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Agricultural Communications Practitioners' Perspectives on Skills and Competencies Graduates Need to Be Career Ready: A Mixed Methods Study with Implications for Undergraduate Programs

Abstract

Agricultural communications (ACOM) programs contend with continuous disruptive change caused by changing audiences, media technologies, and communications objectives. To keep curricula current, ACOM programs often turn to ACOM practitioners for guidance on how to prepare graduates. This explanatory sequential mixed methods study investigated ACOM practitioners in Missouri's perspectives on which skills and competencies were important for career readiness, as well as why they were important and under what circumstances. "Writing" and "reporting" skill categories were deemed most important. The qualitative follow-up strand revealed several clarifying themes. First, foundational skills, such as writing and reporting, are important because they are often the skillsets that are perennially relevant in a fast-changing field. Second, instruction in even basic technical communication skills prepares graduates to keep up with changing digital design technology on their own while in the workforce. Third, political savviness is a necessary skill for navigating differences both within the agricultural industry and with consumers. Finally, broad agricultural industry knowledge is more important in graduates than narrow technical expertise. This study has implications for ACOM faculty responsible for the continued revision of ACOM curricula.

Keywords

Skills, competencies, program development, curriculum

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Introduction

Perhaps more than any other discipline within colleges of agriculture, agricultural communications (ACOM) must contend with continuous, disruptive change. The evolution of ACOM can be understood by examining how its audiences, media, technologies, and communication objectives have changed over time. Throughout its evolution, ACOM programs have continually adapted college curricula and teaching methods—often through input from various stakeholder groups—in order to prepare graduates for a rapidly and ever-changing workplace. It is critical to understand the progression of audiences, media, technologies, and objectives in order to appreciate the trajectory of agricultural communications programming, including how it continues to evolve today.

Agricultural communications' origins can arguably be traced to early agrarian societies, where information on farming practices was spread by "word of mouth, from farmer to farmer" (Telg & Irani, 2012, p. 5). As printing presses became cheaper and more common in the early 1800s, the first mass produced publications often addressed agricultural issues. Though their primary audience was still farmers, these publications were led by arguably the first ACOM professionals, who were "not only outspoken leaders within the fledgling profession, but also national leaders of agriculture" (Tucker et al., 2003, p. 22). The purposes of these publications, and their intended audiences, were eventually expanded from disseminating farming practices to farmers, to advocating social and political causes that benefitted farming and farm life (Tucker et al., 2013). Soon, major newspapers employed farm writers, and farm trade organizations began publishing magazines with a broad readership (Tucker et al., 2003). For much of this early period, agricultural communications primarily consisted of journalistic writing, on behalf of news outlets, disseminated via limited, largely print media outlets, and directed at a population that was engaged directly with farming.

The efforts of this cadre of early writers and editors went on for more than a century before becoming established as a scholarly endeavor in 1905 when Iowa State University became the first university to offer a course in what was dubbed agricultural journalism (Clem et al., 2014; Duncan 1957; Tucker, 1996). Other schools of journalism in the Midwest soon followed, often employing professional writers and editors from private industry to establish the curriculum (Tucker et al., 2013). Despite the bourgeoning interest, schools of journalism soon divested themselves of agricultural journalism coursework in favor of other priorities. This led several colleges of agriculture (COAs) in the Midwest to take up the mantle of providing professionals for the growing ACOM industry (Tucker et al., 2003).

Early on, curricula at these institutions were focused on journalistic mass media directed at the broad swath of the American population engaged in farming at the time. Beginning in the 1920s, new technology like the radio made the first farm broadcasts possible. Later, following World War II, when televisions began to fill more Americans' living rooms, agricultural programs were developed at land-grant institutions and broadcast, reaching wide segments of the population (Irani & Doerfert, 2013). However, "This 'golden era' of mass media-based agricultural journalism was short lived," and several factors conspired to change ACOM and agriculture itself—the effects of which we are still grappling with today (Irani & Doerfert, 2013, p. 7).

First, the agriculture industry underwent "drastic changes in the areas of genetics, mechanization (including electronics), food processing and safety, human and animal nutrition, bioenergy, natural resource management, and global markets," and, in the process, agriculture

became more industrialized and scientific (Clem et al., 2014, p. 280). Second, greater farm mechanization led to lower demand for farm labor, which dramatically reduced the percentage of Americans with direct knowledge of farming practices—today, 1.3% of Americans work in production agriculture (ERS, 2019; NASS, 2020). This decline in first-hand agricultural knowledge among the general population is believed to contribute to growing concerns in society regarding farming practices, environmental impact of farming, and food safety (Doefert & Miller, 2006). Similarly, Dimitri and colleagues (2005) contend the rise of consumer influence on agricultural production is one of the most significant trends transforming American agriculture. As agricultural organizations increasingly felt the need to contend with the demands of consumers who do not understand modern farming practices, they began hiring professional communicators to aid in disseminating favorable or factual messages about agriculture (Cartmell & Evans, 2003). Lastly, the personal computer, internet, and, later, new and social media, all contributed to the proliferation of media outlets and the splintering of media consumption (Irani & Doefert, 2013; Telg & Irani, 2012). This led to greater specialization and professionalization of the agricultural communications industry (Cartmell & Evans, 2003; Irani & Doerfert, 2013). Today, as a result, agricultural communications primarily consist of strategic communication on behalf of private agricultural interests, disseminated via an ever-expanding number of media outlets, and directed at a population several generations removed from, and with limited knowledge of, farming (Irani & Doefert, 2013; Tucker et al., 2003).

This shift in audiences, media, technologies, and communication objectives has changed the skillsets required of graduates to be successful in the field, and it has necessitated major curricular revisions over time (Irani & Doerfert, 2013). Many universities have reflected this shift in the renaming of agricultural journalism programs to agricultural communications. The latter reflects the more comprehensive curriculum that prepares students for a variety of careers by addressing strategic communications, public relations, marketing, broadcast, web-based communication, and social media—while, in some cases, maintaining the traditional writing, editing, and mass publishing efforts (Irani & Scherler, 2002; Irani & Doerfert, 2013). The shift also encompasses a change in the role of the communicator, from providing news and new farming information, to "advocating, publicizing, and promoting on behalf of agriculture and natural resources organizations in the private and public sectors" (Irani & Doerfert, 2013, p. 6). In many cases, institutions struggle to strike a balance between fulfilling the "broader need to educate while communicating about agriculture" to the general public, while also maintaining the important role of disseminating new information to farmers and agricultural stakeholders (Lockaby & Vernon, 1998, p.16).

Therefore, because of the ever-changing nature of communications technology, "a need exists to examine program growth with an eye toward managing it thoughtfully" (Miller et al., 2015, p. 2). Irlbeck and Ackers (2009) posit, "agricultural communications programs should frequently review their programs and graduates to ensure existing curriculum effectively prepare students for the communications industry" (p. 63). Many other authors echo that sentiment (e.g., Akers et al., 2001; Doerfert & Miller, 2006; Irlbeck & Akers, 2009; Miller et al., 2006; Miller et al, 2015; Morgan, 2012; Terry et al., 1994; Robinson, 2006).

