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Agricultural Communications Skills, Abilities And Knowledge Desired By Employers Compared To Current Curriculum: A Literary Review

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Abstract

The agricultural communications academic discipline has existed for more than 100 years. In that time, approximately 40 academic programs nationwide have formed in some capacity to prepare students for success in the classroom and the workplace after graduation. In the past 25 years, numerous studies relating to the skills, abilities and knowledge employers and industry professionals desire in agricultural communications graduates, as well as the agricultural communications curriculum, have been conducted. The purpose of this research was to review the existing literature from agricultural communications journals, conference proceedings, and theses and dissertations on the topic. This literary review examined 17 articles and found the most popular skills and abilities desired by employers over the years were written communication skills, character skills, visual communications skills, and oral communication skills. The skills found in the curriculum currently being taught were written communication skills, visual communication skills, and oral communication skills.

Keywords: agricultural communications, skills, employers

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Introduction

Collegiate agricultural communications programs have existed in the United States for approximately 100 years (Miller, Large, Rucker, Shoulders, & Buck, 2015). These programs have evolved over the years from a specified option to a specialization, then finally a degree program including minors and graduate degrees (Ahrens & Gibson, 2014). Agricultural communications programs strive to train prepared individuals that are ready to meet the challenges of the profession upon graduation. These programs look to current professionals and employers of recent agricultural communications graduates for guidance on specific skills to include in curriculum.

Miller et al. (2015) identified approximately 40 varied and growing agricultural communications programs nationwide. Agricultural communications is a recognized discipline with substantial research presented each year from many of these programs. Among the roughly 40 programs, 19 offer a major for agricultural communications; eight offer a minor; and seven offer a concentration, specialization, emphasis, or option for agricultural communications. Enrollment numbers from the Miller et al. (2015) study and the year each program was founded also provide insight into the makeup of the agricultural communications programs. These numbers are all

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reflected in Table 1. This figure also shows the development and basic structure of the various programs (Miller et al., 2015).

As the number of agricultural communications programs and students have grown, so has the scholarly base of the discipline. At the time this manuscript was written, the *Journal of Applied Communications* (JAC) was in its 102nd volume and the *Journal of Agricultural Education* (JAE) was in its 59th volume. In that time, the agricultural communications topics, theoretical base, and methodology published in the journals has expanded, increased in rigor, and addressed issues important to industry. Edgar, Rutherford, and Briers (2009) found a variety of agricultural communications research themes, but most commonly scholars published on the topics of information sources and technology, communications management, biotechnology communications, media relations, audience response and analysis, and electronic media. Researchers also investigated scholarship of teaching and learning topics, such as distance education, critical thinking, professional development, styles of learning, and curriculum development.

In the curriculum and program development research category, agricultural communications researchers have conducted various studies as to the skills employers desire from agricultural communications graduates and new employees. There has also been research on the content colleges and universities with agricultural communications programs teach in their respective degree plans (Cannon, Specht, & Buck, 2014).

Table 1

Historic Recollection and Current Enrollment and Make Up of Agricultural Communications Programs (Miller et al., 2015).

Institution	Major	Minor	Concentration	Year Founded	# of Students
Auburn University	X			-----	37
California Polytechnic State University	X	X	X	-----	130
Clemson University			X	1999	8
Connors State University	X			2006	10
Kansas State University	X			1946	68
Mississippi State University	X			1995	60
New Mexico State University			X	1995	30
North Dakota State University	X	X		2009	40
Ohio State University	X	X		1980	83
Oklahoma State University	X			----	150
Pennsylvania State University		X		----	8
Purdue University	X			1971	44
South Dakota State University	X			----	20
Southern Illinois University			X	2007	7

Table 1 (continued)

Historic Recollection and Current Enrollment and Make Up of Agricultural Communications Programs (Miller et al., 2015).

Institution	Major	Minor	Concentration	Year Founded	# of Students
Texas A&M University	X			1918	360
Texas Tech University	X	X		1992	160
University of Arkansas		X	X	1998	41
University of Florida	X	X		2004	75
University of Georgia	X			2000	40
University of Idaho			X	2000	50
University of Illinois at Urbana-Champaign	X			1961	40
University of Kentucky			X	----	--
University of Nebraska-Lincoln	X			----	25
University of Wisconsin-Madison	X			2006	--
Utah State University	X			2006	20
West Texas A&M University	X			2008	60

Note; Cornell University, Fresno State University, Iowa State University, Louisiana State University, Michigan State University, Northwest College (Wyoming), Tarleton University, University of Minnesota, University of Missouri, University of Wisconsin-River Falls, and University of Wyoming were all identified as programs through institutional websitesor personal verification, but no other data about the program was reported.

