# Communication Technology Training Beyond the University Campus: A Case Study of Skill Development in the Arkansas Cooperative Extension Service

***Hayley Jernigan, Leslie D. Edgar[1], Jefferson D. Miller and Casandra K. Cox***
***University of Arkansas***
***Fayetteville, AR***

## Abstract

Faculty at a Land Grant university provided communication technology training to Cooperative Extension Service personnel in a face-to-face, five-day workshop covering seven lessons focused on communication technology (Social Media, Video Media, Photography Media, Professional Networking Media, Collection Media, Publishing Media and File Sharing Media). This training was provided to select Extension personnel identified as early adopters in an effort to increase communication-based technology understanding, knowledge and use in the state. Upon completion of each lesson, Extension personnel (N = 23) participated in hands-on learning exercises to contribute to their understanding of concepts and the development of digital media products that would enhance participants' program areas. Participants felt the technology "they actually use," had the "greatest ability to use," and "expected to use most in the future" was the Internet. When asked to self-rate their technology literacy, 70% of participants rated themselves as "intermediate." Participants gained the greatest enjoyment from the Photography Media lesson in the workshop and the least enjoyment from the Professional Networking Media lesson. Only 17% of participants reported high interest in teaching technology to their clients. When asked the likelihood of using communications technology as part of a digital media integration plan, participants rated all but one (Professional Networking Media) of the seven media covered as "very likely" to use. This research showed the value of using university faculty to provide professional development and technical expertise training to Cooperative Extension Service personnel.

## Introduction

Today's Land Grant universities are required to achieve more with less funding, while improving their reach and impact. With a university system mission focused on teaching, research and service, it is important for faculty and state Cooperative Extension Service personnel to forge new alliances and work together to improve dissemination of information from campus to the public. Alliances with university faculty and Extension allow the opportunity for content experts to share their knowledge and skills directly with Extension agents who are charged with extending the research and knowledge base from campus to the public.

"*Having the ability to create, host and facilitate access to educational materials and information over the Internet creates many new opportunities for Extension educators"* (Rich et al., 2011, p.2). *However, the "physical separation that exists in distance education requires that instructors plan, present, interact and perform in ways that are significantly different from traditional face-to-face instruction*" (Irani et al., 2003, p.48). This provides an opportunity for "faculty innovators on the cutting edge of using technology in the classroom," to work with Extension personnel to formulate materials to better reach Extension's diverse client group (Irani et al., 2003, p.48). This collaboration between academic faculty and Extension professionals creates an effective link to disseminate knowledge from the campus to diverse audiences.

This act of service to Extension personnel can positively impact bonds between Extension agents and specialists and university faculty. While many university faculty members work in Extension roles supporting technical content areas, an opportunity exists for professional and technological skill development through relationships between Extension personnel and academic faculty members not in Extension roles; this paper serves as a case study using agricultural communications faculty to train Extension agents in communication technology. While Extension has been providing training, education and professional

[1]Associate Professor, Agricultural Education, Communications and Technology Department; University of Arkansas; Ph: 479-575-6770; Email: ledgar@uark.edu

development opportunities to the general public since its inception, incorporating a "train the trainer" partnership between faculty and Extension personnel, especially those in the field, is a new concept for Arkansas and could further the reach and impact of Extension educational programs to the public, as well as enhance the skill level and expertise of Extension personnel.

"*Achieving the mission of the Cooperative Extension System and maintaining our strength as educational leaders are hinged on our professional competence and technical expertise. Today as never before, professional development will help us achieve the level of excellence we expect from ourselves and ought to have for Extension in order to make a statewide, national and global impact*" (Stone and Coppernoll, 2004, p. 1). The six areas of Extension professional development needs outlined were: (1) Subject matter expertise with technology integration, (2) Organizational effectiveness, (3) Develop and involve others, (4) Communications, (5) Action orientation and (6) Personal effectiveness (Stone and Coppernoll, 2004). However, today's Extension agent must be a technical expert as well as skilled and competent in diverse electronic information development and dissemination (Diem et al., 2011; Telg et al., 2007).

Since the early 19th century, face-to-face transfer of information from the Land Grant institution has been augmented by mediated channels of communication, ranging from print and broadcast media to the Web (Baker et al., 2009). Stevens (1991) noted Extension programming should include conferences, printed material, press releases, radio and county meetings, as well as advanced media such as video to enhanced traditional educational delivery. In a study conducted by Rhoades et al. (2008), the authors call for continued research on this topic in order to enable effective use of the technologies.

Electronic media continues to change and improve at a rapid rate and the social media movement and agriculture-related technologies have gained popularity over the past decade. This requires Extension to determine its needs related to leveraging this media by determining the needs of its clientele. These needs can best be determined by needs assessments (Witkin and Altschuld, 1995).

