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Abstract

Competencies needed by agricultural comunication graduates to meet industry needs are dynamic, with new technohnologies being integrated into the communication industry annually. Over the past 35 years, several studies have reviewed agricultural communication curriculum by inquiring of students, graduates, faculty, and industry to determine what coursework, competencies, and objectives should be included to prepare undergraduates. Yet, the literature recommends reviewing curriculum every 2 to 5 years. This Delphi study was conducted to determine what competencies are desired by industry for bachelor of science graduates so existing curricullm at [university name] could be revised. Thirty-seven participants from industry came to consensus on 85 statements. Statements were categorized using curriculum categories from Terry et al. (1995). The ten statements receiving the highest level of agreement were "Conduct activities in an ethical manner," "Ability to meet deadlines," "Dependability," "Strong work ethic," "Reliable," "Organizational skills," "Demonstrate professional/business etiquette in workplace," "Ability to multi-task," " Time management skills," and "Ability to be a productive member of a team." This study sought to address a portion of Agricultural Communications National Research Priority Area 4: "What are the skills, competencies, and resources necessary to prepare professional agricultural communicators for success in various aspects of agricultural knowledge management."

Keywords

agricultural communication, graduates, Competencies, skills, knowledge management, stakeholders

Research

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A. Christian Morgan

Abstract

Competencies needed by agricultural comunication graduates to meet industry needs are dynamic, with new technohnologies being integrated into the communication industry annually. Over the past 35 years, several studies have reviewed agricultural communication curriculum by inquiring of students, graduates, faculty, and industry to determine what coursework, competencies, and objectives should be included to prepare undergraduates. Yet, the literature recommends reviewing curriculum every 2 to 5 years. This Delphi study was conducted to determine what competencies are desired by industry for bachelor of science graduates so existing curricullm at [university name] could be revised. Thirty-seven participants from industry came to consensus on 85 statements. Statements were categorized using curriculum categories from Terry et al. (1995). The ten statements receiving the highest level of agreement were "Conduct activities in an ethical manner," "Ability to meet deadlines," "Dependability," "Strong work ethic," "Reliable," "Organizational skills," "Demonstrate professional/business etiquette in workplace," "Ability to multi-task," "Time management skills," and "Ability to be a productive member of a team." This study sought to address a portion of Agricultural Communications National Research Priority Area 4: "What are the skills, competencies, and resources necessary to prepare professional agricultural communicators for success in various aspects of agricultural knowledge management."

Introduction

Courses in agricultural communication have been taught for over 100 years and during that time the discipline has expanded beyond writing for print media (Doerfert & Miller, 2006). Today's graduates can pursue a wide range of career options; from advertising to sales and policy to photography, providing agricultural communication graduates with skills valued by many sectors of agriculture (University of Georgia, 2007). The development of these skills may be due to the intersection of disciplines found in this academic major, as students have traditionally taken courses in basic science, agricultural science, and communications (Tucker, Whaley, & Cano, 2003) which encompass many competencies to be developed by graduates.

Agricultural communication programs have grown over time while gaining popularity as a discipline (Weckman, Witham, & Telg, 2000). At the same time, the communication needs and preferences of agricultural industry professional and agricultural communication stakeholders are changing at a rapid pace (Doerfert & Miller, 2006; Weaver, 2009). Over the past 35 years, several studies have reviewed agricultural communication curriculum by inquiring of students, graduates, faculty, and industry professionals to help determine what coursework, competencies, and objectives should be

included to properly prepare undergraduates for successful careers (Bailey-Evans, 1994; Kroupa & Evans, 1973; Sprecker & Rudd, 1997; Terry, Lockaby, & Bailey-Evans, 1995; Terry et al., 1994). These studies are valuable assets to the discipline, but due to the dynamic nature of the agricultural communications profession and the technologies that continue to emerge, frequent evaluation of curriculum is recommended to determine industry needs. Indeed, agricultural communication programs have a responsibility to provide students with curriculum that equips them for the work place. To accomplish this, curriculum must be periodically reexamined by seeking input from students, instructors, graduates, and professionals (Doerfert & Miller, 2006; Ettredge & Bellah, 2008).