The goal of this study was to synthesize the information into one document for colleges and universities to utilize in preparing or revising curriculum and degree paths in the future. With this broad understanding of needs of graduates, the specific skills desired of the industry were examined through a review of existing literature to form a comprehensive skill set desired for an agricultural communications graduate. The purpose of this study was to identify and understand the skills, abilities, and knowledge agricultural communications students need to obtain during college training to prepare for work in the agricultural communications industry. Based on the current literature, as well as the current curriculum being taught to agricultural communications students, the identification and understanding of these skills can give directions to the existing programs for the future. The study was guided by three objectives:

1. Examine the literature for skills, abilities, and knowledge desired from agricultural communications graduates by various entities.
2. Examine the literature for skills, abilities, and knowledge already being taught in various collegiate agricultural communications programs.
3. Determine common categories and themes within the data, then compare the findings of Research Objectives One and Two.

The National Research Agenda –Research Priority 4: Meaningful, Engaged Learning in All Enviornments states that there is "a lack of coordination in terms of curriculum development" (Roberts, Harder, & Brashears, 2016, p. 38). This research meets the challenge the agenda posed to researchers to look at effective models for delivery of programs to meet the needs and interests of an ever-changing student body.

Conceptual Framework

Since the authors of this study aimed to consolidate information into a usable format for agricultural communications program administrators nationwide, a vocational and technical education curriculum model was used (Finch & Crunkilton, 1999) (see Figure 1). Other agricultural communications curriculum studies have used this model that encompasses students, curriculum, and graduates (Cannon et al., 2014; Morgan, 2012; Morgan & Rucker, 2013; Watson & Robertson, 2011). The model provides a system-based framework that looks at the students (input); the academic program, which encompasses faculty, resources, and curriculum (process); and the graduates of the program (output). The program is impacted by the university, community, industry, government, and other factors, also known as the environment. Feedback is collected throughout the process to help make improvements (Finch & Cunkilton, 1999).

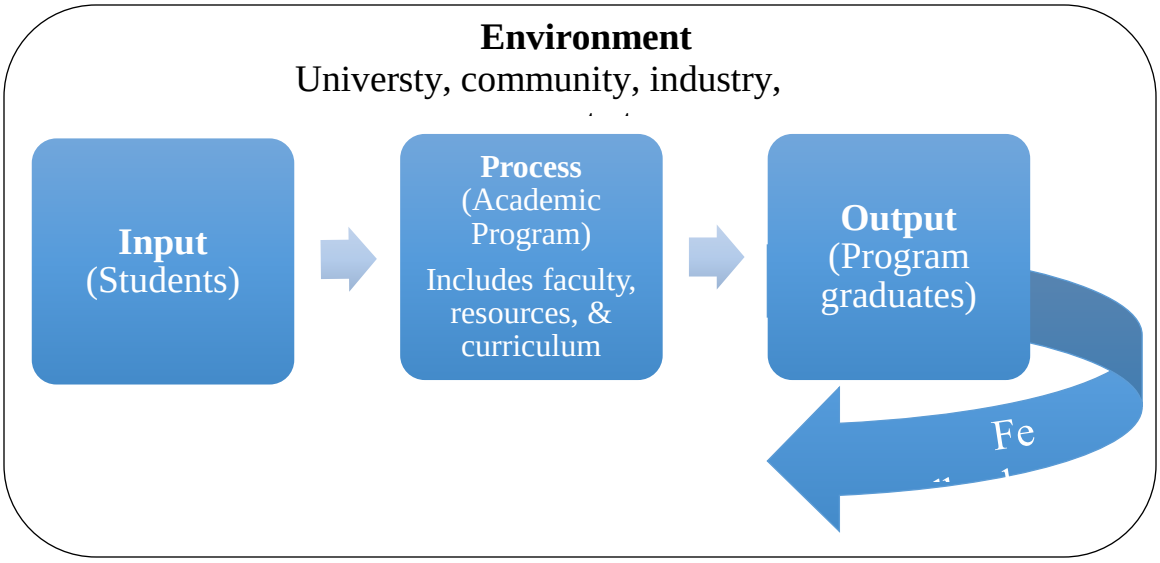

Figure 1. Program System Model, adapted from Finch and Cunkilton (1999).