Perhaps because of a perceived need for legitimization of ACOM programs (no accrediting body exists for ACOM, and there are few studies of program quality), ACOM faculty have traditionally looked to industry to determine mission and curricular priorities. Industry exerts influence on academic programs through alumni committees and advisory boards designed to provide feedback and recommendations (Bailey-Evans, 1994; Tucker et al., 2003).

Clem et al. (2014) write, "Foundational to our discipline is the outcome that our formal education program will allow individuals to become employment-ready graduates" (p. 279).

More than 20 studies conducted during the past 40 years have informed ACOM programming in higher education. Many include examining various groups' perceptions of the skills, competencies, and attitudes required of ACOM graduates. This literature "validates the dynamic nature within the agricultural communications industry and the need to frequently examine the industry's needs and employment-ready expectations for university graduates" (Clem et al., 2014, p. 284). However, with few exceptions, researchers rarely investigate beyond a "laundry list" of proficiencies (Sitton et al., 2005, p. 24). A few studies are qualitative in nature (Cannon et al., 2016; Kurtzo et al., 2016; Sprecker & Rudd, 1997). Most studies are either Delphi (Akers et al., 2000; Bailey-Evans, 1994; Clem et al., 2014; Morgan, 2010; Morgan, 2012; Morgan & Rucker, 2013), or descriptive survey design (Cooper & Bowen, 1989; Doerfert & Miller, 2006; Evans & Bolick, 1982; Hall et al., 2009; Irani & Scherler, 2002; Irlbeck & Akers, 2009; Kroupa & Evans, 1973; Leal et al., 2019; Miller et al., 2015; Reisner, 1990; Sitton et al., 2005; Terry et al., 1994; Weckman et al., 2000).

This study adds to the discipline's ongoing efforts to adapt ACOM curricula, while also providing, perhaps, a more nuanced and deeper understanding of what competencies and skills graduates need by conducting an exploratory sequential mixed methods design (Creswell & Plano Clark, 2011). This design provides both a quantitative description of the degree to which various competencies are important to practitioners, but also a qualitative follow-up allowing practitioners to provide context and clarification for their responses. By providing more in-depth data, we hope to provide taxed ACOM faculty with the information they need to thoughtfully maintain their program's relevance amidst an ever-changing environment.

Literature Review

The literature on ACOM's curricula development over time is difficult to synopsize because of the varied and evolving sets of skills, competencies, proficiencies, courses, attitudes, or topics addressed in ACOM research. This is compounded by the varied populations studied, including ACOM faculty, industry employers, alumni, and ACOM practitioners. This review covers only studies including ACOM practitioners among their populations, as ACOM practitioners was our population of study. This is believed to be an exhaustive review of the literature discussing ACOM practitioners' perspectives on curricula development. For an excellent literature review of multiple populations, see Clem et al. (2014).

One of the earliest studies of practitioners' perspectives asked respondents to select the most critical ACOM *courses* from a list. Kroupa and Evans (1973) surveyed numerous types of ACOM practitioners, including the following: Extension/press publication editors, farm newspaper editors, farm magazine editors, and radio/TV broadcasters. Interestingly, when it came to prioritizing agricultural content knowledge, "most professionals did not consider such coursework critically important" to success as a practitioner (Kroupa & Evans, 1973, p. 36).

More than 20 years later, Sprecker and Rudd (1997) interviewed 14 ACOM practitioners in Florida (along with instructors and alumni) on the *skills and knowledge* needed by graduates. All practitioners expressed writing was critical to a graduate's success, but practitioners lamented the quality of writers recently produced. Practitioners, in particular, emphasized the need for internship experience (interestingly, a view not held by alumni who, perhaps, the authors speculate, had internships that did not live up to expectations). Practitioners stressed the

need for a broad understanding of policy, international trade, issues management, economics, and politics. All parties agreed, unsolicited, that communications skills are more important than agricultural content knowledge; students also need to be versatile in their communication skillsets, able to network, and possess a broad overview of local agriculture. Overall, all parties concluded "students…are prepared only to be agricultural writers, not communicators," one of the earliest distinctions between the traditional agricultural journalism and emerging public relations/communications fields (Sprecker & Rudd, 1997, p. 10).

Sitton et al. (2005) used Terry and colleagues' (1994) list of proficiencies to survey ACOM practitioners, asking respondents to indicate if a *proficiency* was important, how often they used that proficiency, and how it should be incorporated into ACOM curricula (i.e., required, elective, workshop, internship, or not at all). Proficiencies were grouped into three categories: technical agriculture, general communication, and public relations. The top technical agricultural proficiencies deemed "required" by more than 50% of respondents were: (1) interpret charts, graphs, and maps to make specific decisions related to business; (2) prepare a budget; and (3) list the purposes of governmental farm agencies. The top general communication proficiencies deemed required by 75% of respondents were: (1) write using appropriate style (i.e., AP, UPI); (2) cite sources; and (3) correctly report facts. The top public relations proficiencies deemed required by 75% of respondents were: (1) apply effective writing techniques; (2) apply basic public relations principles; (3) work individually and in groups to solve public relations problems; and (4) work with others in a team. Similar to previous studies, Sitton et al. wrote, "In terms of technical agriculture proficiencies, public relations professionals… perceived them to be less important than general communications or public relations-specific proficiencies" (2005, p. 35).

Clem et al. (2014) conducted a Delphi study of 14 ACOM practitioners in California, Iowa, and Texas to understand the *skills, knowledge, and competencies* ACOM graduates must possess to be successful in the workplace. Respondents were asked to rate competencies as either expected in new hires, no longer needed, or uncertain of need. The competencies "relationship development with peers," and "demonstrate use of Microsoft Office" were the two most expected competencies among the panel, with 92.9% agreement; "plan and manage for a crisis," "analyze numbers, charts, graphs, demographics or statistics," and "evaluate the value of media" were also highly expected (at least 85.7% agreement). The panel members were uncertain of the need for new hires to be skilled in the Adobe Creative Suite.

Finally**,** in a national study of instructors', graduates', and ACOM practitioners' perspectives of *social skills* required of ACOM students, Leal et al. (2019) surveyed 212 individuals, including 81 ACOM practitioners. In this study, social skills were broadly defined, including the ability to be deadline oriented, ability to think critically, ability to be adaptable, and the ability to engage in a team. For practitioners, the most important social skills were as follows: (a) ability to behave ethically, (b) ability to be trustworthy, (c) ability to be reliable, (d) ability to listen, and (e) ability to be dependable.

Conceptual Framework

This study uses a modified program systems model (PSM) for curricular development (Finch & Crunkilton, 1999). The PSM (Figure 1) describes a simple feedback loop that influences university curricula. Students are an input to the system who are shaped by their academic program, which includes faculty, resources, and curricula (along with other environmental factors). These students become program outputs (program graduates) through the direct influence of faculty, resources, and curricula. Graduates, or in our case practitioners, then provide feedback to the university related to their educational experiences and perceived career preparedness.

