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Keywords

Agricultural communications, agricultural communications curriculum, pilot study, curriculum in secondary agricultural education programs, technology

Research

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Introduction

A 2005 USDA-CSREES report projected 13% of graduates with expertise in agriculture, food, or natural resources would be employed in the education, communications, or government service fields. Seven thousand annual job openings will occur in this job cluster (NRC, 2009); however, a shortage of qualified graduates are prepared for these positions. Based on 2007 enrollment data (FAEIS, 2009), 1,323 students majored in agricultural communication / journalism at 27 institutions; of those 1,301 were awarded bachelors' degrees in 2006/2007 (FAEIS). Four institutions reported graduate degrees in agricultural communications/journalism with 52 students enrolled at the master's

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level and 20 at the doctoral level (all doctoral students were enrolled at one institution). Growth of these programs may be constrained due to small faculty numbers and the widespread geographical locations of land-grant institutions. The development of cooperative partnerships and innovative instructional designs may be necessary to meet the growing employment opportunities and enhance the quality, effectiveness, and cost-efficiency of the academic programs (Calico & Edgar, 2014).

The document Understanding Agriculture: New Directions for Education (NRC, 1988) became one of the most cited documents in relevant agricultural education publications until the early 21st century. The Executive Summary of the Reinventing Agricultural Education for the Year 2020 (RAE 2020) initiative, A New Era in Agriculture (National Council, 1999) provided additional information from New Directions about how agriculture, as an industry, should be viewed:

> Agriculture is a field that encompasses the production of agricultural commodities, including food, fiber, wood products, horticultural crops, and other plant and animal products. The terms include the financing, processing, marketing, and distribution of agricultural products; farm production, supply and service industries; health, nutrition and food consumption; the use and conservation of land and water resources; development and maintenance of recreational resources; and related economic, sociological, political, environmental, and cultural characteristics of the food and fiber system. (p. 2)

Agriculture can be promoted through marketing, which uses writing, design, and multimedia strategies (Akers, Vaughn, & Lockaby, 2001). By educating students in these areas and introducing them to possible career fields in agriculture, we can prepare secondary students to assist with agricultural promotion, or at the least, improve their overall perceptions of agriculture.

Today's high school agricultural science educators are required to teach a breadth of disciplines related to agriculture. As a result, high school agriculture teachers have reported a need for specific skill development enabling them to improve teaching, especially in the areas of agricultural leadership, agricultural communications, and agricultural career development (Calico, Edgar, Edgar, Jernigan, & Northfell, 2013; Roberts, Dooley, Harlin, & Murphrey, 2006) and in communications-based technologies (Calico et al., 2013). Moreover, Calico et al. (2013) noted teachers reported 45.2% of students have a high degree of interest in learning new communications-based technologies and 47.9% have a medium degree of interest. All respondents reported students were interested in learning new technologies, specifically those used in communication.

According to the National Research Agenda, a need exists to "systematically identify and develop instructional systems to meet industry needs" (Doerfert, 2011, p. 19) through curriculum development. Therefore, it is critical for university faculty and high school teachers to build collaborative relationships to educate and prepare high school students for a future in, or as a supporter of, agriculture. By capitalizing on curiosity piqued through innovative technology presented to secondary students, high school teachers and university faculty can present knowledge and skill development activities to engage students in more meaningful learning (Torp & Sage, 1998).

Experiential learning combined with authentic learning can create the ideal learning environment for agricultural education (Knobloch, 2003). Agricultural education courses are built on a foundation of constructivism and experiential learning, which opens the door for students to gain understanding and knowledge about agriculture and use new technologies before entering degree programs or the workforce (Newcomb, McCracken, Warmbrod, & Whittington, 2004). According to a study conducted by McKenzie, Morgan, Cochrane, Watson, and Roberts (2002), authentic learning prepares

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students for the job the student will pursue post-graduation. The agricultural communications curriculum created for this study combined all three learning elements to create a learning experience that not only opens doors to college and career opportunities but also prepares the student to be successful in both ventures.

Agriculture continues to diversify and change, aiming to meet the needs of producer and commodity groups. This change and diversification has brought about the need to communicate and promote agriculture more effectively to an audience often uninformed about agriculture and its practices. "As agricultural education enters the twenty-first century, [education and agriculture] must change with emerging trends in society and the agricultural industry" (Talbert, Vaughn, & Croom, 2005, p. 61).

