concentration of beginning or alternative farmers and ranchers. However, before the workshops were developed, it was necessary to conduct a needs assessment to determine how the importance of various online communication tasks and identify areas that deserved additional training. This article provides the results of that needs assessment.

Theoretical Framework
The theoretical framework for this study is Rogers' (2003) diffusion of innovations theory. According

to Rogers (2003), "diffusion is the process in which an innovation is communicated through certain channels over time among the members of a social system" (p. 5). Innovations are ideas, practices, or objects seen as new by an individual (Rogers, 2003). Rogers identified five attributes of any innovation that help determine adoption rates: relative advantage, compatibility, complexity, trialability, and observability. Relative advantage is the perception of how much more useful an innovation will be in comparison to its predecessor. Compatibility is how much an innovation agrees with current cultural and societal norms of a social system. The complexity of an innovation is the perception of the ease or difficulty required to master the innovation. Trialability refers to the ability of individuals to test-run an innovation before committing to adoption. The final perceived attribute is observability, which references whether the innovation can be observed in use by others in a social system (Rogers, 2003).

Consideration of these five characteristics is vital to explaining adoption patterns of any innovation. Other factors may influence the likelihood of technology adoption: the perceived ease of use (similar to complexity) and perceived usefulness (similar to relative advantage) (Rice, 2009) as well as people's attitudes toward the technology and their degree of innovativeness (Irani, 2000). Self-efficacy can also play a significant role in a users' technology-adoption attitudes (Yi & Venkatesh, 1996). Higher self-efficacy regarding technology use is positively related to the perceived ease of use, which influences an individual's intention to adopt the technology (Venkatesh, 2000). Agarwal, Sambamurthy, and Stair (2000) found a positive relationship between application-specific self-efficacy and ease of use that when users had higher self-efficacy regarding the specific application, they rated the system easier to use.

The diffusion of innovations theory has been cited in numerous studies regarding the adoption of emerging online media. The theory has been applied to identify who uses specific technologies (Peng & Mu, 2011) as well as why some users leave specific platforms in favor of others (Coursaris, Yun, & Sung, 2010). The adoption rate of social media is a topic of particular interest, especially among specific groups including university communicators (Kelleher & Sweetser, 2012), nonprofit organizations (Waters, 2010), online election campaigns (Gulati & Williams, 2011), and agricultural editors and broadcasters (Rhoades & Aue, 2010). These studies support the use of diffusion of innovations as a theoretical framework and demonstrate how the theory can be applied in a variety of settings. Rogers (2003) said a change agent can be used to influence the diffusion of an innovation through a social system. In the current study, diffusions of innovations is used as a theoretical framework to better understand where individuals who are serving as change agents should exert their efforts based on the feedback from those they intend to help.

Purpose & Research Questions

The purpose of this study was to understand the training needs of agriculturists in three states regarding the use of online communication tools. According to the American Association for Agricultural Education's 2011-2015 National Research Agenda (Doerfert, 2011) it is crucial to address the challenges and opportunities changing technologies present. These changing technologies include a wide variety of online communication tools such as social media, websites, and blogs.

To address the study's purpose, it was necessary to conduct a needs assessment, which is the process of identifying an area of need or weakness, then completing primary and secondary research to bridge gaps in areas of deficiency (Altschuld & Kumar, 2010). To develop training for agriculturists on how to utilize online communication tools, it was important to identify areas of need. Altschuld and Kumar (2010) define a need as "a measureable gap between two conditions – 'what is' (the cur-

rent status or state) and 'what should be' (the desired status or state)" (p. 3). The most beneficial pieces of needs assessment can be used to quickly impact short-term needs and those that can quickly be resolved as well as identify high-priority needs that may be more long-term to all those involved (Altschuld & Kumar, 2010). The following research objectives guided this investigation:

1. Determine respondents' perceptions of the importance of and their competence to complete identified online communication tasks.
2. Prioritize the online communication tasks, according to respondents, in need of additional training.

Methods

The design of this study was a quantitative, descriptive survey. Based on a USDA grant received to develop training materials for beginning farmers and ranchers in Florida, Georgia, and Texas, the population of this study included members of seven different organizations across these states that target either beginning or young farmers and ranchers. These organizations were purposively selected because their members represented agriculturists that the training resources were intended to reach.