The model puts the academic program at the core, with faculty driving the curriculum. Students provide guidance for the program, and the output, or graduates, also provide feedback through exit interviews or surveys. External factors could have major influences on the academic program, such as price of tuition (university), support of the program (community), changes in communications styles (industry), or new regulations (government) (Morgan & Rucker, 2013). Although the academic program is the center of the model, students should be the major player in the development of the curriculum (Finch & Crunkilton, 1999). In searching for the articles to be analyzed for this study, the researchers sought to find literature that pertained to environment, input, process, and/or output.

Methodology

The researchers concucted a synthesis of literature to accomplish the research objectives. several data sources were utilized. The researchers analyzed articles published in JAC, JAE, papers presented at the American Association for Agricultural Education's (AAAE) national and regional research conferences; and other research from various conferences where agricultural communications studies are typically presented. These sources were selected because they are the commonly accepted outlets for publication of agricultural communications research. The Association for Communications Excellence conference was not included in the data set as its proceedings are not available online. An additional data source was theses and dissertations published through universities with agricultural communications programs. The four universities examined were Texas Tech University (TTU), Oklahoma State University (OSU), University of Florida (UF), and Texas A&M University (TAMU). These four universities were chosen because they were rated as the top four universities that offer a master's degree in agricultural communications (Miller et al., 2015).

Researchers looked for manuscripts starting in 1991, the year the World Wide Web became publicly available. As more people gained Internet access, agricultural communicators began using the Web for information gathering and dissemintation.

Manusripts were gathered from JAC online; JAE online; Southern Association of Agricultural Scientists (SAAS) and AAAE proceedings online; the TTU Electronic Theses and Dissertations library; the online OSU Thesis and Dissertation Archive; the TAMU Theses and

Dissertations electronic database; and the UF online catalog. Researchers conducted searches with the keywords "agricultural communications skills," "agriculture," "communication," "abilities," and "competencies" in the 1991 to present. This led to six theses or dissertations from TTU, five from OSU, two from TAMU, and one from UF. Two articles from JAC, one from JAE, one from the annual meeting of the AAAE, and one from SAAS met the keyword search requirements. Articles, research papers, theses and dissertations were reviewed for relevance to the purpose and objectives.

After manuscripts were located and added to the data set, they were examined using open and axial coding. The initial coding proess allowed the researchers to organize the data into concepts and themes, making meaning from the abundance of information the manuscripts provided. After the first phase of coding, the researchers were clearly able to sort themes by skills desired by employers and skills taught at the university level. Axial coding was used to further sort the data into the sub-categories listed below. Additionally, many of the desired skills were repeated so often that a clear order of importance emerged, and researchers were able to rank the skills in a desired order.

Trustworthiness

Trustworthiness was established through credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985). Through the triangulation of the manuscripts, credibility was established. Many of the manuscripts reported very similar information; therefore, the researchers had various repetitive sources. Rich descriptions of the findings helped accomplish transferability, while dependability and confirmability were achieved with a detailed audit trail of the manuscripts, researchers' reflexive notes, and coding records. Finally, the researchers were an agricultural communications graduate student and an agricultural communications faculty member. Both researchers have worked in the industry, and have taught or assisted with collegiate-level courses. The researchers had shared and individual opinions about the skills that an agricultural communications graduate should possess as well as the skills that programs should be teaching. The researchers discussed their biases before data collection began, and agreed to set those pre-conceived ideas aside for the study.

Findings

Research Objective One

Literature were examined for desired skills from agricultural communications graduates by the industry. Cartmell (1993) determined the following as the most sought after skills according to industry professionals: writing, followed by public relations, graphic design and layout, broadcasting, advertising, photography, and internship experiences. Other general education items were speech, English, journalism, agriculture, leadership, and computer knowledge. Bailey-Evans (1994) found the same skills desired by then-current members of the agricultural communications industry: writing, editing, public relations, public speaking, personnel management, marketing, and photography. Each skill area was defined further by specific sub- sets within the area (see Table 2).

Terry, Vaughn, Vernon, Lockaby, Bailey-Evans, and Rehrman (1994) determined the following concepts should be included in agricultural communications curriculum: policies and laws, public relations, writing and grammar, general agriculture, ethics, problem solving, and critical thinking. Akers (2000) found the skills of importance as ranked by faculty, industry

professionals, and high school teachers to be video; web design; radio; policies and law; business analysis and statistics; public relations; audience analysis; general agriculture; and networking.