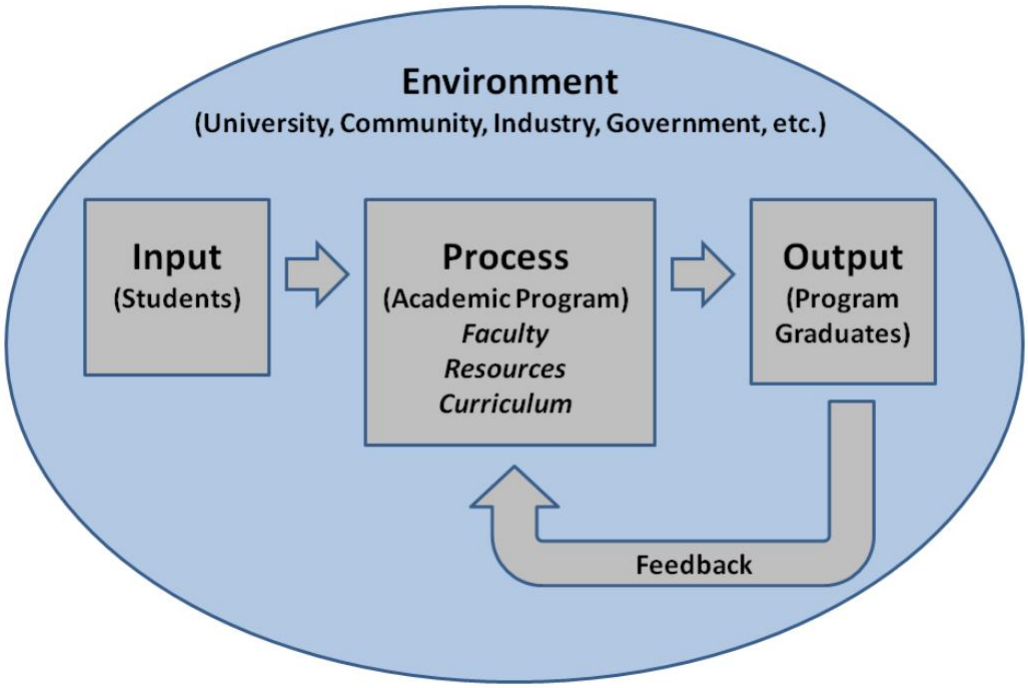

Figure 1. Program Systems Model with emphasis on curriculum content. Adapted from Finch & Crunkilton (1999).

Purpose and Research Questions

The purpose of this study was to identify the skills and competencies Missouri agricultural communications practitioners believe agricultural communications students need to be career-ready after graduating with a bachelor's degree. This study was guided by two research questions:

1. What skills and competencies do Missouri agricultural communications practitioners consider most important for undergraduate students to be career ready?
2. Why, and under what conditions, do Missouri agricultural communications practitioners believe specific skills and competencies to be important?

Methods

Research Design

This study used an explanatory sequential mixed methods design (Creswell & Plano Clark, 2017), which features an initial quantitative strand, followed by a qualitative strand. One benefit of this design is the qualitative strand helps to better explain the findings of the initial quantitative strand. There are four major phases of an explanatory sequential design. First, establish quantitative research questions, identify sample, design instrument, and collect and analyze data. Second, based on quantitative findings, determine which results need to be better explained, and identify a sample. The results of the qualitative strand's ability to shape the latter qualitative strand is central to this design. Third, write qualitative research questions, design protocols, and collect and analyze data. Finally, summarize and interpret quantitative and qualitative results separately, and interpret connected results.

Participants

Participants in both strands of this study were individuals in Missouri employed full time as ACOM practitioners, including, but not limited to, agricultural broadcast journalism, public relations, marketing, and advertising. The population was determined using a snowball method beginning with existing published networks of agricultural communicators, including college alumni groups and state professional associations, such as the Missouri Agricultural Communicators Committee (Ary et al., 2018). Forty-five individuals were identified, and a census was used; 89% (n=40) participated in the initial quantitative strand, and 23% (n=9) participated in the follow-up qualitative strand; all of the qualitative strand participants also completed the quantitative strand's survey (Ary et al., 2018). Though this is a small number of participants, it is believed to be a representative list of full-time agricultural communications practitioners in Missouri, and it encompassed a wide variety of job titles, sectors of agricultural communications, and educational backgrounds. Further, single-state studies are relatively common in ACOM literature, as are small populations (e.g., Cooper & Brown, 1989; Kurtzo et al., 2016; Morgan, 2012; Sprecker & Rudd, 1997).

Data Collection and Analysis

The initial quantitative strand's data were collected via a survey questionnaire, which was piloted in this study. The researcher-adapted instrument was developed from a list of communication-related skills used in similar studies (i.e., Clem et al., 2014; Morgan & Rucker, 2013; Robinson et al., 2007), with audiences other than ACOM practitioners (and, thus, not reported in the literature review). The survey questionnaire featured 64 skills, which respondents were asked to rate the importance of using a five-point Likert scale, ranging from "extremely important" to "not important at all." These skills were grouped into nine categories previously used by Morgan and Rucker (2013), including *Adobe*, *history*, *project management*, *soft skills and personal characteristics*, and *writing* (Table 1). The questionnaire was distributed via Qualtrics using the Dillman et al. (2014) tailored design method.

The nine scales in the instrument were tested for reliability using Cronbach's alpha (Gliem & Gliem, 2003). All scales met Spector's (1992) criteria for a summated rating scale, and

all scales were at least "acceptable," according to George and Mallery's (2003) classification of alpha scores, with the exception of history, which was "questionable," and, therefore, is not reported. The digital design scale consisted of seven items ($\alpha = .926$); the theory and research scale consisted of 12 items ($\alpha = .919$); the Adobe scale consisted of six items ($\alpha = .849$); the soft skills/personal characteristics scale consisted of 11 items ($\alpha = .823$); the writing scale consisted of six items ($\alpha = .801$); the project management scale consisted of 10 items ($\alpha = .790$); the reporting scale consisted of five items ($\alpha = .721$); and the analysis scale consisted of three items ($\alpha = .702$). Results of the quantitative strand were described using means and standard deviations. All statistics were calculated using SPSS.

The results of the quantitative strand's survey informed the follow-up focus group protocol. Focus groups were conducted using a protocol featuring semi-structured question sets; questions were structured to expand our understanding of respondents' ratings of skills, as well as provide critical context for why and under what conditions the skills were important. Two 60-minute focus group sessions were held via Zoom, with four participants in the first group and five participants in the second (both within the suggested size for an online focus group) (Ary et al., 2018). The groups were purposively selected to be reflective of the diversity of survey participants, representing a variety of job titles, types of firms, and facets of agricultural communications.

The research team chose constant comparative method for data analysis in the qualitative strand (Glaser & Strauss, 1967). Although this data analysis technique is most commonly associated with grounded theory methodology, it has also been used in mixed method research and is commonly used outside of grounded theory research broadly (Fram, 2013). Focus group audio recordings were transcribed verbatim by a professional transcription service, and whole-text analysis was used. Data were coded using open, axial, and selective coding techniques (Corbin & Strauss, 2007), transforming excerpted data into categories and themes. Core categories of data were identified during the selective coding phase. The lead researcher conducted the axial and selective phases of data analysis, transforming data into categories and themes. This process continued throughout the duration of the study as a deeper understanding of the phenomenon occurred (Strauss & Corbin, 1990).