According to Diem et al. (2011), "*a balanced approach to reaching new audiences and maintaining traditional supporters is key to Extension's future*" (p. 3). A balanced approach should include the following actions: Extension leadership needs to (1) model the use of technology, (2) establish and implement a state Extension technology plan based on Extension leadership directives and a needs analysis, (3) promote and recognize technology use by faculty, staff and volunteers and (4) dedicate resources and support to improve success. The same authors also noted that Extension has been a leader in field-testing new technologies and adopting new practices (Diem et al., 2009). However, Seger (2011) noted that many barriers exist to the successful implementation of technology in Extension, because the organizational structure of Extension does not cater to the short turn-around demands of new technology. In spite of the barriers, LaBelle (2011) explained the "*need to create instructional content for mobile platforms is an obvious step towards reaching new and existing Extension audiences*" (p. 1).

Formal education and training can assist Extension personnel with improving upon their lack of communications knowledge or skills and can provide an opportunity for media integration and programmatic improvement (Boone et al., 2002; Boyle, 1981). This concept can most certainly apply to digital media in the same way it has to traditional print and broadcast media.

The diffusion of innovations can be and usually is, a long, intricate process. Rogers (2003) developed a widely used model for following a new product through the diffusion process. Extensive research has focused on using Rogers's model to study the importance of the technological innovation and delivery and dissemination methods in Extension (Boleman and Dromgoole, 2006; Harder and Linder, 2008; Xu and Kelsey, 2012). Rogers (2003) defined diffusion as "*the process in which an innovation is communicated through certain channels over time among the members of a social system*" (p. 5).

Among the main facets of Rogers's (2003) theory is an important group of people who are key players in launching the adoption of a new technology. Referred to as "early adopters," these individuals are willing to step outside the norm and try something new before it has been proven beneficial. Once early adopters complete the five stages of the innovation-decision process, they are instrumental in spreading the word about the benefits of a new technology throughout a social system. Knowledge of new curriculum can be achieved by developers attending events where early adopters will be as well as conducting meetings with these individuals. In the case of a curriculum unit the social system would be educators of the same content. "*The early adopter is respected by his or her peers and is the embodiment of successful, discrete use of new ideas*" (Rogers, 2003, p. 283).

With a continuous stream of new digital communications media, many Extension personnel struggle to use the technology effectively for educational purposes. This educational need can be met with joint collaborative initiatives between agricultural communications (ACOM) academic faculty and state Cooperative Extension Services. Today's Extension agent must be a technical expert as well as skilled and competent in diverse, electronic information development and dissemination (Diem et al., 2011; Telg et al., 2007). Because ACOM faculty typically have experience in and teach about new digital media, a joint relationship between Extension and ACOM academic faculty can enhance the integration of technology in Extension education. Furthermore, the "*creation of programs that develop the skills and competencies necessary to improve the communications and knowledge sharing effectiveness of all in the agriculture-related workforces of societies*" (Doerfert,

2011, p. 9) was outlined in the American Association for Agricultural Education National Research Agenda as a research need area. In addition, developing and assessing "*various learning interventions and delivery technologies to increase problem-solving, transfer of learning and higher order thinking across all agricultural education contexts*" (Doerfert, 2011, p. 9) was also identified as a key research goal. Research and collaborative efforts by ACOM and Extension personnel are critical to enhance digital media use for information dissemination.

The purpose of this study was to assess participants' knowledge development and skill-level increase in specific electronic communication competencies taught in an educational program for Extension professionals. The following specific research objectives guided the study:

1. Determine the instructional preferences of participating Extension personnel;
2. Determine participants' perceived use, proficiency and future use of selected communication technology; and
3. Determine the overall perceived effectiveness and value of the Extension Digital Media Academy (intensive five-day, face-to-face training) experience.

## Materials and Methods

In the summer of 2012, the University of Arkansas developed curriculum for the Extension Digital Media Academy (EDMA), a five-day, face-to-face intensive training program for Extension personnel. Three ACOM faculty members from the University of Arkansas administered training program, which focused on the following communications technology instructional areas: (1) Social Media, (2) Video Media, (3) Photography Media, (4) Professional Networking Media, (5) Collection Media, (6) Publishing Media and (7) File Sharing Media. The purpose of this program was to improve Extension personnel's digital media competencies. The program sought to enhance electronic communication skills for educational program development and delivery through experiential activities. This study was limited to the number of participants accepted into the EDMA program. Participants (N = 23) were selected by state Cooperative Extension Service staff to participate in the training. The findings of this study cannot be generalized to others beyond EDMA participants. However, inferences and training application to other Extension personnel groups may prove valuable to readers.

Day one of the training consisted of an open meet-and-greet and introductory instruction. This allowed participants to gain an understanding of new media terms and identify new media topics to be integrated into education plans. Extension personnel participated in self-directed media exploration and team collaboration to better understand new media topics and the concept of integrating media into Extension programs.