McGaha (2000) wanted to discover the rankings of employability skills of agricultural communications graduates. Effectively using verbal communication skills was ranked number one, followed by using effective written communication skills, planning and completing projects, analyzing information for problem solving, teamwork, and leadership skills. Ciuffetelli (2002) sought to determine skills for agricultural communications graduates before entering the workforce. Those skills were identified as using proper grammar, spelling, and punctuation; emphasizing demographics and culture; ability to create and design a website; marketing; ability to be knowledgeable of current agricultural issues; being able to report things correctly and meeting deadlines; and being fluent in computer technology such as Microsoft Office and the Adobe Creative Suite (Cieffetelli, 2002).

Simon (2003) found the following skills necessary for an agricultural communications graduate with a master's degree, according to both university faculty and industry professionals: elements of design; thesis project; media, crisis, and information management; marketing; communications law; strategic communications planning; public relations; writing; and mass communications. Other skills that were mentioned were graphic design, emerging technology, publications, research, video/broadcast, advertising, internships, photography, case studies, technical writing, media relations, media analysis, editing, social marketing, reporting, and communications theory.

Table 2

Skill Sets Based on Industry Professional Use Daily (Bailey-Evans, 1994).

Skill area	Skill set
Advertising	1. Budgeting
	2. Media planning
	3. Typography
	4. Campaign planning
	5. Creative strategies
	6. Graphic design
Journalism	1. Editing, grammar
	2. News writing, creative writing, technical writing
	3. Reporting
	4. Ethics in journalism
	5. Dissemination systems
	6. Design and layout of publicaions
Photography	1. Composition
	2. Printing
	3. Camera functions
	4. Ethics in photography
Public Relations	1. Campaign planning
	2. Personnel management
	3. Problem solving
	4. Government policy, political analysis, legislation
Public Speaking	1. Speech writing
	2. Oral communications
	3. Nonverbal communications
Telecommunications	1. Script writing
	2. Broadcasting
	3. Television production
	4. Video production
	5. Radio production
Internship Experience	1. Application of agricultural communications concepts
	2. Development of personal/interpersonal skills
	3. Problem solving
	4. Employee responsibilities
International Relations	1. Trade relations
	2. Cultural differences
	3. Communication systems
	4. Political constraints
	5. Economics

Deering (2004) surveyed farm broadcasters for proficiencies used in the industry daily as well as proficiencies that should be required in curriculum. Those proficiencies were marketing theories; identifying the impact of government and legislative policy on agriculture; economic impact analysis of the agricultural industry; biotechnology and the food systems; current government programs that support agricultural business; analyze public perception; U.S.

agricultural policy in foreign markets; and defining and understanding the types of agribusiness marketing (Deering, 2004). More of the skills that industry professionals use on a daily basis were interviewing; effective speaking; using voice; using a variety of inflections, tone and volume; describing the influence of agriculture to the public and the role of agriculture internationally; responsibility and credibility; time management; utilizing the Internet and email correspondence; conflict resolution; information gathering and citing those sources; and common sense.

Competencies needed by graduates and the frequency of use in agricultural communications were evaluated in a series of ranking systems (Maiga, 2005). The highest ranked skills were applying writing skills in the real world; editing the work of others; accurately proofreading a document; and using correct grammar, spelling, and punctuation. Other skills mentioned were using correct editing marks; determining the proper channel for an article; and writing for the Internet (Maiga, 2005).

These skills remained throughout the literature focused on identifying factors influencing the way agricultural journalists and agricultural communicators do their jobs (Chenault, 2009). Those factors that were the most important based on the opinions of industry professionals were personal attributes and ag journalism skills. Personal attributes desired were caring, having empathy, and being able to learn new information. The ag journalist skills were writing, reporting, research, production, photography, and using new technology.

Based on employers' experiences, agricultural communications professionals found that recent graduates were trustworthy, easy to work with, and reliable. However, they needed improvement in the areas of creativity, common sense, and organization (Irlbeck & Akers, 2009). Communications-specific skills that were rated highest included photo editing, page layout, and public relations, yet sales, Web design, and news writing were the lowest-rated skills for recent graduates (Irlbeck & Akers, 2009).