Likewise, industry encourages the profession to review the curriculum every 2 to 5 years to "reassess and readdress the agricultural communications curriculum" (Terry et al., 1994, p. 24). To accomplish this, a model was sought for curriculum revision. Finch and Crunkilton (1999) developed a systems curriculum model that requires feedback from graduates and industry to improve the curriculum. Incorporating input from professionals in the field will help programs mirror the needs of industry (Sprecker & Rudd, 1998).

Beyond professionals, input from stakeholders has been recommended as well (Crowder, 1997; Wolf, 2007). Alumni committees and advisory boards can provide input and recommendations about the curriculum and "desired competencies of graduates" (Tucker et al., 2003, p. 27). Including stakeholder input in this process will strengthen curriculum and graduate competencies, and "is likely to concentrate heavily on the program's performance in providing practical skills perceived as necessary for entry-level employment in the field" (p. 27).

Similarly, the National Research Agenda for the American Association of Agricultural Education, developed by the American Association for Agricultural Education (AAAE), encourages evaluating curriculum. Within Agricultural Communications Research Priority Area 4 is the charge to determine "What are the skills, competencies, and resources necessary to prepare professional agricultural communicators for success in various aspects of agricultural knowledge management" (Osborne, 2007, p. 11).

Past studies have evaluated curriculum from a variety of perspectives. Cooper and Bowen (1989) solicited feedback from program graduates and found they perceived the five most important areas of study completed were agricultural communications, agricultural economics, food science, animal science, and natural resources. Within the communications curriculum, the five most important courses to graduates were writing, editing, public relations, advertising, and photography. When looking back on their overall program experience, graduates stated the most beneficial required course was writing or editing. If they could plan their degree program over again, 40% of the respondents stated they would add more journalism or communication courses, while 34% would enroll in management, marketing, or other business courses. Interestingly, 71% of the participants stated they felt unprepared for the management, marketing, and business responsibilities encountered in their careers.

In a study of agricultural communication faculty members from 30 institutions, Reisner (1990) found the communication courses most commonly required were writing skills, photography, and communications law. The schools studied offered specific discipline options that varied between schools: general agricultural communications, news-editorial, public relations, broadcast, and advertising that allowed students to build skills specific to each option area. Regarding agricultural course electives, industry professionals recommended agricultural economic courses. A criticism was that the curriculums accessed did not require students to take courses relating to "cross-cultural global perspectives, agricultural systems analysis, values and ethics in agriculture, public policy, or leadership" (p. 15).

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In a 1994 study, Terry et al. assembled a panel of leaders from seven agricultural communication professional organizations who determined that agricultural communication coursework should consist of courses from 28 disciplines consisting of 89 specific concepts. The following concepts received 100% agreement: grammar, government policies, history of American agriculture, communicating agriculture to the public-domestic , communicating agriculture to the public-international, agricultural policy, geography, word processing, creative strategies, campaign planning, graphic design, news writing, reporting, editing, ethics, design and layout, problem solving, speech writing, oral communications, scripting writing, and an internship that allows the student to apply learned concepts.

Sprecker and Rudd (1997) interviewed faculty, practitioners, and alumni of agricultural communication and found all three groups agreed the most valuable skill for graduates was writing, as this is the "foundation for success" in communication (p. 9). Overall, four themes emerged among the groups studied. First, a broad overview of agriculture, especially as it applies to the respective state, including policy, law, economics, and trade. Second, students' communication skills were more important than having agricultural knowledge. This was emphasized in further statements by interviewees such as "first and foremost" agricultural communication students are communicators, rather than agriculturalists (p. 9) and a graduate's communication skills will allow them to land a job, not their agricultural knowledge. Next, students need to possess a wide variety of communication skills and apply them proficiently. Finally, the ability to network is a foundational component in agricultural communication.