Day two began with a pre-workshop perception survey administered to determine participant instructional preferences and perceptions of technology. The instrument contained items on a 1 to 4 Likert-type scale designed to determine respondent perceptions. At the completion of the instrument, instructors covered the topics of camera parts and functions, photo composition and photo editing. Participants captured photographs on the University of Arkansas campus and edited them.

Day three involved participants using PowerPoint® presentations, created prior to the training, to create voice-over PowerPoint® videos using TechSmith® Camtasia. The videos were intended to be incorporated into participants' Extension educational programs. Participants were also introduced to photograph shot sheets and storyboards that were used in their teams to create group videos the following day. The photograph shot sheets and storyboards served as planning pages for the teams in the development and execution stages of their videos. Participants were able to plan for video footage and photographs needed for the completion of their group videos.

Day four covered topics that included video camera parts and functions, shooting techniques and video editing. Participants worked in teams to capture footage relevant to a chosen Extension program area and create an instructional video. The videos were rendered and posted to YouTube by each participant group.

On the final day of the intensive training, participants developed digital media integration plans that incorporated the skills acquired from the workshop into each of their respective program areas. Participants shared their plans with the larger group and discussed ways to integrate the skills learned in the workshop. Participants voted on the most successful digital media products created by their peers throughout the workshop. At the end of the EDMA, participants were honored in an award ceremony.

One week after the completion of the intensive training, a post-workshop instrument was administered to Extension personnel who participated in the workshop to gauge the effectiveness of the training, as well as to gain demographic information from participants. Perception questions were adapted from an instrument by Silance and Remmers (1934) to fit the content of this study. The perception section of the survey contained 20 items on a 1 to 4 Likert-type scale designed to determine respondent perceptions about the digital media curriculum. To prevent response set (respondents selecting the same specific response for each question), seven of these 20 items were negatively worded. Negatively worded questions were reverse coded for analysis. Participants were also asked to complete questions regarding the intensive hands-on training experience. The researchers followed Dillman's Tailored Design method (2007) to reduce instrumentation bias in question wording.

A panel of three faculty members (from agricultural communications) examined the instrument and judged it to possess face and content validity. Alpha coefficients, for the researcher developed survey, were assessed

on specific content sections and ranged from 0.62 to 0.79 for the dependent variables guiding this study. According to Nunnally (1967), a modest reliability of 0.60 is sufficient during early stages of research. Data were analyzed using descriptive statistics (means and standard deviations).

## Results and Findings

Among the participants (N = 23) surveyed 33% were male and 67% were female. Of these participants, 86% were Caucasian, 9.5% were African American and 4.8% were Native American, African American and Caucasian. Twenty-four percent of participants had earned a four-year college degree, 43% had earned a master's degree and 33% had earned a doctoral degree.

Participants' total years with Extension ranged from less than one year to more than 10 years. Of the responding participants, 4.8% had been with Extension less than one year, 19% had been with Extension one to three years, 24% had been with Extension four to five years, 24% had been with Extension six to 10 years and 29% had been with Extension for more than 10 years. Five participants identified their program area with Extension as Family and Consumer Science (with one specifying Child Care and one specifying Nutrition), two listed Community and Economic Development, one listed 4-H Youth Development, one listed Agriculture Business/Agriculture Economics (Economist), one listed Agriculture and Water Quality, one listed Animal Science, one listed Aquaculture/Fisheries, one listed Bio Energy, one listed Forestry, one listed Horticulture, one listed Information Technologies, one listed Natural Resources, one listed Nutrition, one listed Support/Not Program and two participants did not answer the question.

### Instructional Preference

When asked their interest in teaching technology to their clients, 17% of participants reported "high interest," 61% reported "medium interest," and 22% reported "low interest." Participants also were asked to rate their instructional preference on a 4-point Likert-type scale ranging from "strong" to "not at all" for each of eight categories of instructional methods (i.e., group instruction, intensive session (boot camp), video, audio recordings, computer-assisted tutorial, printed workbooks/handouts, independent study, demonstration with hands-on learning exercises) under study. Participants' highest instructional preference was for demonstration with hands-on learning exercises, rated "strong" to "intermediate" (M = 1.52, SD = 0.75) (Table 1). The participants' lowest instructional preference was rated as "intermediate" to "somewhat" for an intensive session (boot camp) (M = 2.38, SD = 0.87).

Participants rated themselves as "intermediate" to "advanced" in terms of technology literacy and reported having learned about technology through a variety of methods. Seventy percent of participants rated themselves as "Intermediate – will try most technology but not proficient in some," and 30% of participants rated themselves as "Advanced – knowledgeable and people come to me for assistance." When asked where they learned what they know about technology, 29% of participants indicated they learned from formal courses, personal informational study and valued colleague(s), with one specifying learning from a combination of the three and one specifying learning from peers. In addition, 9.5% of participants reported learning from formal courses, personal informational study, valued colleagues and "other." Of the participants, 33% reported they learned from personal, informational study and 9.5% reported learning from personal, informational study and "other." Finally, 19% of participants reported learning from personal study and valued colleague(s) guidance and input.