Three main categories of soft skills were identified as important agricultural communications skills for graduates: networking, relationship, and team building skills; communication and social skills; and leadership skills (Strickland, 2011). Within those categories, various skills were identified. In networking, relationship, and team building, common skills were collaboration with other groups; developing personal and professional networks; human relations skills; negotiation skills; teamwork; and understanding different personality skills. Desired communication and social skills were verbal and non-verbal communication skills; listening skills; ability to run a meeting; developing better public speaking skills; understanding proper etiquette; and learning how to initiate conversations. Within the leadership skills category, critical and strategic thinking; understanding different cultures; self-awareness; leadership; and developing a sense of accountability were identified (Strickland, 2011).

Morgan (2010) also set out to rank skills for agricultural communications graduates based on three different core areas. The first core area was soft skills with ethics as the most important skill in that area. Following ethics was ability to meet deadlines, dependability, strong work ethic, reliable, organization, professional etiquette, multi-tasking, and time management. The second core area was communication where the highest-ranking skills were the ability to effectively communicate verbally, communications principles, and the ability to recognize communication barriers. The third core area was general education with the skills of correct use of grammar, spelling and punctuation; effective written communication; motivation; strong work ethic; willing to accomplish tasks and projects; self-starter; working knowledge of computers; web skills; Microsoft Office; and Adobe Creative Suites being the most important (Morgan, 2011).

Competencies for agricultural communications graduates were identified by the employers that hire those students (Clem, 2013). The competencies were classified into seven different categories of writing and grammar, communication skills, agriculture, technology, personal skills, specific skills, and business. Writing and grammar focused on the importance of grammar, spelling, and punctuation; peer editing; and the use of AP style. Communication skills were geared toward audience perception and properly communicating to the audience. Agriculture leaned toward understanding general agriculture and the issues within the industry as well as seeing agriculture from a broader perspective. The Adobe Creative Suite and Microsoft Office programs were the main focus within the competencies for technology. Personal skills referred to "soft" or "people" skills not typically taught in classroom. Finally, business skills focused on project planning and management, teamwork, and business principles.

The highest competencies ranked over time were trustworthiness; compose well thought-out written pieces; ability to distill a lot of information into simple, easily understood communications messages; effective written communication for formal communications; clearly articulate writing; strong interpersonal skills; and reliable. These competencies lie in the personal, writing, and communication categories (Clem, 2013).

Clem (2013) also sought to determine the competencies university faculty members ranked most important based on the competencies identified by industry professionals. The top ranking competencies were understanding multiple writing styles; individual is a lifelong learner that seeks to remain on the cutting edge of the profession; committed to a project; trustworthy; reliable; always be respectful; and create and maintain relationships.

Chesher (2014) looked to examine the regularly occurring responsibilities of current agricultural communications industry professionals. Responsibilities included the use of social media, public relations, marketing, management, online content/website development, editing, photography, advertising, writing, graphic design, and video production. Professionals also ranked client relationships, critical thinking, agricultural issues, and strategic planning as important skills for a graduate to have when entering the work force based on current industry responsibilities (Chesher, 2014).

Research Objective Two

Literature were examined for skills, abilities and knowledge already being taught at various collegiate agricultural communications programs. Cartmell (1993) examined skills already being taught to students in college and included writing, graphic design and layout, public relations, speech, and English. McGaha (2000) found the highest ranking skill being taught in agricultural communications programs was using effective written communication followed by using effective verbal communication, teamwork, project management, and accessing and utilizing a variety of information sources.

DuBois (2009) focused on skills being taught in college programs. The most prevalent skills in order of importance were (1) public relations, (2) journalism and mass communications, (3) journalism, (4) communication, (5) marketing, (6) English, (7) agricultural communications and journalism, (8) advertising. Chenault (2009) also discovered skills currently being taught in programs: print journalism, English, liberal arts, and public relations.

Watson and Robertson (2011) examined skills in agricultural communications program curriculum. These skills were writing with proper grammar, spelling, and punctuation; describing agriculture to the public; conflict resolution; teamwork; fixing barriers of communication; working

under pressure; understanding design and layout; developing an effective campaign; and reporting a topic from multiple points of view.

Miller et al. (2015) sought to evaluate the current agricultural communications programs around the nation to determine which courses were currently being taught as well as concepts that could be taught the future. Course subjects taught at that time included public relations; campaigns or crisis communications; reporting or feature writing; websites or social media; general agricultural communications; and capstone or seminar. Participants of that study predicted they would add courses in the next five years in the following subjects: capstone, social media in agriculture, an introductory course, global agricultural communications and development, photography, publication and design, and risk and crisis communication.