When analyzing statements among the groups studied, the following themes were found: instructors and practitioners highly valued internships, yet many practitioners that had worked with interns found students' writing skills inadequate. Similarly, alumni felt that students should take courses in which they must take on a project "from inception to completion" (p. 9), emphasizing the application of communication skills. Beyond agriculture courses, coursework focusing on policy, agricultural issues, economics, politics, and international trade were recommended by the participants. In addition, those interviewed felt students should be able to manage issues in the areas of environmental regulation and activism, and predicted that most future graduates would be employed in public relations (Sprecker & Rudd, 1997).

Although many professionals believe the agricultural coursework should be a significant portion of the curriculum, most stated that a solid foundation of communication coursework is critical for undergraduates (Cooper & Bowen, 1989; Sprecker & Rudd, 1997). Indeed, previous research revealed that "communication skills should be the basis of an agricultural communication curriculum" (Ettredge & Bellah, 2008, p. 7).

A study by Irlbeck and Akers (2009) inquired of selected industry professionals that have employed agricultural communication graduates during the previous three years to rate habits and skills of recently hired agricultural communication graduates. Employers ranked the workplace habits of trustworthiness, easy to work with, and reliability highest, while the lowest ranked were creativity, common sense, and organization. Likewise, employers ranked the communication skills of TV production, photo editing, and page layout highest and writing, photography, news editing, and web design lowest.

A synthesis of curriculum research was conducted in 2008 by Ettredge and Bellah which emphasized "students should obtain a solid education in communication and writing" and that a "majority of professionals surveyed considered agricultural coursework to be a major component of agricultural communication curricula" (p. 7). Yet, they were quick to remind the reader that solid communica-

tion skills are "more significant" than agricultural proficiencies (p. 7). In addition, the importance of internships was stated. However, they discovered that over 60% of the articles found were over 10 years old, leading them to state "the majority of available research is dated, and may not serve as an accurate foundation for grounding course offerings" (p. 9) and "current studies are necessary to evaluate potential changes for the education of future agricultural communicators" (p. 8). This lack of current data for curriculum revision was a significant impetus for this current study.

Purpose

The purpose of this study was to determine the competencies needed by agricultural communication graduates as perceived by industry professionals. The objective of the study was to identify the agricultural communication competencies that had the greatest level of consensus. With this information, existing curriculum may be modified or new curriculum developed to provide students with the current knowledge and skills required for today's workplace.

Methods

Because consensus of opinion was desired, the Delphi method was chosen for this study (Stitt-Gohdes & Crews, 2004) and has been used successfully in previous curriculum studies (Martin & Frick, 1998; Morgan, Rudd, & Kaufmann, 2004; Terry et al., 1994). The Delphi method is an efficient method of gathering opinions, as it requires only that participants respond to a questionnaire rather than attend a series of meetings or write a paper (Dalkey, 1969). An 80% level of agreement was established a priori as the level required for statements to move from Round 2 to Round 3 and for statements in Round 3 to achieve consensus (Moreno-Casbas, Martin-Arribas, Orts-Cortes, & Coment-Cortes, 2001; Morgan, Rudd, & Kaufmann, 2004; Simon, Haygood, Akers, Doerfert, & Davis, 2005; Stitt-Gohdes & Crews, 2004).

Participants were chosen using the snowball method of sampling (Ary, Jacobs, & Razavieh, 1996). This method of sampling is a technique whereby a selected set of participants are asked to recommend additional participants. In this study, alumni from [university name] communication program (N = 78) were contacted via email and asked to provide three names of experts in the field of communication. Fifteen alumni responded with names of experts and, using a modified Tailored Design Method (Dillman, 2000), these experts (n = 45) were then invited to participate in the study. Of the 45 contacted, 32 responded to Round 1 of the study by providing responses to the statement, "What competencies are needed for agricultural communication bachelor of science graduates?" yielding a response rate of 71.1%.