**Table 1. Participant Instructional Preference (N = 23)**

| Item | n | M[a] | SD |
|---|---|---|---|
| Group instruction | 21 | 1.86 | .91 |
| Intensive session (boot camp) | 21 | 2.38 | .87 |
| Video | 21 | 2.19 | .87 |
| Audio recordings | 21 | 2.29 | .85 |
| Computer-assisted tutorial | 21 | 1.90 | .63 |
| Printed workbooks/handouts | 20 | 1.90 | .72 |
| Independent study | 21 | 2.00 | .71 |
| Demonstration with hands-on learning exercises | 21 | 1.52 | .75 |

[a]Means are based on a Likert-type scale where 1 = Strong, 2 = Intermediate, 3 = Weak, and 4 = Not at all

### Technology Use

Participants rated their ability to use technology on a 4-point Likert-type scale ranging from "advanced" to "not at all" for each of the fourteen categories (i.e., preparation of instructional materials, data recording and calculation, graphics and drawing, tutorials to explain concepts/methods, drill and practice (experimental), discovery learning/problem solving, word processing, simulations, database searching and research, Internet, CD-ROM for multimedia, distance learning, web resources for learning, web resources for teaching) under study. Table 2 notes participants' reported ability to use the Internet as "advanced" to "mostly advanced" (M = 1.30, SD = 0.47) as compared to participants ability to use graphics and drawing as "mostly advanced" to "somewhat advanced" (M = 2.83, SD = 0.72).

Participants rated their actual use of technology, as well as their expected future use of technology,

**Table 2. Extension Personnel's Ability to Use Technology (N = 23)**

| Item | M[a] | SD |
|---|---|---|
| Preparation of instructional materials | 1.74 | .54 |
| Data recording and calculation | 1.74 | .92 |
| Graphics and drawing | 2.83 | .72 |
| Tutorials to explain concepts/methods | 2.22 | .80 |
| Drill and practice (experimental) | 2.26 | .86 |
| Discovery learning/problem solving | 2.00 | .60 |
| Word processing | 1.35 | .49 |
| Simulations | 2.61 | .84 |
| Database searching and research | 1.61 | .66 |
| Internet | 1.30 | .47 |
| CD-ROM for multimedia | 1.65 | .78 |
| Distance learning | 2.26 | .69 |
| Web sources for learning | 1.83 | .58 |
| Web sources for teaching | 2.13 | .63 |

[a]Means are based on a Likert-type scale where 1 = Advanced, 2 = Intermediate, 3 = Novice, and 4 = Not at all

on a 4-point Likert-type scale ranging from "always" to "never" for each of the fourteen categories under study (i.e., preparation of instructional materials, data recording and calculation, graphics and drawing, tutorials to explain concepts/methods, drill and practice [experimental], discovery learning/problem solving, Word processing, simulations, database searching and research, Internet, CD-ROM for multimedia, distance learning, web resources for learning, web resources for teaching). Table 3 reveals participants' actual use of the Internet was "always" to "mostly" (M = 1.05, SD = 0.22) and actual use of drill and practice (experimental) was "mostly" to "somewhat" (M = 2.84, SD = 0.83). Table 3 also shows participants' expected future use of the Internet as "always" to "sometimes" (M = 1.30, SD = 0.56) and participants' expected future use of simulations as "sometimes" to "rarely" (M = 2.65, SD = 0.65).

Participants rated their personal skills or proficiency level in visual communications on a 4-point Likert-type scale ranging from "advanced" to "not at all" for each of the 11 categories under study. The categories included using a video camcorder(s), editing video using computer software, editing multiple captured videos into a new product, creating a story line (storyboarding), video composition (shooting angles, lighting, etc.), using digital camera(s), photo composition (angles, rule of thirds, framing, etc.), editing photos using computer software, copyright and fair use laws, uploading files to the Internet and identifying useful social/electronic media web resources (Table 4). Participants rated their personal skills or proficiency levels for uploading files to the Internet between "advanced" and "intermediate" (M = 1.48, SD = 0.59) and their personal skills or proficiency levels for editing multiple captured videos into a new product as "intermediate" to "novice" (M = 2.70, SD = 0.82).

## Academy Effectiveness

Participants rated the relevance of EDMA training to their job responsibilities on a 4-point Likert-type scale ranging from "highly relevant" to "not relevant at all" for each of the seven categories (i.e., social media, video media, photography media, professional networking media, collection media, publishing media, file sharing media) under study (Table 5). Participants identified file sharing media as "relevant" (M = 1.70, SD = 0.56) and professional networking media as "relevant" to "somewhat relevant" (M = 2.43, SD = 0.84).