The instrument, modified from an existing instrument to assess social media use and knowledge in college-aged students (Abrams & Baker, 2012), was distributed using Qualtrics online survey software. The survey consisted of four sections – current use of online communication tools, perceived importance and competence of completing identified online communication tasks, potential barriers and motivations for attending training regarding these online communication tools, and demographic questions. This article provides the results to the perceived importance and competence online communication tasks and demographics sections.

To determine the perceived importance and competence for completing various online communication tools, respondents were presented two to 10 frequently used tasks specific six social or online media tools – Facebook, Twitter, blogs, websites, "other online communication tasks," and "computer-based communications technology." Other online communication tasks dealt with using multiple social media tools and common tasks across tools such as uploading video and photos.

Respondents were asked first to indicate their perceived level of importance for each task in relation to his or her business or organization. For example, respondents were asked to "Please rate how you perceive the LEVELS OF IMPORTANCE for each of the following items." The following items could be: "Steps to create a Facebook page" and "Knowing what to post to Facebook." Each task's importance was indicated on a 5-point scale from 0 (no/none) to 4 (utmost/exceptional). After answering the importance questions for each tool, respondents were asked to rank their perceived level of competence for the same tasks on the same 5-point scale ranging from 0 (no/none) to 4 (utmost/exceptional). For example, respondents were asked to "Please rate your LEVEL OF COMPETENCE in response to the following items." They would then indicate their level of competence to complete the following items: "Steps to create a Facebook page" and "Knowing what to post to Facebook." Means and standard deviations were calculated to describe these responses.

To prioritize the training needs, researchers utilized Borich's (1980) needs assessment model. This approach to needs assessments collects more information than a Delphi study or Q-sort methodologies, which ask respondents to rank the importance of various topics. In the Borich needs assessment model, respondents indicate the importance of various tasks or competencies and indicate their ability to apply that knowledge or their competence related to those items. "Collecting this additional information increases the likelihood of planning inservice education programs which will be

of most importance" (Waters & Haskell, 1988, p. 27). The Borich needs assessment model has been used to identify the professional development needs of beginning agriculture teachers (Edwards & Briers, 1998; Garton & Chung, 1997), Extension professionals (Conklin, Hook, Kelbaugh, & Nieto, 2002), and college of agriculture faculty members (Rocca, 2010).

This model consists of a three-step process to analyze data. First, discrepancy scores were calculated for each individual for each task by subtracting the mean competence value from the mean importance value. This results in a set of "discrepancy scores." Second, a "weighted discrepancy score" was calculated for each individual by multiplying the discrepancy score by the overall mean importance rating for each task. Third, a "mean weighted discrepancy score" (MWDS) was calculated by using the sum of all weighted discrepancy scores and dividing by the number of respondents in the study. Essentially, if the participants rated one task as important, but they did not feel competent, then that task would rank high as an area in which to provide training; however, if the participants rated something as important but they felt competent, then the task would rank low as a training need. The MWDSs then were ranked from high to low to determine which areas warrant or require more training than others.

Before administering the instrument, it was evaluated by a panel of experts representing universities in each of the participating states to establish face and content validity. Survey distribution was conducted during a four-month period between July 2012 and October 2012. The lead research sent emails to organization representatives who then forwarded to the list of current members in their organizations. Potential participants first were sent an introductory email, then an email containing the survey link one week later. Two weeks after receiving the initial email, participants were sent a final reminder email, also containing a link to the survey. Qualtrics survey software stored all responses and then data was transferred into Microsoft Excel and SPSS® Version 20.0 for Windows.

The use of non-probability sampling is a limitation of the study. Due to this, the results cannot be generalized beyond this study's sample. This study is also limited in the inability to calculate a response rate because researchers were not given access to member contact information (or provided with the total number on each email list). However, the instrument did have a 64.7% completion rate; of the 286 respondents who started the questionnaire, 185 provided instruments complete enough to be analyzed for the study.

Results

A slight majority of respondents were males (*n* = 100, 54.1%). The mean age of respondents was 39 years (*SD* = 13.74), but respondents' ages ranged from 18 to 90 years old. The two most frequently selected types of agricultural operations were cattle production (*n* = 78, 42.2%) and grain and oilseed farming (*n* = 76, 41.1%). The least frequently indicated type of agricultural operations were horticulture (*n* = 10, 5.4%) and dairy cattle and milk production (*n* = 8, 4.3%). The majority of respondents (*n* = 112, 66.7%) selected more than one operation type while the remaining 56 respondents (33.3%) identified only one. Seventy-seven respondents (41.6%) said they engaged in some type of direct-to-consumer marketing; a greater number (*n* = 92, 49.7%) indicated they did not. Respondents owned a variety of electronic devices that had Internet access, such as laptops (*n* = 154, 83.2%), smartphones (*n* = 120, 64.9%), desktop computers (*n* = 104, 56.2%), and tablets (*n* = 55, 29.7%). The majority of respondents (*n* = 145, 85.9%) owned more than one of these tools.