Statements from Round 1 were analyzed and condensed using the constant comparative method (Glaser & Strauss, 1967). One-hundred forty-eight statements were derived from this process and presented to the participants in Round 2 where they were asked to rank their level of agreement to them using a five-point Likert-type scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree. Participant demographic information was also collected.

In Round 2, 26 participants responded providing a 57.8% response rate. Means of participant responses to the statements were determined and statements having an 80% or higher level of agreement ($M \geq 4.00$) were used in Round 3 (n = 110). These statements were sorted by level of agreement and presented to the participants using a four-point Likert-type scale to force a positive or negative response to the statement: 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree. Five additional statements that participants wrote in from Round 2 were included as well.

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Thirty participants responded in Round 3, providing a 66.7% response rate. Means of participant responses to the statements were determined and statements having an 80% or higher level of agreement (M ≥ 3.20) were determined to have consensus (n = 85). Throughout the course of the study, a total of 37 individuals participated, with some completing only one or two rounds. Twenty-two participants completed all three rounds. Dalkey (1969) stated that a response rate of n = 13 yielded a reliability of 0.80.

To categorize participants' statements an established system was sought. The divisions established by Terry, Lockaby, and Bailey-Evans (1995) of Core Area, Discipline, and Competencies were used. In some cases, no Discipline or Competency properly categorized the statement, so the researcher labeled the statement with the term Miscellaneous, especially when the statement appeared to address more than one category.

Results

Participants ranged in age from 25 to 55 years old, with a mean of 35.7 years, and consisted of 30 females and seven males. Years spent in the career field of communication ranged from 0 to 35, with a mean of 11.8. Participants had been in their current position 5.6 years on average, with a range of 0 to 18 years. Level of education ranged from bachelor degree (n = 21) to doctorate (n = 1) with 15 having a master's degree. High school career and technical education of participants included agriculture (n = 19), journalism (n = 8), business (n = 7), marketing (n = 2), information technology (n = 1), and none (n = 10, participants were allowed to indicate more than one category). Regarding academic discipline in college, most participants majored in agricultural communication/agricultural journalism (n = 26), while some majored in agriculture (n = 7), marketing (n = 6), journalism (n = 5), and various other disciplines (n = 3, participants were allowed to indicate more than one category). When asked, "What is the primary focus of your position?" most stated administration or management (n = 24) followed by public relations (n = 22) and print publication (n = 15, participants were allowed to indicate more than one primary focus).

Participant statements were categorized into three Core Areas of study: Agriculture, Communication, and General Education. Within these Core Areas are Disciplines as identified by Terry, Lockaby, and Bailey-Evans (1995). Within Disciplines are Competencies; for this study, the Competencies stated by the participants were categorized into one of the Competency categories identified by Terry, Lockaby, and Bailey-Evans. Numbers in parentheses after the statements indicate the level of agreement for the statement.

The Core Area of Agriculture contains 28 statements on which participants came to consensus (see Table 1). The statements ranked highest in the study were, "Conduct activities in an ethical manner" (94.7%), "Ability to meet deadlines" (94.7%), and "Dependability" (94.7%). The competencies of "Strong work ethic" (93.2%) and "Reliable" (90.9%) had the next highest level of agreement. Following these were "Organizational skills" (90.2%), "Demonstrate professional/business etiquette in workplace" (90.2%), "Ability to multi-task" (90.2%) and "Time management skills" (89.4%).

The Core Area of Communication contained 27 statements on which the participants came to consensus (see Table 2). "Effectively communicate verbally" (91.7%) was the competency with the highest level of consensus followed by "Communications Principles- understanding the media mix and how to use them effectively and efficiently" (87.5%), "Ability to identify barriers to communication" (87.5%), and "Communication skills beyond 'listening' - being able to understand what the person is saying" (87.1%).