Cannon, Specht, and Buck (2014) analyzed course descriptions from 35 agricultural communications programs and found that writing based courses were the most popular offerings nationwide. Introductory agricultural communications courses, internship, writing for publications, and graphic design courses were also commonly offered. Research, study abroad, and international courses were the least offered at that time.

Research Objective Three

Through all of the research conducted, common themes regarding the skills employers desired from graduates emerged. The researchers classified these skills in five broad categories with more specific skills in those categories. These broad categories were created by the repeating skills and traits within the category across all literature, not every skill mentioned. For example, writing, journalism, and grammar, were all skills present in the data but could all be combined into written communication. Over time, writing, as a broad category, has remained the top skill employers expect a recent agricultural communications graduate to possess. Character skills have also remained a predominantly desired skill, followed by visual and technical skills and oral communications skills.

The same method of classification was applied to the common themes of skills being taught in undergraduate programs. The skills align for the written communication, visual and technical skills, and oral communication skills categories. Employers desire soft skills in graduates such as time management, dependability, responsibility, ethics, and trustworthiness, which were classified in the character skills category. Figures 1, 2, 3, and 4 show the skills that aligned between the skills desired by employers and the skills taught by undergraduate programs, as well as the skills that did not align. Although courses specifically labeled as soft skills may not exist, many faculty members would argue these skills are incorporated into various courses through lessons on professionalism, team projects, critical thinking, and service learning.

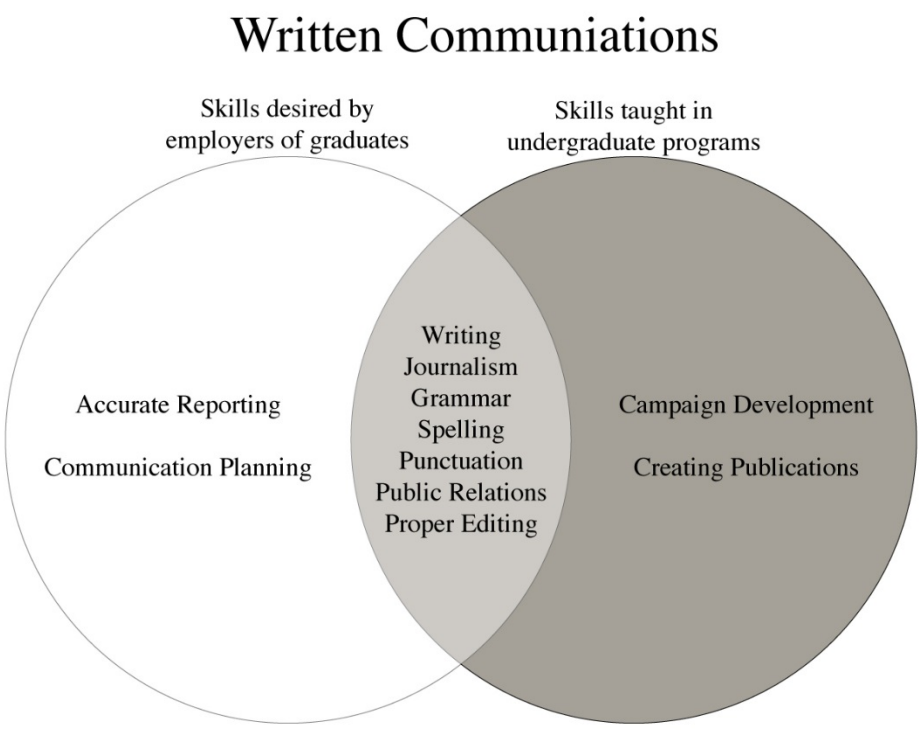

Figure 2. Written communication skills. Diagram demonstrates common skills desired by employers and those taught in undergraduate programs for the written communications theme.