Finally, in an iterative fashion, data from the quantitative strand were integrated with findings from the qualitative strand to produce meta-level findings discussion points. This is the primary benefit of the explanatory sequential mixed methods design: it's ability to "assess trends and relationships with quantitative data, but also be able to explain the mechanism or reasons behind the resultant trends" (Creswell & Plano Clark, 2011, p. 83). To accomplish this, the researcher "interprets to what extent and in what ways the qualitative results explain and add insight into the quantitative results and what overall is learned in response to the study's purpose" (Creswell & Plano Clark, 2011, p. 83).

Trustworthiness in Qualitative Strand

Guba (1981) suggests four constructs that contribute to trustworthiness in qualitative research: credibility, transferability, dependability, and confirmability. Data source triangulation, methodological triangulation, and investigator triangulation contribute to credibility. Findings are communicated with rich, thick descriptions, contributing to the transferability of this study. Keeping a detailed audit trail of all phases of the study, including the data analysis and coding process, enhanced the dependability and confirmability of this study. Additionally, data

triangulation between initial quantitative findings and the findings of the qualitative strand contribute to the credibility, dependability, and transferability of this study.

Limitations in Qualitative Strand

We acknowledge the limitations of this study. Although care was taken to establish an open dialogue, participants may not have felt fully able to share their perspectives on their own preparedness in a group of individuals with whom they may be in professional competition. Although we cannot generalize this study beyond the population identified in this study, findings may be transferable knowledge to others who develop such programs in other states.

Results

RQ1: What skills and competencies do Missouri agricultural communications practitioners consider most important for undergraduate students to be career ready?

Survey respondents (*n*=40) were asked to rate how important it is for recent graduates of agricultural communications programs to possess 64 skills or competencies related to working in the ACOM field. Respondents rated skills based on a five-point Likert scale, ranging from "Not at all important" to "Extremely important." These 64 skills were organized into the eight categories listed in Table 1. All categories were at least "Moderately important," with seven classified as "Very important," and one, Writing, classified as "Extremely important." This indicates the skills list developed by reviewing Clem et al. (2014), Morgan & Rucker (2013), and Robinson et al. (2007) resonates with ACOM professionals.

Table 1

Descriptive statistics for nine skill/competency categories, ranked from most important to least

Skills Category	*M*	*SD*	*n*
Writing	4.6889	.36550	40
Reporting	4.1867	.50360	40
Project Management	4.0133	.41914	40
Theory and research	4.0083	.60701	40
Soft Skills/Personality Characteristics	3.8939	.44605	40
Analysis	3.8889	.60858	40
Digital Design	3.5905	.800089	40
Adobe	3.3222	.69609	40

Note. 1-1.49=Not at All Important, 1.50-2.49=Slightly Important, 2.50-3.49=Moderately Important, 3.50-4.49=Very Important, 4.50-5=Extremely Important.

"Writing" was the top-rated category (M=4.69, SD=.366) with a mean rating of "extremely important." Among the writing scale items, the ability to "write clearly" (M=4.90, SD=.305) was the highest scoring skill. "Editing" was the lowest scoring skill (M=4.57, SD=.504), which is still scored "Extremely important." Among the "Reporting" scale's items, "Identify and interview sources" (M=4.43, SD=.504) was highest scoring, while "News writing" was the lowest scoring (M=3.97, SD=.718). Among the wide-ranging "Project Management" scale, "Organization and time management" was the highest scoring item (M=4.57, SD=.504).

The lowest scoring item was “Supervision” (M=3.47, SD=.730). Among the “Theory and Research” scale’s items, “Understanding strategic communication” was highest scoring (M=4.40, SD=.770), and “Understanding communication theory” was lowest scoring (M=3.60, SD=.894). Among the “Soft Skills/Personal Characteristics” scale’s items, “Lifelong learning” was the highest scoring item (M=4.60, SD=.498), and “Speaking more than one language” (M=2.10, SD=.923) was lowest scoring. Among the “Strategic Analysis” scale’s items, “Identify risks that could become a crisis” (M=4.07, SD=.740) was highest scoring, and “Analyze charts…” (M=3.77, SD=.858) was lowest scoring. Among the “Digital Design” scale’s items, “Photography” was highest scoring (M=3.87, SD=.973), and “Create website” was lowest scoring (M=3.27, SD=.828). Finally, among the “Adobe” scale’s items, “InDesign” was highest scoring (M=3.83, SD=.950), while “Adobe After Effects” was lowest scoring (M=2.63, SD=.809). See Table 2 for a full list.

Table 2

Descriptive all skills/competencies, organized by category, ranked from highest to lowest scoring

Skills or Characteristics	Category	*M*	*SD*	*n*
Write clearly	Writing	4.90	.305	40
Organize facts into coherent message	Writing	4.77	.430	40
Use proper punctuation	Writing	4.63	.615	40
Write concisely	Writing	4.63	.556	40
Grammar and spelling	Writing	4.63	.615	40
Editing	Writing	4.57	.504	40
Identifying and interviewing sources	Reporting	4.43	.504	40
Translate technical information for lay people	Reporting	4.37	.615	40
AP Style	Reporting	4.10	.845	40
Reporting skills	Reporting	4.07	.907	40
News writing	Reporting	3.96	.718	40
Organization and time management	Project Management	4.57	.504	40
Relationship development with peers	Project Management	4.47	.776	40
Professional/business writing	Project Management	4.23	.626	40
Outline project planning	Project Management	4.07	.785	40
Use of social media	Project Management	4.03	.718	40
Understand human capital	Project Management	3.93	.640	40
Managing conflict	Project Management	3.93	.785	40
Outline project scheduling	Project Management	3.87	.776	40
Building contractual relationships	Project Management	3.57	.728	40
Supervision of others	Project Management	3.47	.730	40
Understand strategic communication	Theory and Research	4.40	.770	40
Understand dissemination platforms/media	Theory and Research	4.20	.761	40
Understand creative strategy	Theory and Research	4.17	.791	40
Plan a communications campaign	Theory and Research	4.17	.791	40
Research	Theory and Research	4.10	1.029	40
Audience analysis	Theory and Research	4.10	.803	40