Participants rated their level of enjoyment of training topics on a 4-point Likert-type scale ranging from "very enjoyable" to "not enjoyable at all" for each of the seven categories (i.e., Social Media, Video Media, Photography Media, Professional Networking Media, Collection Media, Publishing Media, File Sharing Media) under study (Table 6). Extension personnel noted that they found photography media "very enjoyable" to "enjoyable" (M = 1.70, SD = 0.88). They also noted that they "enjoyed" to "somewhat enjoyed" professional networking media (M = 2.13, SD = 0.63).

Participants rated the likelihood that they would use each of the seven categories (i.e., Social Media, Video Media, Photography Media, Professional Networking Media, Collection Media, Publishing Media, File Sharing Media) under study as a part of a digital media integration plans in their jobs. This topic was assessed on a 4-point Likert-type scale ranging from "very likely"

**Table 3. Extension Personnel's Current and Future Use of Technology (N = 23)**

| | | Current Use | | Future Use | |
|---|---|---|---|---|---|
| Item | n | M[a] | SD | M[a] | SD |
| Preparation of instructional materials | 21 | 1.29 | .56 | 1.65 | .57 |
| Data recording and calculation | 21 | 1.81 | 1.03 | 1.87 | .69 |
| Graphics and drawing | 21 | 2.24 | 1.09 | 2.48 | .73 |
| Tutorials to explain concepts/methods | 21 | 2.38 | .92 | 2.17 | .65 |
| Drill and practice (experimental) | 19 | 2.84 | .83 | 2.39 | .78 |
| Discovery learning/problem solving | 21 | 2.38 | .97 | 2.17 | .83 |
| Word processing | 21 | 1.24 | .54 | 1.35 | .49 |
| Simulations | 21 | 2.90 | .89 | 2.65 | .65 |
| Database searching and research | 21 | 1.52 | .81 | 1.74 | .75 |
| Internet | 21 | 1.05 | .22 | 1.30 | .56 |
| CD-ROM for multimedia | 21 | 2.33 | .91 | 2.39 | .72 |
| Distance learning | 20 | 2.50 | 1.19 | 2.10 | .79 |
| Web sources for learning | 21 | 1.76 | .83 | 1.70 | .56 |
| Web sources for teaching | 21 | 2.00 | .89 | 1.96 | .56 |

[a]Means are based on a Likert-type scale where 1 = Always, 2 = Frequently, 3 = Rarely, and 4 = Never

**Table 4. Personal Skills or Proficiency Levels in Visual Communications (N = 23)**

| Item | M[a] | SD |
|---|---|---|
| Using a video camcorder(s) | 2.39 | .58 |
| Edit video using computer software | 2.57 | .66 |
| Edit multiple captured videos into a new product | 2.70 | .82 |
| Creating a story line (storyboarding) | 2.26 | .69 |
| Video composition (shooting angles, lighting, etc.) | 2.61 | .58 |
| Using digital camera(s) | 1.83 | .39 |
| Photo composition (angles, rule of thirds, framing, etc.) | 1.96 | .56 |
| Edit photos using computer software | 2.39 | .72 |
| Copyright and fair use laws | 2.52 | .67 |
| Upload files to the Internet | 1.48 | .59 |
| Identifying useful social/electronic media web resources | 2.00 | .85 |

[a]Means are based on a Likert-type scale where 1 = Advanced, 2 = Intermediate, 3 = Novice, and 4 = Not at all

**Table 5. Relevancy of EDMA Training to Participant Job Responsibilities (N = 23)**

| Item | M[a] | SD |
|---|---|---|
| Social Media | 1.96 | 1.02 |
| Video Media | 1.83 | 1.03 |
| Photography Media | 1.87 | .87 |
| Professional Networking Media | 2.43 | .84 |
| Collection Media | 1.96 | .71 |
| Publishing Media | 1.83 | .65 |
| File Sharing Media | 1.70 | .56 |

[a]Means are based on a Likert-type scale where 1 = Highly relevant, 2 = Somewhat Relevant, 3 = Not very relevant, and 4 = Not relevant at all

**Table 6. Participant Level of Enjoyment of EDMA Training Topics (N = 23)**

| Item | M[a] | SD |
|---|---|---|
| Social Media | 1.87 | .87 |
| Video Media | 1.87 | .81 |
| Photography Media | 1.70 | .88 |
| Professional Networking Media | 2.13 | .63 |
| Collection Media | 2.00 | .52 |
| Publishing Media | 1.87 | .46 |
| File Sharing Media | 1.87 | .46 |

[a]Means are based on a Likert-type scale where 1 = Very enjoyable, 2 = Somewhat enjoyable, 3 = Not very enjoyable, and 4 = Not enjoyable at all

**Table 7. Likelihood of Participant Using Media Learned as part of the Extension Digital Media Academy in Their Digital Media Integration Plans (N = 23)**

| Item | M[a] | SD |
|---|---|---|
| Social Media | 1.78 | 1.09 |
| Video Media | 1.78 | 1.00 |
| Photography Media | 1.61 | .78 |
| Professional Networking Media | 2.26 | .96 |
| Collection Media | 1.87 | .92 |
| Publishing Media | 1.70 | .70 |
| File Sharing Media | 1.57 | .59 |

[a]Means are based on a Likert-type scale where 1 = Very likely, 2 = Somewhat likely, 3 = Somewhat unlikely, and 4 = Not at all likely

to "not at all likely" for each of the seven categories. Table 7 reveals participants as being "very likely" to "likely" to use file-sharing media (M = 1.57, SD = 0.59). Extension personnel also noted that they were "likely" to "somewhat likely" to use professional networking media (M = 2.26, SD = 0.96).