Today, agricultural education provides training for students, including those who will not be involved with farming or entering the agricultural industry (Talbert et al., 2005). With change and agricultural diversification ever-present, agricultural education teachers, specifically those in secondary education, struggle to keep abreast of changes with emerging trends in society and the agricultural industry (Barrick, Ladewig, & Hedges, 1983; Newman & Johnson, 1994). However, agricultural education teachers provide critical links between secondary students and agriculture. Further, it has been posited the teacher is the single most important variable in educational effectiveness (Goodland, 1983).

In 1999, the National FFA Organization, a student organization associated with agricultural education in secondary and post-secondary schools, organized the first career development event (CDE) for agricultural communications. Subsequently, the National FFA Organization gathered resources for agricultural science teachers to use when teaching students about agricultural communications. The national organization's website contains links to numerous resources, including The Guidebook for Agricultural Communications in the Classroom. The guidebook, which outlines basic materials for teaching a course or unit as well as training a team, begins with:

> Agricultural communicators play a vital role in the world of agriculture. Representing agriculturalists across the world, these individuals possess the skills to effectively communicate agricultural messages to publics involved and not involved in agriculture. Because a large percentage of the population lacks agricultural understanding, it's important for agricultural communicators to provide timely, accurate information on current issues and events. (Hartenstein, 2002, p. 1)

Although secondary educators recognize the importance and need to educate students about agriculture, technologies, and promotion of agriculture while improving English and writing skills, these educators usually do not have the time and/or skills to create programs focused on agricultural communications (Calico et al., 2013). This is a concern, especially in light of the fact the average American consumer is more than three generations removed from the family farm (Arkansas Farm Bureau, n.d.) and enhancing agricultural literacy has been an increasing need as stated in Priority Area One of the National Research Agenda (Doerfert, 2011). Instruction in agricultural communications allows high school students to use their English, mathematics, and science knowledge to understand and communicate about complex problems and issues impacting agriculture today (Hartenstein, 2002). Subsequently, secondary students can apply their English and language arts knowledge, competencies, and skills to agricultural communications content that will assist them with the understanding of electronic technologies and their potential to promote agriculture as a

whole. In Arkansas, there is a lack of secondary school curriculum in agricultural communications, which would improve student knowledge and skills in written and oral communications, literacy, and electronic technologies. In fact, only two states nationally have agricultural communications curriculum in high schools (E. Irlbeck, personal communication, January 16, 2012).

Theoretical / Conceptual Framework

The theoretical framework for this study was based on constructivist and experiential approaches to teaching and learning. Learning is an active process where the learner uses sensory input to construct meaning with the content based on previous experiences (Hein, 1991; Mazurkewicz et al., 2012; Newcomb et al., 2004). Kolb (1984) proposed a theory of experiential learning that involved four principal stages: concrete experiences (CE), reflective observation (RO), abstract conceptualization (AC), and active experimentation (AE). These teaching methods allow students to reach application, analysis, synthesis, and evaluation, the higher tiers in Bloom's Taxonomy of learning (Bloom & Krathwohl, 1956). Students are expected to apply skills they are learning (Edgar, 2012) and should be able to move beyond rote memorization to application of knowledge.

According to Knobloch (2003), agricultural teachers should model their instruction after experiential learning aligned with authentic learning standards to create a complete psychological structure for learning. The five standards that collectively create authentic learning included (1) higher-order thinking, (2) depth of knowledge, (3) connection to the world beyond the classroom, (4) substantive conversation, and (5) social support for students' achievement (Newmann & Wehlage, 1993).

As agricultural communications becomes a more prominent area of the industry, it is important for post-secondary institutions to work with secondary agricultural education programs to build student interest in agricultural communications. The agricultural communications curriculum was developed to incorporate the theory of constructivism along with experiential and authentic learning to foster an engaging classroom environment. Through class discussion, group projects, and evaluation, students lead research. Presentation opportunities allow students to learn real-world skills that can create college and career opportunities post high school graduation.

The most recent National Research Agenda identified priority areas important to visual communications curriculum and training in secondary education programs: (a) sufficient scientific and professional workforce that addresses the challenges of the 21st century (Priority Area Three), (b) meaningful, engaged learning in all environments (Priority Area Four), and (c) efficient and effective agricultural education programs (Doerfert, 2011). The need for agricultural communications curriculum is evident and supported by teachers and student in Arkansas (Calico et al., 2013). Quality instructional material made available to instructors will create interest and career opportunities in agricultural communications for students in the future (Doerfert, 2011).