Identify barriers to communication	Theory and Research	4.03	.809	40
Familiarity with mainstream media	Theory and Research	4.00	.695	40
Assemble a crisis management plan	Theory and Research	3.93	.828	40
Persuasive writing	Theory and Research	3.77	.898	40
Develop and test messages	Theory and Research	3.63	.890	40
Understand communication theory	Theory and Research	3.60	.894	40
Lifelong learning	Soft Skills/Personality	4.60	.498	40
Decision-making	Soft Skills/Personality	4.33	.547	40
Intrinsic Motivation	Soft Skills/Personality	4.23	.728	40
Evaluate real-life experiences	Soft Skills/Personality	4.20	.805	40
Ability to conceptualize	Soft Skills/Personality	4.13	.571	40
Possess curiosity about agriculture	Soft Skills/Personality	4.00	.788	40
Visioning	Soft Skills/Personality	3.93	.785	40
Agricultural publication knowledge	Soft Skills/Personality	3.87	.819	40
Possess working knowledge of many subjects	Soft Skills/Personality	3.73	.828	40
Risk taking	Soft Skills/Personality	3.70	.750	40
Speak more than one language	Soft Skills/Personality	2.10	.923	40
Identify risks that could become a crisis	Analysis	4.07	.740	40
Evaluate the value of media	Analysis	3.83	.699	40
Analyze charts, graphs, demographics	Analysis	3.77	.858	40
Photography	Digital Design	3.87	.973	40
Create a video	Digital Design	3.80	.925	40
Video editing	Digital Design	3.67	.994	40
Photo editing	Digital Design	3.63	1.098	40
Layout and design	Digital Design	3.53	1.001	40
Create podcasts	Digital Design	3.37	.890	40
Create a website	Digital Design	3.27	.828	40
InDesign	Adobe	3.83	.950	40
Photoshop	Adobe	3.77	.972	40
Premier	Adobe	3.37	.809	40
Illustrator	Adobe	3.33	1.061	40
Lightroom	Adobe	3.00	.910	40
After Effects	Adobe	2.62	.809	40

Note. 1-1.49=Not at All Important, 1.50-2.49=Slightly Important, 2.50-3.49=Moderately Important, 3.50-4.49=Very Important, 4.50-5=Extremely Important.

RQ2: Why, and under what conditions, do Missouri agricultural communications practitioners believe specific skills and competencies to be important?

After analyzing 53 pages of transcript data, four themes emerged regarding not only what focus group participants believed to be important skills for agricultural communications, but also why, and under what conditions, those skills were important to ACOM practitioners.

Theme 1: Foundational Skills are Crucial for Success Long After Graduation

In focus groups, ACOM practitioners affirmed the high scores of the "Writing" and "Reporting" categories in the survey results and went on to collectively develop the idea

"foundational skills" needed in new hires. For practitioners, foundational skills were an amalgamation of the "Writing" and "Reporting" categories, including the following skills: writing, editing, outlining a story, and organizing information coherently. The underlying sentiment behind the importance of foundational skills was that these were the skills that will not become obsolete when technology changes.

"I agree with the ranking as it came out with your survey. Those fundamental skills—you know, in 10 years Adobe Suite is irrelevant and so—," said Emily. "You know, things are continually changing, and a lot of things I learned when I was in college—you know, some of those things we don't really use anymore—and a lot of that foundational knowledge is what you really take forth," said Erica. Practitioners also emphasized the broad applicability of foundational skills in a field that is at once diverse and specialized: "I mean having strong editing skills is always important no matter which position you're in in the communications field."

Lastly, practitioners explained graduates who possessed these foundational skills are easier to train in the more fast-changing, technical aspects of communication. "Being able to have good writing skills…you know, just even basic editing. It's important to start at that base level and then we can build them up from there," said Molly. One participant put it flatly: "I'm not going to hire someone if they can't write, and they can't edit, and they don't have technical skills."

Theme 2: Even Basic Technical Communications Knowledge Goes a Long Way

Commenting on the relatively lower scores of the "Adobe" and "Digital Design" categories, ACOM practitioners explained, again, due to the rapid pace of change of such software and digital technology, mastery of all digital design and Adobe skills was an unreasonable expectation for recent graduates. Practitioners also diverged on how often they themselves used these skills—typically depending on their job titles. Some used Adobe software every day, while others had employees who did creative work for them: "Nothing gets out the door at [our company] without going through [our designer and videographer] and her creative process," said Julie. "So, I can write, but it doesn't turn into much on the internet, right? It just looks like a Word document if it doesn't go through a creative process."

However, all practitioners agreed that having basic skills in a broad array of Adobe and other digital design skills was necessary for success, and that, though these categories were scored lower than others, they were still both "moderately important." They cited the trend toward media convergence and the need for a single communications practitioner to be versed in multiple media, especially if they were to one day supervise a team. "I think that having a broader skillset is going to be more valuable the longer we go; and being only good at one thing is probably going to lose," said Sydney.

"I think everyone needs to be able to do more things themselves. You might have to create your own graphics and create your own video products….do a little bit of everything I think just because of the consolidation of technology," said Becca.

All practitioners agreed new graduates—and they themselves—need to be lifelong learners, particularly in the realm of technical skills, such as Adobe and digital design. Many also felt that learning new technical skills was relatively easier today than in the past. Julie said:

> I can do some stuff on InDesign, but it hasn't been something that I have to know, and things that I do need can easily be found by a Google search. I mean, we're in a technology age where if you don't know how to do something, it's pretty simple to figure

> it out and so if you're not adept, and you're not super knowledgeable about something, it's a fairly simple fix…you can develop on a need-to-know basis.

All practitioners also expressed a willingness to teach interns or new hires so long as they had even basic skills in digital design or Adobe and were willing to recognize that they still have much to learn. Becca said:

> I think as long as someone has that basic knowledge, or that willingness to learn, I think I'm more willing to teach them or give them that creative grace, as long as they have a strong foundation of you know how to communicate, knowing how to kind of at least start to learn how to execute that. I'm kind of willing to give that grace.

Alex added:

> I would rather work around, or with, someone that wants to learn and has that ability to learn because all of our skills and all of our tools are constantly changing anyway, so whatever they learned in college is probably going to be outdated in a few years anyway.

Though, when it comes to learning new digital media, practitioners had their limits. One joked: "I told them, 'If you make me do TikTok, I'm quitting.'"

Theme #3: Political Savviness is Necessary in a "Pseudo-Political Communications" Field

One skillset not included on the initial survey that emerged unbidden in focus group discussion was the need for ACOM practitioners to be politically savvy—savvy within their organizations, but, especially, between organizations, the legislature, and the public. Practitioners whose positions focus more on strategic communications (i.e., communicating messages on behalf of an organization with the objective of changing attitudes, beliefs, and behaviors to benefit the organization) are often communicating about politically charged topics.

"Understanding political sensitivities is really valuable and necessary in my job," said Sally. "Knowing who you might piss off when you do something, and thereby avoiding doing so, is really, really important…sometimes it takes the experience of being in this world a while … in the world of pseudo-political communications…" Another participant added: "You start to realize who thinks what about which policies, and, you know, who hates who. Those kinds of things are valuable."

For practitioners, this savviness takes several forms. One participant described it as knowing how to avoid landmines to help foster collaboration between organizations:

> The ability to know where the landmines are, um so, someone who is politically sensitive…So in our position honestly [Redacted Organization A] and [Redacted Organization B], you guys are the same...so we kind of know where each other are on a lot of issues—and maybe where we shouldn't go.

Another echoed the same sentiment, saying it is important that people know "the relationships among the different commodity groups, or whatever, and who to be careful with—like you know you could figure that stuff out if you have experience with it, but if you haven't dealt with it at all, it just wouldn't occur to you to think about those things." A third participant stressed the need for collaboration among commodity groups, in particular. She said, "We have that attitude that we are not going to accomplish anything on our own, and that collaboration and that partnership is exceptionally important, and the political savviness so um that is—politics is in every component of life, whether you're in the capitol or not."