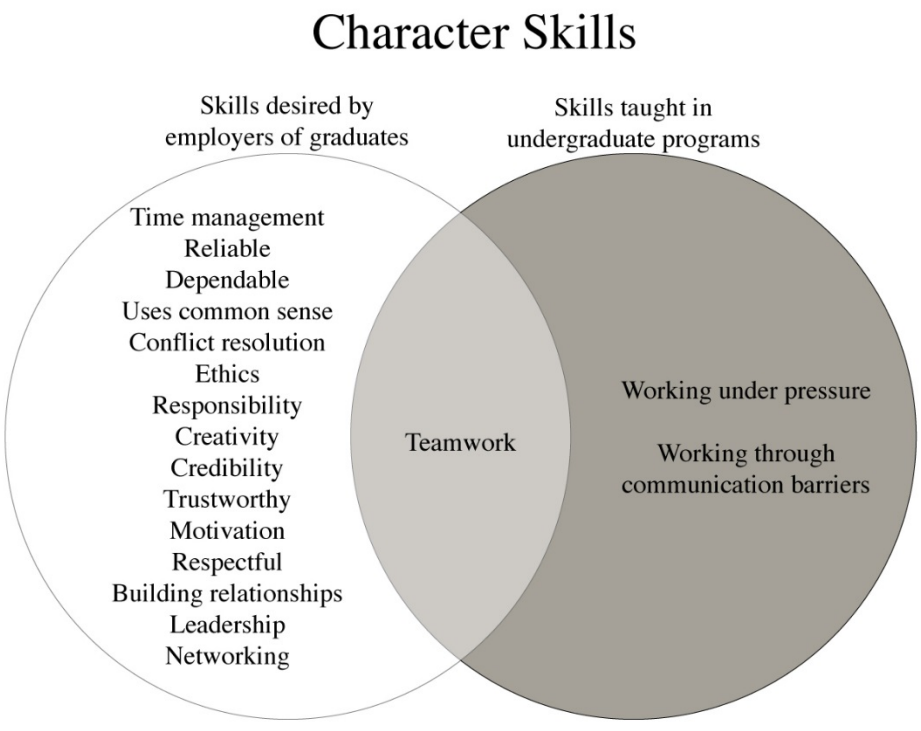

Figure 3. Character skills. Common skills desired by employers and those taught in undergraduate programs for the character theme.

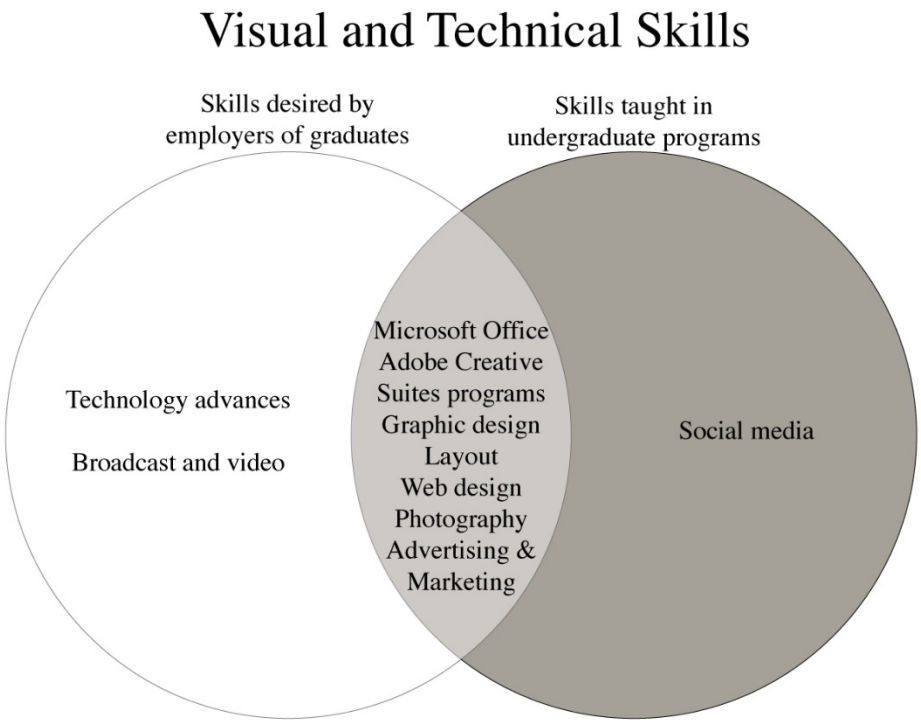

Figure 4. Visual and technical skills. Common skills desired by employers and those taught in undergraduate programs for the visual and technical theme.