Research Objective 1. Determine respondents' perceptions of the importance of and their competence to complete identified online communication tasks.

Facebook

Mean scores for importance and competency of Facebook tasks are displayed in Table 1. The highest importance mean belonged to the task "Understanding the purpose for my Agricultural Business" (M = 2.48, SD = 1.28). The lowest task was "Steps to Create a Facebook Page" (M = 1.92, SD = 1.14). The highest competency mean belonged to the task "Understanding the purpose for my Agricultural Business" (M = 2.34, SD = 1.19). The lowest mean for competency was "Generating Page 'Likes'" (M = 1.65, SD = 1.21). Table 1 also displays the mean weighted discrepancy scores calculated for each Facebook-related task.

Table 1

Respondents' Perceptions of the Importance of Facebook Tasks and Perceived Competence Performing the Tasks

Facebook Tasks	Importance		Competence		
	M	SD	M	SD	MWDS[a]
Engaging people/consumers	2.31	1.32	1.78	1.15	1.11
Awareness of the risk in having a business presence and how to mitigate them	2.25	1.22	1.72	1.19	1.06
Measuring impact or effectiveness for my agricultural business	2.17	1.21	1.67	1.16	0.95
Knowing what I should post to Facebook	2.33	1.28	1.90	1.22	0.85
Using one effectively for my agricultural business	2.15	1.27	1.72	1.19	0.81
Generating Page Likes	2.05	1.25	1.65	1.21	0.72
Creating an effective Facebook Page	2.12	1.23	1.85	1.28	0.49
Understanding the purpose for my Agricultural Business	2.48	1.28	2.34	1.19	0.42
Steps to create a Facebook Page	1.92	1.14	2.04	1.31	-0.22

Note. Attitudes were evaluated on a five-point scale where 0 = *no/none* and 4 = *utmost/exceptional*.
[a]MWDS: Mean Weighted Discrepancy Score.

Twitter

Results for attitudes toward the importance of Twitter for an agricultural business or organization are indicated in Table 2. The highest importance mean response was for "Understanding the purpose for my agricultural business" (M = 1.41, SD = 1.47), while the lowest mean was "Steps to create a Twitter page" (M = 1.04, SD = 1.24). Though below the mid-point on the scale, the highest competency mean was for "Understanding the purpose for my agricultural business" (M = 1.05, SD = 1.25). The lowest competency mean was tied between "Generating followers" (M = 0.74, SD = 1.04) and "Measuring impact or effectiveness for my agricultural business" (M = 0.74, SD = 1.09). Mean weighted discrepancy scores were then calculated for each Twitter-related task (see Table 2).

Table 2

Respondents' Perceptions of the Importance of Twitter Tasks and Perceived Competence Performing the Tasks

Twitter Tasks	Importance		Competence		
	M	*SD*	*M*	*SD*	MWDS[a]
Awareness of the risk in having a Twitter presence and how to mitigate them	1.25	1.38	0.78	1.10	0.49
Knowing what I should post to Twitter	1.24	1.40	0.77	1.08	0.48
Generating followers	1.21	1.37	0.74	1.04	0.48
Engaging people/consumers	1.25	1.40	0.78	1.11	0.47
Measuring impact or effectiveness for my agricultural business	1.19	1.33	0.74	1.09	0.46
Using one effectively for my agricultural business	1.21	1.33	0.77	1.07	0.45
Understanding the purpose for my Agricultural Business	1.41	1.47	1.05	1.25	0.42
Creating an effective Twitter page	1.16	1.34	0.78	1.11	0.38
Steps to create a Twitter page	1.04	1.24	0.84	1.19	0.18

Note. Attitudes were evaluated on a five-point scale where 0 = *no/none* and 4 = *utmost/exceptional*.
[a]MWDS: Mean Weighted Discrepancy Score.