Theme 4: Broad Agriculture Industry Knowledge is Better Than Narrow Expertise

While technical agricultural knowledge (e.g., in-depth knowledge of sheep reproduction or corn production) was not included on the survey, participants were asked to weigh in on its importance to the success of agricultural communications graduates. There was a consensus that, while technical agricultural knowledge was not essential, the best-case hiring scenario was a graduate with broad knowledge of the agriculture industry — including, particularly, agricultural policy — rather than in-depth knowledge of one particular facet of agriculture. As Alex noted:

> I don't care that much if they don't have a lot of intense agricultural background. I barely know anything about agriculture. That's not necessarily what's required to communicate well on these topics because most of the things we're communicating about are policy-related or high enough level…You don't need to know all 25 steps of exactly how to feed cattle in order to communicate the fact that cattle need to be fed.

Julie described her broad agricultural education as being beneficial in her role as an agricultural communicator:

> It was super helpful to kind of take classes in a lot of the different areas because like as a journalist or communicator, you kind of become a mini expert in a lot of different things and just having some of that base knowledge to build off of, I think, is helpful.

Molly described a litmus test for the level of agriculture industry knowledge a successful graduate should possess. "…You [should be able to] sit at a dinner table across from [Missouri Farm Bureau President] and not be out of place, right? That's about as deep as it needs to go…enough to be able to understand the basic processes and opportunities and pressures within agriculture..."

One of the reasons practitioners described in-depth expertise in agriculture as being unnecessary is that the usefulness of industry knowledge is less about the knowledge itself and more about the ability to fit in culturally. Sally said, "My overall understanding of agriculture has been so much more important than the physiology of the reproductive tract of a sow…. having that background allows me to relate in so many other realms…" Sydney added, "Speaking the language is extraordinarily important. It lends to credibility, and nothing can detract from credibility more than trying to be something that you are not." Becca added, "If [new hires] come in and they're totally out of synch with the culture, it's probably not going to work out. You have got to look close enough to fit in." Julie also commented on the skepticism with which farmers view 'outsiders': "[People in agriculture] are not comfortable with things that are too far out of their world, and so I think [ACOM graduates] don't necessarily have to have grown up on a farm, or be currently running a farm, but they have to look like they could potentially maybe fit, and maybe marry someone in the family, you know."

Multiple practitioners commented on the increasing rarity of finding graduates who have both agricultural backgrounds and communications skills. Alex noted, "We're running out of the unicorns in the world that have communications and ag backgrounds; we're seeing this in the internship pool already." However, practitioners expressed a willingness to bolster either communications skills or agricultural knowledge, depending on what a potential hire is lacking.

Finally, practitioners commented on the plusses and minuses of their recent hires who do not have agricultural backgrounds. Suzy said, "There's some value to be added to have people who did not come from the ag background because they do bring things to the table sometimes and get us thinking outside the box and not just preaching to the choir and every other cliché that's true." Often, the perspectives of employees without agricultural backgrounds were described as good for helping organizations communicate with new audiences. However, they

were just as often described as a problem that needed managing. Julie described one recent new hire: "So we're utilizing her thought processes …to push our boundary…so that maybe we're more effectively communicating with consumers. Would I want her being the voice of the organization? No."

Finally, whether a graduate possesses an agricultural background or not, ACOM practitioners felt that graduates need to be able to take others' perspectives in order to communicate the message of agriculture. Alex said:

> Like it's not enough just to have that ag background anymore. It's not enough to say like, "Oh I have done this my entire life." You have to be a well-rounded person. You have to have experiences that are outside of the agriculture industry. You have to be able to communicate with people that have a very different background than you, very different opinions than you would have. You have to be able to take different viewpoints and not explode on people, and just pulling it all together — there's just no excuse to not be able to do that anymore.

Discussion

One benefit of an explanatory sequential mixed methods design is its ability to "assess trends and relationships with quantitative data, but also be able to explain the mechanism or reasons behind the resultant trends" (Creswell & Plano Clark, 2011, p. 83). We, therefore, discuss the results of RQ1 and RQ2 together, and several meta-level discussion points emerge.

First, not surprisingly, in both the quantitative and qualitative strands, participants regarded "Writing" and "Reporting" related skills highly. This aligns with many other studies' findings (Irlbeck & Akers, 2009; Morgan, 2009; Morgan, 2012; Sprecker & Rudd, 1997; Terry et al., 1994). However, the qualitative follow-up allows for better understanding of the significance of these skills. Practitioners in the focus groups described these as "fundamental skills" that were important for several reasons. Fundamental skills seem to be less affected by the continuous disruptive change of evolving media and communication technologies. The ability to identify and tell a newsworthy story clearly and concisely translates across media, new and old. Practitioners suggested ACOM programs should focus on these fundamental skills as a kind of hedge against change, rather than attempting to always be current on the latest media platform. Similarly, practitioners felt if new hires possessed a foundation in these fundamental skills, they will be easier to train on the job (or teach themselves) in whatever new media emerge in the future. Lastly, unlike in other studies (e.g., Sprecker & Rudd, 1997), practitioners did not lament the poor writing ability of recent graduates.

Second, "lifelong learning" was the highest scoring soft skill/personality characteristic; it was scored "extremely important" by respondents (M=4.60, SD=.498). The ability to continue learning after graduation was also a thread running through themes one and two of the qualitative findings. Practitioners recognized the technical aspects of their undergraduate educations would be out of date shortly after graduation. Here, the qualitative follow-up proved insightful. Practitioners believed that if graduates possessed a broad (even superficial) exposure to many media outlets and various aspects of digital design, that familiarity will be enough to enable them to continue learning on the job in the future. Practitioners could then build on that knowledgebase through on-the-job training of graduates and teach only the skills relevant to their particular job. Practitioners felt that ACOM programs should, in general, strive to expose students to various media outlets and platforms, as well as tools for digital design. They did not

feel that mastery was a worthwhile goal, given the pace of change. Rather, ACOM programs should strive for breadth over depth with regard to technical communications skills.

Third, a topic not included in the quantitative strand, but emerging unbidden in the qualitative strand was the need for graduates to be politically savvy when operating in agricultural communication's world of "pseudo-political communications." This was a novel finding. Though, several studies mention the importance of graduates being knowledgeable of agricultural policy (e.g., Sprecker & Rudd, 1997), which is likely related. Practitioners felt that understanding the political landscape was essential to helping them avoid "landmines" in their communications efforts and ensuring better communication with the public, but also better collaboration between organizations. Given the rise of consumer influence impacting farming practices (Dimitri et al., 2005), growing concern among the public about food safety and the environmental effects of farming (Doefert & Miller, 2006), and general political polarization in America, it is not surprising that ACOM practitioners would perceive their communications efforts as becoming political in nature. Practitioners were less clear on how ACOM programs were to educate students in this skill. Many agricultural communications programs included courses on "issues" in agriculture (Cannon et al., 2016). Practitioners suggested there would be value in students understanding the agriculture industry is not monolithic and that, as future ACOM practitioners, they will have to navigate competing priorities and values even within the agriculture industry.