The Visual Communications on the Road in Arkansas: Video and Photo Creative Projects to Promote Agriculture, currently in phase two, focuses on the integration of additional agricultural communications curriculum into state high school programs. This phase was used to expand the initial program to include an 18-week, semester-long agricultural communications course for secondary agricultural science programs.

Instructional modules in (a) careers, (b) writing, (c) design, and (d) multimedia were developed. The careers module expanded content from the agricultural careers instructional unit and focused on agricultural history and careers. The writing module was built on content in the original writing lessons, providing an overview of journalistic writing, introducing students to stylistic concepts, and differentiating between news writing and feature writing styles. The design module expanded

content from the original photography lessons and incorporated graphic design. The multimedia module expanded content from the videography lessons.

Purpose and Research Questions

The purpose of this mixed-methods study was to assess the effectiveness of newly developed agricultural communications curriculum in secondary agricultural education programs through student knowledge gained and teachers' perceptions of the curriculum. The following research questions guided the study:

1. Did knowledge of agricultural communications competencies increase in students who completed the agricultural communications curriculum?
2. What are agricultural teachers' perceptions of agricultural communications curriculum?
3. Were the assessment instruments an effective measure of students' knowledge?

Methods

The population of this study, which was part of a larger study, consisted of students from six high school leadership and communications agriculture classes in Arkansas during the spring 2013 semester (N = 297). Schools were selected from a convenience sample of interested teachers in the state. Prior to beginning this study, teachers gained permission from their administration to teach the content. The research had IRB approval, and parents of student participants were required to sign and return a consent form. Each of the four curriculum modules was piloted individually by one of four high school agricultural science programs. Additionally, the curriculum was taught in its entirety at two high school agriculture programs. Sample sizes for the individual modules were as follows: careers (n = 130), writing (n = 131), design (n = 20), and multimedia (n = 16). Participating teachers received binders containing the complete agricultural communications curriculum and support material as well as electronic copies of all curriculum and materials on a USB flash drive. Teachers also were provided the opportunity for one-on-one training as needed.

Secondary teachers were responsible for teaching their students all curriculum units as assigned by the post-secondary institution. Each unit within the four modules consisted of lesson plans, instructional PowerPoint files, handouts, worksheets, answer keys, grading rubrics, and additional support materials. Supplemental resources were provided to assist the teachers as they taught the Adobe Creative Suite skills-based activities and projects. Resources accompanied each lesson to assist teachers with facilitating the curriculum. Instructors administered a content specific pre-test to the students prior to the beginning of each of the four (writing, design, multimedia, and careers) curriculum modules. Students were given a researcher-created post-test after the completion of each module. The post-tests were structured like the pre-test that accompanied each module.

Prior to beginning each module, teachers administered a module-specific pre-test containing true/false, multiple-choice, and short-answer questions. Students were given a post-test after the completion of each curriculum module. The post-tests were structured like the pre-test that accompanied each module. A panel of faculty members (from agricultural education and communications) examined the instruments and judged them to possess face and content validity.

Preceding statistical analysis, various questions from the pre- and post-test assessments were removed to increase the reliability of the instruments. Initially, the careers module pre- and post-test contained 11 questions and assessed students' knowledge of the history of agricultural communications and opportunities to pursue agricultural communications degrees after high school. One short

answer question was removed from the data and not included in the statistical analysis. The writing module pre- and post-test contained 10 questions and assessed students' knowledge of journalistic writing, AP Style, and editing. When the teachers returned the assessments, researchers found one question repeated and, therefore, was removed from the statistical analysis. The design module pre- and post-test contained 10 questions pertaining to photography, graphic design, and web design. Of those 10 questions, three short-answer questions were removed from the statistical analysis. The multimedia module pre- and post-test contained 10 questions pertaining to videography, digital audio broadcast, and social media. Of those 10 questions, five were removed, including three fill-in-the-blank items.

The alpha coefficients for the pre-test assessments ranged from .30, .26, .15, and .37 for careers, writing, design, and multimedia. (Note: low alpha coefficients on the pre-test assessments may have reflected a reliance on guessing by the students.) The alpha coefficients for the post-tests increased to .45, .55, .67, and .54 respectively. Nunnally (1967) stated a modest reliability of .60 or .50 is sufficient during early stages of research. Additionally, teacher-made tests usually have reliabilities around .50 (Frisbie, 1988). Data were analyzed using descriptive (means and standard deviations) statistics.