Blogs

Respondents' perceived importance, competency, and mean weighted discrepancy scores of blog-related tasks are provided in Table 3. The blogging task with the highest mean was "Understanding the purpose for my Agricultural Business" (*M* = 2.06, *SD* = 1.35), and was also the only mean above the mid-point of the scale. The task with the lowest importance mean was "Steps to create a blog" (*M* = 1.70, *SD* = 0.93). Although all competency value means fell below the scale's mid-point, the task with the highest competency mean was "Understanding the purpose for my Agricultural Business" (*M* = 1.68, *SD* = 1.28). The lowest blogging task competency mean was "Generating subscribers" (*M* = 1.13, *SD* = 1.12). Mean weighted discrepancy scores were also calculated for each website-related task (see Table 3).

Table 3

Respondents' Perceptions of the Importance of Blogging Tasks and Perceived Competence Performing the Tasks

Blogging Tasks	Importance		Competence		MWDS[a]
	M	*SD*	*M*	*SD*	
Engaging people/consumers	1.79	1.34	1.17	1.11	0.95
Generating subscribers	1.76	1.35	1.13	1.12	0.92
Measuring impact or effectiveness for my agricultural business	1.76	1.31	1.16	1.11	0.88
Using it effectively for my agricultural business	1.82	1.32	1.24	1.20	0.86
Creating an effective blog page	1.78	1.33	1.22	1.19	0.84
Awareness of the risk in having a blog and how to mitigate it	1.76	1.36	1.23	1.20	0.79
Knowing what I should post to the blog	1.82	1.35	1.33	1.19	0.75
Steps to input multimedia into a blog post	1.72	1.29	1.27	1.23	0.64
Steps to create a blog	1.70	1.27	1.24	1.20	0.65
Understanding the purpose for my Agricultural Business	2.06	1.35	1.68	1.28	0.62

Note. Attitudes were evaluated on a five-point scale where 0 = *no/none* and 4 = *utmost/exceptional*.
[a]MWDS: Mean Weighted Discrepancy Score.

Websites

Respondents were asked to identify their perceptions of importance and competency of several website tasks. Results for this set of tasks are displayed in Table 4. The website task with the highest importance mean was "Using a website effectively for my agricultural business" (M = 2.59, SD = 1.32), followed closely by "Creating a website with user-friendly templates and publishing options" (M = 2.57, SD = 1.31). The provided website task with the lowest importance mean was "Publishing or updating your own Web page/site" (M = 0.72, SD = 1.23). The competency means for all website-related tasks fell below the scale's mid-point. The task with the highest mean was "Using a website effectively for my agricultural business" (M = 1.56, SD = 1.22). The task with the lowest mean was "Publishing or updating your own Web page/site" (M = 1.41, SD = 1.21). Mean weighted discrepancy scores were also calculated for each website-related task (see Table 4).

Table 4

Respondents' Perceptions of the Importance of Website Tasks and Perceived Competence Performing the Tasks

Website Tasks	Importance		Competence		MWDS[a]
	M	SD	*M*	*SD*	
Creating a website with user-friendly templates and publishing options	2.57	1.31	1.45	1.19	2.64
Using a website effectively for my agricultural business	2.59	1.32	1.56	1.22	2.42
Measuring impact or effectiveness of website for business	2.48	1.30	1.43	1.19	2.35
Publishing or updating your own Web page/site	2.45	1.32	1.41	1.21	2.35
Understanding how to manage a website efficiently	2.47	1.33	1.45	1.24	2.30

Note. Attitudes were evaluated on a five-point scale where 0 = *no/none* and 4 = *utmost/exceptional*.
[a]MWDS: Mean Weighted Discrepancy Score.

Other Online Communication Tasks

The next section on the instrument asked respondents to rate the perceived importance and competence of a variety of other online communication tasks. As Table 5 displays, the task with the highest importance mean was "Understanding how social media (in general) fits into the business strategy for my agricultural operation" (*M* = 2.31, *SD* = 1.22). The task with the lowest importance mean was "Using a social media management tool" (*M* = 1.54, *SD* = 1.19). The other online communication task with the highest competency mean was "Understanding how social media (in general) fits into the business strategy for my agricultural operation" (*M* = 1.73, *SD* = 1.19). The task with the lowest mean was "Using a social media management tool" (*M* = 1.00, *SD* = 1.12). All reported means for this set of competencies were below the scale's mid-point. Table 5 also provides the mean weighted discrepancy scores for each of these communication tool-related tasks.