## Summary

Extension personnel consistently agreed that their overall instructional preference was demonstration with hands-on learning exercises. Therefore, respondents would be expected to enjoy the instructional style of the Extension Digital Media Academy. It can further be postulated that participants prefer showing constituents the answers to Extension-related questions, rather than having constituents watch a video on the Internet. Only 17% of participants reported "high" interest in teaching technology to their clients and 62% of participants did not list topics they taught or needed to know that should be included in Extension training. Previous research findings noted a high demand of technology integration in Extension that has morphed the role of agents (Diem et al., 2011; Stone and Coppernoll, 2004; Telg et al., 2007), our study does not support this notion as many EDMA participants lacked knowledge and skills in innovative communication technology.

Further, it was found that participants perceived their use of the "Internet" as their highest ability to use, actual use and expected future use of digital media technologies. Despite their low ratings of interest in teaching technology to their clients, 70% of participants rated themselves as "Intermediate - will try most technology but not proficient in some" and 30% of participants rated themselves as "Advanced - knowledgeable and people come to me for assistance." Additionally, 33% of participants indicated they learned what they currently knew about technology from formal courses and informational study. It can be postulated that while participants were not comfortable teaching communications technology to clients, they considered themselves proficient in topics concerning technology and recognized the need for formal courses and informational study to gain knowledge of communication technology integration. Extension personnel must recognize the new opportunities created through having the ability to provide access to educational materials over the Internet (Rich et al., 2011). Furthermore, given personnel proficiency using the Internet, integrating educational materials through this medium could aid in the adaptive functioning of a healthy Extension work environment (de Vries, 2001).

In all three categories of conference effectiveness, Professional Networking Media was rated as the least relevant, least enjoyed and least likely to be used of all Extension Digital Media Academy workshop topics. The study conducted by Stone and Coppernoll (2004) hinged the ability of Extension to achieve its mission and maintain its strength as an educational leader on professional competence and technical expertise. Of the professional development needs outlined, EDMA focused on (4) Communications (Stone and Coppernoll, 2004). Professional development was stated as the key to achieving the level of excellence expected from Extension "today as never before" (p. 1). However, this study showed that the participating Extension personnel did not find value in this type of professional development.

Agricultural communications faculty and practitioners must assist Extension personnel with finding value in these types of activities in order to further the "*creation of programs that develop the skills and competencies necessary to improve communications and knowledge-sharing effectiveness*" (Doerfert, 2011, p.9) of the Cooperative Extension Service in every state. Today's Extension agent must remember the importance of being a technical expert, in addition to recognizing the need for diverse skills and competencies in electronic information development and dissemination (Diem et al., 2011; Telg et al., 2007). It should be noted that participant results may have been affected by a lack of understanding of the professional development uses of this intensive training curriculum in digital media. In future trainings with Extension personnel, the instructional preferences of participants should be considered when identifying new modes of instruction to engage agents in professional development. This will continue to develop the "problem-solving, transfer of learning and higher order thinking" (Doerfert, 2011, p.9) of Extension professionals. Further research should be conducted during similar workshops involving Extension personnel to determine the most appropriate learning environments, such as web conferencing, in-person trainings, etc. and compare instructional preferences and the effect on knowledge and/or perceptions of the communications technology. This could incorporate the "balanced approach" needed to reach new audiences as well as maintain traditional supporters (Diem et al., 2009).

It is unknown whether Extension personnel have continued to develop and refine any of the communications technology skillsets covered during the EDMA workshop and, if so, how the new technologies are being received by Extension constituents. Research results of this study support the continued delivery, use and training of communication technology, gained through programs like EDMA. Increasing training opportunities that participants "enjoy" and add to "lifetime learning" can enhance

the skill base of the workforce (Friedman, 2006, p.170). Further research should be conducted with the clientele of the Extension personnel completing the intensive training. It should be determined whether the integration of communications technology has improved the education and overall experience of Extension clientele. Additionally, another characteristic to be analyzed is whether or not clientele feel more engaged with their respective Extension personnel since the development and implementation of EDMA participants' digital media plan.