In addition to the pre- and post-test assessments, the creative projects designed and produced by the students using the skills they learned were returned to the researcher for analysis. These projects included plant sale fliers and short agricultural videos. The participating secondary agricultural teachers also kept reflective journals about their experiences as they taught the curriculum. Four of the six participating teachers returned journals to the researcher. The researcher performed a content analysis for emergent themes within the journals returned at the end of the study. Following Lincoln and Guba's (1985) constant comparative method, passages were coded in their original context (Creswell, 1998), and key themes emerged that characterized the teachers' perceptions related to their personal and students' experiences with the agricultural communications curriculum. Credibility of the findings was achieved through member checking and the use of the teachers' own reflections (via their reflective journals).

Trustworthiness and dependability were established through purposive sampling, the use of thick description, and the use of an audit trail supporting the key findings. Participating programs were selected based on teachers' ability, confidence, and willingness to teach the concepts covered in the agricultural communications curriculum. Teachers were asked to journal at the conclusion of each day the curriculum was taught. They were asked by the researcher to include a brief description of the lesson, all positive outcomes the students experienced, and all negative aspects of the curriculum completed for that day of instruction. Additionally, the researcher contacted the participating teachers on a bi-weekly basis to monitor the progress of the students and teachers. The phone correspondence was documented and referenced when analyzing the reflective journals returned to the researcher.

Results and Findings

The agricultural communications curriculum was piloted in six schools across Arkansas. These schools varied in size and geographical location. Of the six teachers who participated in the study, three were male and three were female. The programs also displayed different levels of technology availability and support. Students from 9th through 12th grades participated in this study. Four schools piloted one curriculum module each, and two schools attempted to pilot the curriculum in its entirety. Of those two schools, one only completed the careers and writing modules and the other did not provide feedback; therefore, no data was included in this study from that school.

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Overall, the participants' (n = 130) scores significantly increased between the careers pre-test (M = 43.3%, SD = 14.8%) and post-test (M = 59.5%, SD = 15.6%), $t(129) = 10.39$, $p < .0001$. Specific content questions that received the greatest increase in correct answers between pre- and post-test evaluation where career ethics (pre-test: M = 51.5% SD = 50.1%; post-test: M = 82.5%, SD = 38.9%) and college preparation (pre-test: M = 46.9%, SD = 50.1%; post-test: M = 80.8%, SD =39.6%). Table 1 illustrates knowledge changes between the careers pre- and post-test assessments.

Table 1

Student Test Scores from the Careers Module (n = *130*)

	Pre-test (%)		Post-test (%)	
Question	*M*	*SD*	*M*	*SD*
History of agricultural communications	57.7	49.6	76.2	42.8
Dissemination of information	87.7	33.0	93.8	24.1
Career salary	1.5	12.4	20.0	40.2
Career ethics	51.5	50.1	82.5	38.9
College preparation	46.9	50.1	80.8	39.6
Funding college	7.7	87.7	2.3	15.1
Résumé writing	66.9	47.2	84.6	36.2
Non-verbal communication	1.5	12.4	17.7	38.3
Visual communication	75.4	43.2	78.5	41.3
Total	43.3	14.8	59.5	15.6

Note. Questions coded as 0 for incorrect and 1 for correct.

The participants' (n = 131) scores on the writing pre-test (M = 27.7%, SD = 13.8%) significantly increased on their post-test assessment (M = 52.8%, SD = 18.9%), $t(130) = 13.46$, $p < .0001$. Specific content questions that received the greatest increase in correct answers between pre- and post-test evaluation were news writing styles (pre-test: M = 6.1%, SD = 24.0%; post-test: M = 52,7%, SD = 50.1%) and writing – Five Ws and H and Purpose of the Lead (pre-test: M = 64.1%, SD = 48.1%; post-test: M = 96.9%, SD = 17.3% and pre-test: M = 4.6%, SD = 21.0%; post-test: M = 30.5%, SD = 46.2%), respectively. Table 2 illustrates knowledge changes between the writing pre- and post-test assessments.