Table 5

Respondents' Perceptions of the Importance of Other Online Communication Tool–Related Tasks and Perceived Competence Performing the Tasks

Other Online Communication Tools Tasks	Importance		Competence		
	M	SD	*M*	*SD*	MWDS[a]
Using social media to gather information about audiences/consumers as it relates to your business	2.09	1.25	1.27	1.14	1.56
Understanding how to manage social media effectively	2.12	1.27	1.38	1.19	1.43
Using social media to monitor consumer trends as they relate to my business	2.02	1.22	1.25	1.12	1.42
Understanding how social media (in general) fits into the business strategy for my agricultural operation	2.31	1.22	1.73	1.19	1.30
Understanding how I can utilize multiple people in my operation to help with my social media presence (family members and employees)	2.13	1.27	1.46	1.20	1.29
Using social media measurement tools	1.93	1.23	1.19	1.16	1.24
Uploading videos to the web for the purpose of sharing	2.10	1.22	1.48	1.20	1.16
Uploading photos to the web for the purpose of sharing	2.19	1.23	1.66	1.23	1.00
Using a social media management tool	1.54	1.19	1.00	1.12	0.73

Note. Attitudes were evaluated on a five-point scale where 0 = *no/none* and 4 = *utmost/exceptional*.
[a]MWDS: Mean Weighted Discrepancy Score.

Computer-based Communication Technology

Finally, respondents were asked to indicate perceived importance and competency for two general computer-based communication technology tasks. The higher importance mean for the set was "Using computer-based communication technology" ($M = 3.00$, $SD = 0.90$) compared to "Teaching myself new computer-based communications technology" ($M = 2.83$, $SD = 1.00$). "Using computer-based communication technology" had a competence mean of 2.37 ($SD = 0.94$) compared to the other item's mean of 2.27 ($SD = .98$). The mean weighted discrepancy score for the "Using computer-based communication technology" was 1.69. "Teaching myself new computer-based communications technology" had a mean weighted discrepancy score of 0.00.

Research Objective 2: Prioritize the online communication tasks, according to respondents, in need of additional training.

Using the Borich needs assessment model, mean weighted discrepancy scores were calculated for tasks. Table 6 provides the tasks (ranked in descending order) that had mean weighted discrepancy

scores more than 1.0, indicating more need for additional training. The top five ranked tasks were all website tasks.

In addition to rating the importance and competence of specific online communication tasks, respondents provided their level of interest in learning how to use low cost or free online communications technology to improve your agribusiness. This question was asked on a four-point scale ranging from 0 (*uninterested*) to 3 (*very interested*). The overall mean response for this item was 1.97 (*n* = 169, *SD* = 0.89), indicating that participants were somewhat interested.

Table 6

Online Communication Tool Training Needs of Agriculturists Using the Borich Needs Assessment Model

Rank	Construct	MWDS[a]
1	Website – Creating a website with user-friendly templates and publishing options	2.64
2	Website – Using a website effectively for my agricultural business	2.42
3	Website – Measuring impact or effectiveness of website for business	2.35
4	Website – Publishing or updating your own Web page/site	2.35
5	Website - Understanding how to manage a website efficiently	2.30
6	Computer-Based Communication – Using computer-based communication technology	1.69
7	Other Online Communication Tools – Using social media to gather information about audiences/consumers as it relates to your business	1.56
8	Other Online Communication Tools – Understanding how to manage social media effectively	1.43
9	Other Online Communication Tools – Using social media to monitor consumer trends as they relate to my business	1.42
10	Other Online Communication Tools – Understanding how social media (in general) fits into the business strategy for my agricultural operation	1.30
11	Other Online Communication Tools – Understanding how I can utilize multiple people in my operation to help with my social media presence (family members and employees)	1.29
12	Other Online Communication Tools – Using social media measurement tools (Google Analytics, Facebook Insights, etc.)	1.24
13	Other Online Communication Tools – Uploading videos to the web for the purpose of sharing	1.16
14	Facebook – Engaging people/consumers	1.11
15	Facebook – Awareness of the risk in having a business presence and how to mitigate them	1.06
16	Other Online Communication Tools – Uploading photos to the web for the purpose of sharing (using Facebook, Twitter, Flickr, etc.)	1.00

[a]MWDS: Mean Weighted Discrepancy Score.

Conclusions & Implications

Many people have encouraged agriculturists to adopt emerging online communications tools to promote their businesses (Baumgarten, 2012) and share agriculture's story with a larger audience (Telg

& Barnes, 2012). To develop training opportunities and resources to help agriculturists adopt these online communication tools, it is important to identify what topics require or deserve the most attention. This study used the Borich (1980) needs assessment model to identify these needs in a sample of agriculturists in three states.