Finally, another topic not included in the quantitative strand but discussed in the qualitative strand was the relative importance of graduates' technical agricultural knowledge. Other studies (Kroupa & Evans, 1973; Sitton et al., 2005; Sprecker & Rudd, 1997) have found that practitioners believed technical agricultural knowledge to be less salient to ACOM practitioners' career readiness than communications knowledge. This study found similar sentiments among practitioners who stressed the need for graduates to possess a broad understanding of agriculture and its opportunities and pressures. However, one long running sentiment this study supports is that, for practitioners, having a broad background in agriculture is also about being able to fit in culturally. Practitioners described using their broad base of knowledge to establish credibility, "speak the language," be "close enough to fit in," and "maybe marry someone in the family." A broad educational overview of agriculture is important to help future ACOM practitioners acculturate themselves to the agriculture industry—particularly when they do not have an agricultural background. As one practitioner noted, "We're running out of the unicorns in the world that have communications and ag backgrounds..." A broad educational overview of agriculture may be particularly necessary for undergraduate ACOM programs as more students without agricultural backgrounds pursue ACOM careers.

Conclusions and Recommendations

The field of ACOM has long adapted to the continuous disruptive change caused by new media and new communication technologies. ACOM undergraduate programs have similarly adapted to prepare career-ready graduates—often with the aid of feedback from ACOM practitioners. This study examined practitioners in Missouri's perspectives on what skills and competencies are necessary for career-ready graduates, as well as why, and under what conditions, those skills are important. Practitioners scored "Writing" and "Reporting" related skills highest and, later, in focus groups developed these as "Foundational Skills" that won't become outdated, are widely applicable across a diverse field, and serve as the basis for further

learning on the job. Practitioners identified "lifelong learning" as an essential soft skill/personality characteristic, particularly with regard to technical communications skills, such as Adobe or digital design, in which the technology changes at a rapid pace. Interestingly, participants expressed the importance of graduates understanding the political nature of ACOM, both between the industry and the public, as well as between competing interests within agriculture industry. Lastly, practitioners weighed in on the long running commentary on the relative importance of technical agricultural knowledge. Echoing practitioners dating back to the 1970s, participants agreed communications skills were paramount to technical agricultural knowledge, but that graduates ideally possessed a broad educational overview of the agriculture industry. This knowledge was important as a basis for later on-the-job learning, but also, perhaps more importantly, as a means of fitting in cultural in the agriculture industry—particularly for those would-be ACOM professionals without an agricultural background.

Based on this explanatory sequential mixed methods study of practitioners in Missouri's perspectives, several recommendations for ACOM undergraduate education programs emerge. Most recommendations serve to inform faculty as they choose where to invest their resources when developing an ACOM undergraduate program—particularly which courses to offer in-house, and how much time to devote to various skills.

First, despite the trend toward agricultural communications, with its emphasis on communications theory and public relations strategy, the fundamental skills associated agricultural journalism—telling a newsworthy story in a coherent and compelling fashion—not only still apply in the more diverse realm of agricultural communications but may be the only lasting skillset future ACOM professionals take with them from college. ACOM programs should, therefore, not skip over these fundamental skills in lieu of technical communications skills, theory, and strategy. Rather, the latter should supplement these fundamental skills.

Second, ACOM programs should strive for breadth of exposure to technical communications skills (e.g., Adobe and digital design related skills) rather than mastery. By providing a wide knowledge base, coupled with skills needed for lifelong learning, ACOM programs can prepare graduates for a wider range of career opportunities.

Third, ACOM faculty should expose students to the various interests within the agriculture industry competing for scarce resources, favorable policies, and positive public perception. This could be accomplished perhaps as part of an "issues" courses (or when addressing hot topics in agriculture in other courses) through a panel of speakers. Further, analysis of these competing interests and the politics therein could be incorporated into the reflections required for internships.

Finally, although many academic programs focus on students garnering narrow expertise in a specific facet of agriculture, either through a minor or certificate program, ACOM programs should privilege an omnivorous approach to credit consumption within their respective colleges of agriculture. In the ACOM field, it seems a broad knowledge of many facets of agriculture provides a competitive advantage, both for on-the-job learning later in their career and fitting in culturally within the agriculture industry.

References

Acquah, E. H. K. (2010). A growth model for academic program life cycle (APLC): A theoretical and empirical analysis. *The 50th Forum of the Association of Institutional Research*, Chicago, IL: 1-27.

Akers, C., Vaughn, P. R., & Lockaby, J. D. (2001). High school agricultural communications competencies: A national Delphi study. *Journal of Southern Agricultural Education Research, 51*(1). 124-137. Retrieved from http://pubs.aged.tamu.edu/jsaer/pdf/Vol51/51-00-124.pdf

Ary, D., Jacobs, L., Irvine, C. K. S., & Walker, D. (2018). *Introduction to research in education*. Cengage Learning.

Bailey-Evans, F. J. (1994). *Enhancing the agricultural communication curriculum: A national Delphi study* (Unpublished master's thesis). Texas Tech University, Lubbock.

Boone, K., Meisenbach, T., & Tucker, M. (2000*). Agricultural communications: Changes and challenges*. Ames, Iowa: Iowa State University Press.

Cannon, K. J., Specht, A. R., & Buck, E. B. (2016). Agricultural communication programs: A national portrait of undergraduate courses. *Journal of Applied Communications, 100*(1), 6- 16. doi: 10.4148/1051-0834.1018

Cartmell, D., & Evans, J.F. (2013). Understanding Whence We Came: Role of the Association for Communication Excellence in the Development of Agricultural Communications during the Past Century — and Future Implications. *Journal of Applied Communications*, 97(2). https://doi.org/10.4148/1051-0834.1120.

Casner-Lotto, J., & Barrington, L. (2006). Are they really ready to work? Employers' perspective on the basic knowledge and applied skills of new entrants to the 21st century U.S. workforce. Retrieved from http://www.p21.org/storage/documents/FINAL_REPORT_PDF09-29-06.pdf

Clem, C. A., Doerfert, D. L., Akers, C., Burris, S., & Brigham, K. (2014). Expected as a minimum or no longer needed: Examining which employment-ready competencies may no longer be needed in agricultural communications programs. *Proceedings of the Western American Association for Agricultural Education Research Conference*, pp. 279-292. Retrieved from http://aaaeonline.org/Resources/Documents/Western%20Region/WRAAAE%20Proceedings.pdf

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). Thousand Oaks, CA: SAGE.

Creswell, J., & Plano Clark, V. (2017). *Designing and conducting mixed methods research* (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.

Cooper, B. E., & Bowen, B. E. (1989). Agricultural Communications Curriculum: Perceptions Of Ohio State Graduates. *Journal of Applied Communications, 73*(2). https://doi.org/10.4148/1051-0834.1531

Corbin, J., & Strauss, A. (2007). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). Thousand Oaks, CA: Sage.

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, mail, and mixed-mode surveys: The tailored design method* (4th ed.). Hoboken, NJ: John Wiley & Sons.

Dimitri, C., Effland, A., & Conklin, N. (2005). *The 20th century transformation of U.S. agriculture and farm policy* (Economic Information Bulletin No. 3). Washington, DC: United States Department of Agriculture.

Doerfert, D., & Cepica, M. (1991). *The current status of agricultural communications/ journalism programs in the United States*. Lubbock, TX: Unpublished manuscript from the Center for Agricultural Technology Transfer.