Table 2
*Student Test Scores from the Writing Module (*n = *131)*

	Pre-test (%)		Post-test (%)	
Question	*M*	*SD*	*M*	*SD*
News writing style	6.1	24.0	52.7	50.1
Feature writing style	67.2	47.1	67.2	47.1
Journalistic writing	0.0	0.0	16.0	36.8
Five W's and H	64.1	48.1	96.9	17.3
Purpose of a lead	4.6	21.0	30.5	46.2
AP Style	40.5	49.3	72.5	44.8
Elements of news	0.0	0.0	3.8	19.2
Boilerplate	19.8	40.0	51.9	50.2
Journalistic ethics	64.9	47.9	84.0	36.8
Total	29.7	13.8	52.8	18.9

Note. Questions coded as 0 for incorrect and 1 for correct.

Overall, the participants (n = 20) scores on the design pre-test (M = 37.9%, SD = 11.6%) significantly increased on their post-test assessment (M = 73.6%, SD = 24.6%), $t(19) = 6.24$, $p < .0001$. Questions pertaining to layout received the greatest increase in correct answers between pre- and post-test evaluation: white space (pre-test: M = 25.0%, SD = 44.4%; post-test: M = 70.0%, SD = 47.0%) and pull quotes (pre-test: M = 0.0%, SD = 0.0%; post-test: M = 50.0%, SD = 51.3%). Table 3 illustrates the knowledge changes between the design pre-and post-test assessments.

Table 3
Student Test Scores from the Design Module (n = 20)

	Pre-test (%)		Post-test (%)	
Question	*M*	*SD*	*M*	*SD*
File formats	95.0	22.4	95.0	22.4
Characteristics of color	85.0	36.6	75.0	44.4
Body text font size	0.0	0.0	60.0	50.3
White space	25.0	44.4	70.0	47.0
Pull quotes	0.0	0.0	50.0	51.3
Pixels	55.0	51.0	70.0	47.0
CMYK vs. RGB	05.0	22.4	95.0	22.4
Total	37.9	11.6	73.6	24.6

Note. Questions coded as 0 for incorrect and 1 for correct.

The participants (n = 16) scores on the multimedia pre-test (M = 52.5%, SD = 20.5%) significantly increased on their post-test assessment (M = 83.8%, SD = 22.2%), $t(15) = 5.42$, $p < .0001$. Specific content questions that received the greatest increase in correct answers between pre- and post-test evaluation where ethics (pre-test: M = 31.3%, SD = 47.9%; post-test: M = 75.0%, SD = 44.7%) and videography (pre-test: M = 0.0%, SD = 0.0%; post-test: M = 92.8%, SD = 25.0%). Table 4 illustrates the knowledge changes between the Multimedia pre- and post-test assessments.

Table 4

Student Test Scores from the Multimedia Module (n = 16)

	Pre-test (%)		Post-test (%)	
Question	*M*	*SD*	*M*	*SD*
Copyright laws	31.3	47.9	75.0	44.7
Tripod use	75.0	44.7	87.5	34.2
File formats	62.5	50.0	87.5	34.2
Three phases of videography	0.0	0.0	92.8	25.0
Social Media effects on agriculture	93.8	25.0	75.0	44.7
Total	52.5	20.5	83.8	22.2

Note. Questions coded as 0 for incorrect and 1 for correct.

Seven emergent themes were common among all six teachers as captured in their reflective journals. Lack of time, limited technology, and curriculum content were the most common themes. Teachers also commented the students enjoyed the projects and activities the most. A summary of the remaining emergent themes with supporting quotes from the participating teachers can be found in Table 5.

Conclusions and Recommendations

Today's employment market requires skill in many technology areas. Based on the findings of the pre-test assessment, student knowledge of agricultural communications and communication based technologies was relatively low and students may not be gaining skills in present areas of emerging technology. This may be because the current agricultural leadership and communication class is primarily leadership with the only communications focus being public speaking (Don Edgar, personal communication, December 19, 2013). Therefore, as a vocationally based program, findings of this study do not agree with Akers (2001) that preparation of students, especially based in current and emerging technologies associated in agricultural communications, is present. Participating in the agricultural communications curriculum modules resulted in the gain of agricultural communications knowledge and skills. This may be attributed to the presentation of the lessons through experiential learning and authentic instruction methods, as recommended by Knobloch (2003), Newmann and Wehlage (1993), and Kolb (1984).