In the spring of 2014, Arkansas Extension will be launching its new website. At this time, all county offices will have increased technology usage, because each office will be responsible for its respective webpages. Therefore, additional research should be conducted regarding the actual integration of communication technology skills from the EDMA. Comparisons should be made between the overall knowledge, perceptions and job satisfaction of Extension personnel working on the website who completed EDMA training and personnel who did not. Additionally, with digital media technology being a relatively new topic for Extension training, initial benefits may have been difficult for participants to predict. Research should seek to improve the workshop curriculum and identify areas of technology training weaknesses. To accomplish this, a needs assessment instrument should be disseminated to a random sample of Extension personnel annually to identify future training needs. These identified needs should shape future curriculum content and workshop delivery.

Extension personnel should have access to resources that will allow them to expand their knowledge of communication technology integration. The EDMA participants had the strongest interest in learning through hands-on activities and were the most confident in their use of the Internet. Therefore, resources should be provided via the Internet that allow for hands-on activities that encourage the development of skills in communications technology, specific to use by Extension personnel. Extension agents must continue to learn about changing communication technology and the use of the Internet provides an outlet for all of Extension to disseminate the information necessary to educate agents via a positive medium. Not all agents are early adopters or innovators (Rogers, 2003), but they should be technologically savvy to meet the changing needs of their clientele. There is a growing need for agents to increase and refine their skills in digital media that can only be met through education of the agents themselves. This education can come from postsecondary academia faculty building relationships with the Cooperative Extension Services in their own states and educating Extension personnel on digital media and communication technology. Faculty members in all disciplines have the knowledge and potential resources necessary to provide needed training for Extension personnel, as the "number of faculty innovators on the cutting edge of using technology" has "grown in recent years" (Irani et al., 2003, p.48). Additionally, "many agricultural faculty members are called upon to teach in Extension adult education programs" already (Miller and Kitinoja, 1993, p.33). Postsecondary educators in the agricultural sector can formulate lessons and curriculum incorporating the agricultural aspects of Extension's work. The assessment of conference effectiveness showed that participants enjoyed the curriculum as a whole. Therefore, workshops of this type should be implemented throughout the U.S. and further research on this type of curriculum in training Extension personnel should be completed.

## Literature Cited


Baker, L.M., K.M., Abrams, T.A. Irani and C.A. Meyers. 2009. How well do we relate: Media professionals' awareness and perceptions of a land grant institution. Proc. of the Southern Assoc. of Agr. Scientists, Atlanta, GA.

Bloom, B.S. and D.R. Krathwohl. 1956. Taxonomy of educational objectives: The classification of educational goals, by a committee of college and university examiners. Handbook 1: Cognitive domain. NY: Longmans

Boone, K., T. Meisenbach and M. Tucker. 2000. Agricultural communications: Changes and challenges. Ames: Iowa State Press.

Bowman, C.T. and D.A. Dromgoole. 2006. Distance education: Perceived barriers and opportunities related to Extension program delivery. Jour. of Ext. 44(4). Retrieved from http://www.joe.org/joe/2006october/rb1.php

Boyle, P.G. 1981. Planning better programs. NY: McGraw-Hill Book Company.

Brooks, J.G. and M.G. Brooks. 1999. In search of understanding: The case for constructivist classrooms. Alexandria, VA: Association for Supervision and Curriculum Development.

Brown, J., A. Collins and P. Duguid. 1991. Situated cognition and the culture of learning. In M. Yazdani, R. Lawler, M. Yazdani and R. Lawler (Eds.)., Artificial intelligence and education, 2. Westport, CT US: Ablex Publishing. Retrieved from EBSCOhost (1991-98966-006).

Bruner, J.S. 1961. The act of discovery. Harvard Educational Review 31: 21-32. Retrieved from EBSCOhost (1962-00777-001)

de Vries, M.F.R.K. 2001. Creating authentizotic organizations: Well-functioning individuals in vibrant companies. Human Relations-NEW YORK 54(1), 101-112.

Diem, K.G., J. Hino, D. Martin and T. Meisenbach. 2011. Is extension ready to adopt new technology for delivering programs and reaching new audiences? Jour. of Extension 49(6). Article number 6FEA1. Retrieved from http://www.joe.org

Dillman, D. 2007. Mail and internet surveys: The tailored design method (2nd ed.). Hoboken, NJ: John Wiley and Sons.

Doerfert, D.L. (Ed.). 2011. National research agenda: America Association for Agricultural Education' re-

search priority areas for 2011-2015. Lubbock, TX: Texas Tech University, Department of Agricultural Education and Communications. Retrieved from http://aaaeonline.org/files/research_agenda/AAAE_NRA_(2011-15)_full_report.pdf

Edgar, D.W. 2012. Learning theories and historical events affecting instructional design in education: Recitation literacy towards extraction literacy practices. SAGE Open, 2: 1-9. DOI: 10.1177/2158244012462707

English, F. and R.A. Kaufman. 1975. Needs assessment: A focus for curriculum development. Washington, DC: Association for Supervision and Curriculum Development.

Franz, N.K. and L. Townson. 2008. The nature of complex organizations: The case of Cooperative Extension. In M.T. Braverman, M. Engle, M.E. Arnold and R.A. Rennekamp (Eds.), Program evaluation in a complex organizational system: Lessons from Cooperative Extension. New Directions for Evaluation 120: 5-14.