Doerfert. D. L., & Miller, R. P. (2006). What are agriculture industry professionals trying to tell us? Implications for university level agricultural communications curricula. *Journal of Applied Communications, 90*(3), 17-31. doi: 10.4148/1051-0834.1273

Duncan, C. (1957). *An evaluation of the agricultural journalism curriculum in land grant colleges*. (Unpublished master's thesis). University of Missouri, Columbia, MO.

Economic Research Service. (2022, Feb. 14). *Ag and Food Sectors and the Economy.* USDA. https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/ag-and-food-sectors-and-the-economy/

Evans, J. & Bolick, J. (1982). Today's curricula in agricultural journalism and communications. *ACE Quarterly, 65*(1), 29-38.

Finch, C. R., & Crunkilton, J. R. (1984). *Curriculum development in vocational and technical education: Planning, content, and implementation*. Newton, MA: Allyn and Bacon.

Fram, S. M. (2013). The constant comparative analysis method outside of grounded theory. *Qualitative Report*, 18, 1–25.

George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference* (4th ed.). Boston: Allyn & Bacon.

Gliem, J. A., & Gliem, R. R. (2003). *Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales*. Midwest Research-to-Practice Conference in Adult, Continuing, and Community Education.

Glaser, B. G., & Strauss, A. (1967). *Discovery of grounded theory: Strategies for qualitative research*. Chicago, IL: Aldine–Transaction.

Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology Journal*, 29(1), 75-91.

Hall, K., Rhoades, E., & Agunga, R. (2009). Student publications' place in the agricultural communications curricula. *Journal of Applied Communications, 93*(1-2), 35-44.

Irani, T., & Doerfert, D. L. (2013). Preparing for the next 150 years of agricultural communications. *Journal of Applied Communication,* 97(2), 6-13. Retrieved from http://journalofappliedcommunications.org/images/stories/issues/2013/jac_v97_n2_article1.pdf

Irani, T., & Scherler, C. (2002). Job Satisfaction as an Outcome Measure Of The Effectiveness Of An Agricultural Communications Academic Program. *Journal of Agricultural Education*, *43*(1), 12–23. https://doi.org/10.5032/jae.2002.01012

Irlbeck, E. G., & Akers, C. (2009). Employers' perceptions of recent agricultural communications graduates' workplace habits and communication skills. *Journal of Agricultural Education, 50*(4), 63-71. doi: 10.5032/jae.200904063

Kroupa, E. A., & Evans, J. (1973). New Directions in Agricultural Communications Curricula. *Journal of Applied Communications*, *56*(3). https://doi.org/10.4148/1051-0834.2003

Kurtzo, F., Hansen, M. J., Rucker, K. J., & Edgar, L. D. (2016). Agricultural communications: Perspectives from the experts. *Journal of Applied Communications*, *100*(1), 33-45.

Leal, A., Telg, R. W., Rumble, J. N., Stedman, N. L. P., & Treise, D. M. (2019). Exploring Beyond the Obvious: Social Skills Needed for Agricultural Communication Baccalaureate Graduates. *Journal of Applied Communications, 103*(2). https://doi.org/10.4148/1051-0834.2188

Miller, J. D., Stewart, D. M., & West, L. M. (2006). Themes, authors, and citations in the Journal of Applied Communications, 2000-2004. Paper presented at the *Southern Association of Agricultural Scientists Agricultural Communications Meeting*. Quebec City, Quebec, Canada.

Miller, J. D., Large, M. M., Rucker, K. J., Shoulders, K., & Buck, E. B. (2015). Characteristics of U.S. agricultural communications undergraduate programs. *Proceedings of the Southern Association of Agricultural Scientists, Atlanta, GA.* Retrieved from https://drive.google.com/file/d/0B7SEi5mPmHpVMi1pTTlJNGtEbDQ/view

Morgan, A. C. (2010). Competencies needed by agricultural communication undergraduates: An industry perspective. *Journal of Applied Communications, 94*(1), 2-20. Retrieved from

http://journalofappliedcommunications.org/images/stories/issues/2010/JAC_v94_n1_n2_article2.pdf

Morgan, A. C. (2012). Competencies Needed by Agricultural Communication Undergraduates: A Focus Group Study of Alumni. *Journal of Applied Communications*, 96(2). https://doi.org/10.4148/1051-0834.1146

Morgan, A. C., & Rucker, K. J. (2013). Competencies needed by agricultural communication undergraduates: An academic perspective. *Journal of Applied Communications, 97*(1), 50- 65. Retrieved from http://journalofappliedcommunications.org/images/stories/issues/2013/jac_v97_n1_article5.pdf

Reisner, A. (1990). An overview of agricultural communications programs and curricula. *Journal of Applied Communications*, 74(1), 3.

Robinson, J. S., Garton, B. L., & Vaughn, P. R. (2007). Becoming employable: A look at graduates' and supervisors' perceptions of the skills needed for employability. NACTA *Journal*, 51(2), 19-26.

Sitton, S. P. (2001). Capstone experience: The key to a successful agricultural communications program. *Journal of Southern Agricultural Education Research, 51*(1), 1-3. Retrieved from http://pubs.aged.tamu.edu/jsaer/pdf/Vol51/P17.PDF

Sitton, S. P., Cartmell, D. D., & Sargent, S. (2005). Developing public relations curricula in agricultural communications. *Journal of Applied Communications, 89*(3), 23-37.

Spector, P. (1992). *Summated rating scale construction*. Thousand Oaks, CA: Sage.

Sprecker, K. J., & Rudd, R. D. (1997). Opinions of instructors, practitioners, and alumni concerning curricular requirements of agricultural communication students at the University of Florida. *Journal of Agricultural Education, 38*(1), 6-13. doi: 10.5032/jae.1997.01006

Strauss, A. & Corbin, J. (1990). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Newbury Park, CA: Sage Publications.

Telg, R. & Irani, T. (2012) *Agricultural communications in action: a hands-on approach*. Delmar Cengage Learning, Clifton Park: NY.

Terry, R., Jr., Vaughn, P. Vernon, J. S., Lockaby, J., Bailey-Evans, F., & Rehrman, M. (1994). *Enhancing the agricultural communications curriculum: A vision for the future*. Lubbock, TX: Texas Tech University Press.

Tucker, M. (1996). Ferment in our field: Viewing agricultural communication research from a social science perspective. *Journal of Applied Communications, 80*(4), 25-41

Tucker, M., Whaley, S. R., & Cano, J. (2003). Agricultural education and agricultural communications: Striking a proper balance in the academy. *Journal of Agricultural Education, 44*(1), 22-30. Retrieved from http://pubs.aged.tamu.edu/jae/pdf/Vol44/44-01-22.pdf

National Agricultural Statistics Service. (2018, May 4). *Trends in U.S. Agriculture: Farm Population and Labor.* USDA. https://www.nass.usda.gov/Publications/Trends_in_U.S._Agriculture/Farm_Population/index.php

Weckman, R., Witham, D., & Telg, R. (2000). *Characteristics of agricultural communications undergraduate programs: Findings from a national survey*. US Agricultural Communicators' Congress, Washington, D.C.