When analyzing the pre- and post-test assessments, the researcher eliminated various questions from each module assessment to increase reliabilities. However, according to Nunnally (1967), the reliabilities reported are sufficient during early stages of research. The researcher can assume the extensive and detailed concepts covered in the modules exceeded the learning capacity of the students in the time allotted for knowledge gain. This was also verified in teacher reflective journals. Because of this, more emphasis should be placed on various content areas in the future to ensure maximum knowledge gain has occurred. Areas that need further emphasis include agricultural communications history, feature writing, web design, digital audio broadcast, and social media. However, it is of equal importance to note value existed in the original curriculum as noted in the knowledge increase in each module: careers (16.2%), writing (23.1%), design (35.7%), and multimedia (31.3%). That being said, all curriculum can be improved to better meet the needs of students and teachers.

Before continuing research regarding this study, researchers should revise the pre- and post-test assessments to eliminate weak questions in an effort to increase reliabilities. The pre- and post-tests

should be administered before and after each unit opposed to each content module. This will reduce knowledge retention lost due to maturation. Furthermore, teachers should be advised to review unit concepts before and after each learning opportunity to reinforce the material taught during each unit.

The creative pieces submitted by the students provided evidence application of design and video production skills had been achieved. As stated in one instructor journal (in reference to the plant sale fliers created during the design module), "The final activity … was a good way to tie all the material together and show the students how [agricultural communications] is used" (T3). In future studies, activities such as this should be included at the end of each unit, rather than the end of each module, to increase discovery learning (Bruner, 1961), experiential learning (Kolb, 1984), and authentic learning (Newmann & Wehlage, 1993) as well as to create the complete psychological structure for learning as outlined by Knobloch (2003).

When the participating secondary teachers' journals were reviewed, several emergent themes were discovered. The curriculum may have been too detailed and covered too much content. Before making the curriculum available to the entire state, it should be revised to include only overarching agricultural communication and communication technology knowledge and skill development so students can simply be introduced to the overarching agricultural communications concepts and spark interest in pursuing similar opportunities after high school. In addition, the content should be reduced and revised to allow students to comprehend the concepts and create quality projects to showcase the skills and knowledge they have learned.

Although teachers had positive comments regarding the projects and activities, lack of technology and software in the classroom posed a problem when executing student assignments. Because it is unlikely that funds can be secured to purchase all secondary agriculture programs the software and technologies needed to adequately teach agricultural communications in the classroom, all curriculum should be revised so that activities utilizing software and technology are optional depending on the level of technology available to students and teachers. Additional activities should be included in each unit to allow students to apply skills and concepts learned without equipment and technology. Perkins activity forms should be created and included in the units to assist secondary teachers in purchasing equipment and software needed to more effectively teach agricultural communications curriculum.

Teachers reported the students were "interested and excited to start the lessons … and learn much better through the [activities] than the notes" (T1). Curriculum revisions should include the addition of more real-world application in the lecture portion of each curriculum unit to spark student interest in the content, which may in turn increase future career and college opportunities within agricultural communications. This could be achieved by including interviews and biographies of individuals currently working in the agricultural communications career field.

Although detailed teacher delivery instructions were included in each module, teachers did not necessarily follow the guidelines or even teach the lessons the way they were developed. When analyzing the teachers' journals, it was evident their own abilities with skill level in agricultural communications and technology were low. If students and teachers are to move toward an active process as touted by Hein (1991), then further education and experience (Kolb, 1984) must be gained to avail these abilities from the teacher to the student.

The participating teachers in this study were willing to teach the agricultural communications curriculum but expressed the need for training in the content areas and technology used in the agricultural communications curriculum. This was supported by Calico et al. (2013) research that found secondary teachers were interested in learning new skills related to agricultural communications. In

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cooperation with the state Department of Career and Technical Education, teacher in-service training should be scheduled to introduce teachers to necessary agricultural communications curriculum, software, and equipment, in addition to increasing their confidence in teaching the content.

Additionally, institutions of agricultural science teacher preparation should evaluate student need for skills in agricultural communications areas and incorporate education for future candidates in teacher education. As reported by numerous researchers (Bigge & Shermis, 1999; Edgar, 2012; Gredler, 2005; and Schunk, 2004), perceptions of students must be taken into account to explain learning. If educators do not use technology, education may not impact students at a level where student learning is maximized. It is further recommended professional development be implemented for participants in the state where this study was conducted. Based on the findings of this study, limited proficiencies in agricultural communications technologies were found.

Furthermore, researchers should investigate the acceptance of technologies by educators in Arkansas to further impact the professional development of teachers. Also, secondary agricultural communications curriculum will be provided in Arkansas and should be shared with other states interested in adding this curriculum into high schools.

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