The diffusion of innovations theory (Rogers, 2003) provides a robust framework through which to understand how technologies may spread (or not) through a social system (Rice, 2009). Consideration of the innovation characteristics of various technologies helps explain the likelihood of adoption or non-adoption. The respondents' rating of the importance of various communication tasks provides insight into how they viewed different online communication tools and were used in planning online media training workshops for beginning farmers and ranchers. Irani (2000) said a person's attitude toward the technology may influence a technology users' decision to adopt. According to Rogers (2003), an innovation's attribute of relative advantage is how "an innovation is perceived as better than the idea it supersedes" (p. 15). Within each tool, the highest perceived importance mean typically dealt with understanding the purpose of the tool or using it effectively. Across all tasks, the highest means for importance dealt with website tasks. The lowest importance means typically dealt with the "getting started" item of creating an account. This may not have been ranked as high in importance because these are beginning level items and can typically be completed quickly before needing to address more time-intensive items such as engaging the audience and knowing what to post. The importance means for Twitter and blogging tasks were all below the mid-point on the scale. Although Twitter and blogs have been found to be useful in agriculture (Moore et al., 2013; Payn-Knoper, 2009), these items were not very important to respondents in this study.

An individual's perceived competence to complete a task is closely related to self-efficacy, which can influence a technology users' adoption (Venkatesh, 2000; Yi & Venkatesh, 1996). An individual's competence rating provides their perception of the ease or difficulty required to master the technology, which is the innovation characteristic of complexity (Rogers, 2003). In many instances, what was rated as the most important task within each tool was also where respondents were most competent. This may indicate they had already made the effort to learn the tasks they viewed as the most important. Many of the tasks respondents were most competent completing were the beginning steps such as creating a page on Facebook or Twitter. These are introductory level tasks that must be done to begin using a tool so it is logical the respondents would feel competent in these areas. This higher rating of competence for these items may also explain why respondents did not view them as high in importance – they had already moved past this step and were focused on different tasks. Respondents indicated the lowest competence means for more complex uses of social media such as engaging followers and measuring the impact. These tasks require more planning and active experimentation, which respondents may not have had time to complete.

Utilizing Borich's (1980) model for needs assessment, respondents indicated they have a greater need for training for 16 of the 44 online communication tasks included on the instrument. Of these 16 tasks, the top five were related to the use of a website, eight were classified under "other communication tools," two involved use of Facebook, and one was about the general use of computer-based communication. These tools and tasks are what the respondents deemed most desirable to address in future trainings.

Recommendations

This study provided practical recommendations that were implemented in the design of workshops for beginning farmers and ranchers that took into account differences in gender, age, experience

level, and operation type to best serve the diverse audience. Based upon the Borich (1980) needs assessment values, the researchers created the following workshop agenda: Social Media Planning and Engagement (1 hour and 15 minutes); Facebook for Business Marketing (1 hour); Websites and Blogs (1 hour and 15 minutes); Using Twitter to Promote an Agricultural Business (45 minutes); and Measuring Social Media Success (45 minutes). Because many agricultural businesses use a blog as a website and the respondents of the questionnaire placed so much importance on websites, the team dedicated a significant portion of the workshop to the topic. This included creating a blog, aesthetics, content, and other best practices.

Additional training opportunities should focus on tasks related to website creation and management. These tasks were rated as the most important, but respondents' demonstrated a shared need for more training in this area, and thus workshops focusing on these needs will be offered. With this much importance placed upon websites, and after one round of daylong training workshops were offered, the researchers separated website development, management, and assessment into its own workshop offered in addition to a workshop that focused specifically on social media. There was also a need for training regarding more abstract conventions including the purpose of using online communication tools and how to manage them effectively. Less time should be spent training attendees on tools such as Facebook, which many respondents rated themselves as competent using, and Twitter, which respondents indicated was not useful for their businesses. If training in these social media tools is requested, it is best to ask participants to complete some of the basic steps (such as creating accounts) before they attend the workshop so more time can be dedicated to more complex tasks.

Although this study does provide insight into what agriculturists' online communication training needs are, the results cannot be generalized beyond this study's sample. As such, additional inquiries should be made in other states with a randomized sample of agriculturists to allow for generalization. Online communication tools are continually being updated or introduced so additional research needs to be conducted to further explore how individuals and groups in agriculture are adopting these innovations.

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