Friedman, T.L. 2006. The world is flat [updated and expanded]: A brief history of the twenty-first century. Macmillan.

Harder, A. and J.R. Lindner. 2008. County extension agents' perceptions of eXtension. Jour. of Extension 46(3). Retrieved from http://www.joe.org/joe/2008june/a2.php

Hein, G.E. 1991. The museum and the needs of people. CECA. Proc. from the Inter. Committee of Museum Ed. Con., Jerusalem Israel, 15-22. Retrieved from http://www.exploratorium.edu/IFI/resources/constructivistlearning.html

Irani, T., R. Telg and N.T. Place. 2003. University of Florida's distance education faculty training program: A case study. NACTA Jour. Available at: http://www.nactateachers.org/attachments/article/519/Irani_T_et_al_Mar03Journal.pdf

Kolb, D.A. 1984. Experiential learning. Englewood Cliffs, NJ: Prentice-Hall.

Kotrlik, J.W. and D.H. Redmann. 2009. A trend study: Technology adoption in the teaching-learning process by secondary agriscience teachers – 2002 and 2007. Jour. of Agricultural Education 50(2): 62-74. doi: 10.5032/jae.2009.02062

Kotrlik, J.W., D.H. Redmann and B.B. Douglas. 2003. Technology integration by agriscience teachers in the teaching/learning process. Jour. of Agricultural Education 44(3): 78-90. DOI: 0.5032/jae.2003.03078

LaBelle, C. 2011. Place-based learning and mobile technology. Jour. of Extension 49(2). Retrieved from http://www.joe.org/joe/2011december/iw1.php

Lindner, J.R., T.H. Murphy and K.E. Dooley. 2002. Factors affecting faculty perceptions of technologically mediated instruction: Competency, value and educational technology support. NACTA Jour. 46(4).

Miller, L.E. and L. Kitinoja. 1993. Do Extension adult education participants use what they are taught? NACTA Jour. 32(3): 30-33.

Murphrey, T.P., K.A. Miller and T.G. Roberts. 2009. Examining iPod use by Texas agricultural science and technology teachers. Jour. of Agricultural Education 50(4): 98-109. DOI: 10.5032/jae.2009.04098

Nunnally, J. 1967. Psychometric methods. NY: McGraw Hill.

Rasmussen, W.D. 1989. Taking the university to the people: The first seventy-five years. Ames: Iowa State University.

Rich, S.R., S. Komar, B. Schilling, S.T. Tomas, J. Carleo and S.J. Colucci. 2011. Meeting extension programming needs with technology: A case study for agritourism webinars. Jour. of Extension 49(6). Article number 6FEA4. Retrieved from http://www.joe.org

Rhoades, E.B., C. Friedel and T. Irani. 2008. Classroom 2.0: Student's feelings on new technology in the Classroom. NACTA Jour. 52(4): 32-38.

Rhoades, E.B., T. Irani, R. Telg and B. Myers. 2008. Internet as an information source: Attitudes and usage of students enrolled in a College of Agriculture course. Jour. of Agricultural Education 49(2): 108-117.

Roberts, T.G. and J.E. Dyer. 2005. A summary of distance education in university agricultural education departments. Jour. of Agricultural Education 46(2): 70-82.

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

Salant, P. and D.A Dillman. 1994. How to conduct your own survey. NY: Wiley.

Seger, J. 2011. The new digital [St] age: Barriers to the adoption and adaptation new technologies to deliver extension programming and how to address them. Jour. of Extension 49(1). Article 1FEA1. Retrieved from http://www.joe.org/joe/2011february/a1.php4

Silance, E.B. and H.H. Remmers. 1934. An experimental generalized master scale: A scale to measure attitudes toward any school subject. Purdue Univ. Student Higher Education 26(35): 84-88.

Stevens, S.C. 1991. Enhanced media use. Jour. of Extension 29(1). Retrieved from http://www.joe.org/joe/1991spring/iw4.php

Stone, B. and S. Coppernoll. 2004. You, Extension and success: A competency-based professional development system. Jour. of Extension 42(1). Retrieved from http://www.joe.org/joe/2004april/iw1.php

Telg, R., T. Irani, A. Hurst and M. Kistler. 2007. Local marketing and promotional efforts of Florida extension agents. Jour. of Extension 45(2), Article 2FEA5. Retrieved from http://www.joe.org/joe/2007April/a5.shtml

Witkin, B.R. and J.W. Altschuld. 1995. Planning and conducting needs assessments: A practical guide. Thousand Oaks, CA: Sage.

Xu, X. and K.D. Kelsey. 2012. Will eXtension survive? Oklahoma Cooperative Extension Service employees' perceptions of adopter attributes of eXtension. Jour. of Extension 50(6). Retrieved from http://www.joe.org/joe/2012december/rb2.php