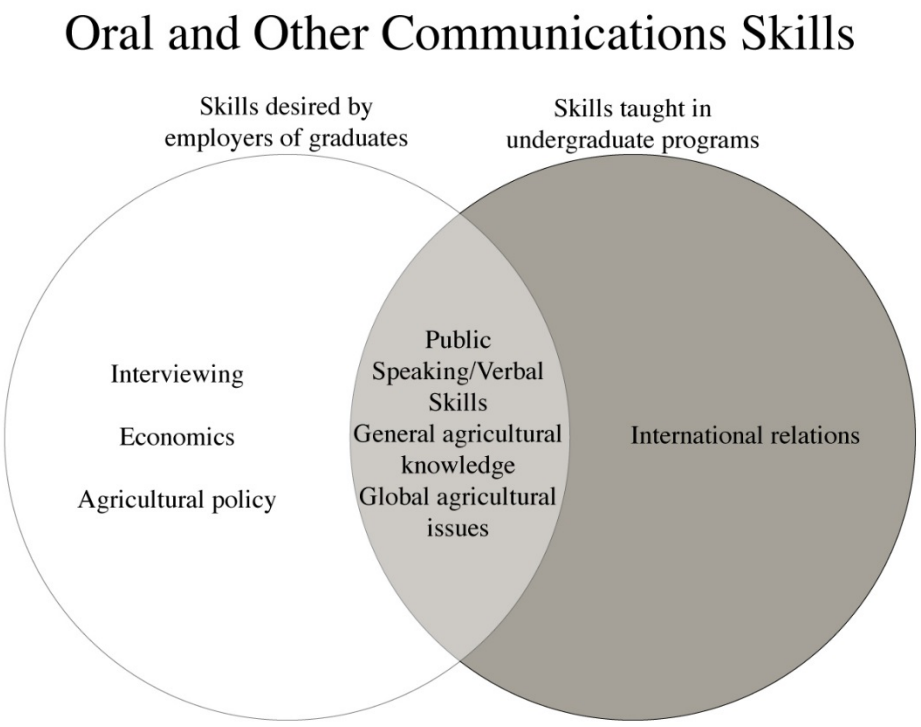

Figure 5. Oral and other communications skills. Common skills desired by employers and those taught in undergraduate programs for the written communications theme.

Conclusions and Discussion

In a world where technology dominates communications, the basics still remain: accuracy, good writing, proper planning, interviewing, verbal skills, and public relations. They were important with the earliest literature in this study, and they are important with the most recent.

Based on the information analyzed and examined in the literature, an area missing in the curriculum that was found to be of importance in previous literature is accurate reporting. Again, this may be incorporated into numerous courses, but with this being an area of emphasis for previous studies involving professional communicators, it should remain a continual area of focus.

For the most part, the skills desired by the industry as mentioned in previous literature align with the skills being taught in agricultural communications programs. The researchers realize many agricultural communications courses incorporate character or soft skills, but it is still important to ensure students are placed in situations that allow them to develop skills such as time management, reliability, dependability, conflict resolution, ethics, responsibility, and others. This can be accomplished through internships, service learning, team-based projects, research projects, study abroad, student organizations, and other higher-level thinking course assignments.

To conclude, agricultural communications programs should ensure graduates master accurate writing and editing while having a good skill set in video production, the Adobe Creative Suite, page layout, Web design, and photography. Rarely does an agricultural communicator solely write or shoot photos as a career; rather, graduates typically use lots of skills in any given day. It is extremely important for graduates to be able to do the aforementioned skills; however, based on the literature reviewed for this study, writing is most important.

Recommendations for future research

The skills, abilities, and knowledge desired from agricultural communications graduates by various entities as well as the skills, abilities, and knowledge already being taught in various collegiate agricultural communications programs were all examined in this literature review. The research showed the effectiveness of the current process in teaching agricultural communications students to be better professionals in the world tomorrow, however, there were still many areas of research that could be studied further.

The researchers feel certain there are more research studies on this topic; however, they were difficult to locate. Several national and regional research conferences that agricultural communications researchers typically attend do not consistently post proceedings, so the researchers were unable to obtain copies of the manuscripts. In addition, the researchers noticed many of these studies were theses or dissertations, yet a manuscript was not published in the typical agricultural communications journals or conferences. Agricultural communications faculty desire these types of studies to help guide the development of their programs, so publication of quality theses and dissertations is encouraged.

The researchers noticed only a few studies focused on the students. It is important to understand their expectations, desired skills, and satisfaction with the degrees. Focusing on the student perspective is a strongly suggested area of future research, especially when considering Finch and Crunkilton's (1999) Program System Model states that students should be major contibutors to the academic program.

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