Table 1
Agriculture Core Area Disciplines and Competencies

Statement	Discipline	Competency	Level of Agreement	SD
Conduct activities in an ethical manner	Agricultural Leadership	Ethics	94.7%	.60
Ability to meet deadlines	Internships	Development of Personal Skills	94.7%	.60
Dependability	Internships	Development of Interpersonal Skills	94.7%	.60
Strong work ethic	Internships	Employee Responsibilities	93.2%	.63
Reliable	Internships	Development of Interpersonal Skills	90.9%	.65
Organizational skills	Agricultural Leadership	Personal Development	90.2%	.66
Demonstrate professional/business etiquette in workplace	Internships	Employee Responsibilities	90.2%	.66
Ability to multi-task	Internships	Development of Personal Skills	90.2%	.66
Time management skills	Agricultural Leadership	Personal Development	89.4%	.66
Ability to be a productive member of a team	Internships	Development of Interpersonal Skills	89.4%	.66
Flexibility in day to day tasks	Internships	Development of Personal Skills	88.6%	.67
Detail oriented	Internships	Development of Personal Skills	88.6%	.71
Ability to listen	Internships	Development of Personal Skills	87.5%	.67
Interpersonal skills. The ability to have genuine one on one conversation/discussion with people	Internships	Development of Personal Skills	86.4%	.75
Dedicated	Internships	Development of Interpersonal Skills	85.6%	.66
Positive attitude that is most concerned with finding answers	Internships	Problem Solving	85.6%	.79
Social skills	Agricultural Leadership	Interpersonal Relations	84.8%	.75
An understanding of professional dress	Internships	Employee Responsibilities	84.8%	.70
Ability to identify current issues in the agricultural industry	Miscellaneous	Miscellaneous	84.8%	.70
Leadership skills	Agricultural Leadership	Miscellaneous	84.4%	.75

https://newprairiepress.org/jac/vol94/iss1/3
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Table 1 (continued)
Agriculture Core Area Disciplines and Competencies

Statement	Discipline	Competency	Level of Agreement	SD
Graduates need the ability to think on their feet	Internships	Problem Solving	84.1%	.74
Beyond all else an ability to listen	Internships	Development of Personal Skills	83.6%	.83
The ability to think on their feet and using the technical knowledge they have gained [in their bachelors program] to apply that info solve real-world workplace dilemmas. This includes the following: Leadership skills, team building skills, and organizational skills	Internships	Application of Ag Communications Concepts	83.1%	.70
An understanding of the business aspects of the major industries of agriculture	Agricultural Economics	Gen Concepts and Principles	81.8%	.72
Real experience in problem solving	Internships	Problem Solving	81.8%	.72
Solid project management skills in diverse and complex situations	Internships	Development of Personal Skills	81.3%	.67
Exceptional interpersonal communication skills	Internships	Development of Personal Skills	81.3%	.88
Understanding of the agriculture industry and terminology	Miscellaneous	Miscellaneous	81.1%	.75

Table 2
Communication Core Area Disciplines and Competencies

Statement	Discipline	Competency	Level of Agreement	SD
Effectively communicate verbally	Public Speaking	Oral Communication	91.7%	.65
Communications Principles- understanding the media mix and how to use them effectively and efficiently	Miscellaneous	Miscellaneous	87.5%	.67
Ability to identify barriers to communication	Public Relations	Problem Solving	87.5%	.67
Ability to create and edit newsletter articles	Journalism	Design and Layout of Publications	87.1%	.71
Communication skills beyond 'listening' - being able to understand what the person is saying. Repeat back what you understand to make sure you are hearing what truly has been (at least attempted to be) communicated.	Journalism	Reporting	87.1%	.51

Table 2 (continued)
Communication Core Area Disciplines and Competencies

Statement	Discipline	Competency	Level of Agreement	SD
My ideal employee would need to be able to write, design, strategize and come up with concepts for clients	Advertising	Miscellaneous	86.7%	.76
Creative	Advertising	Creative Strategies	85.9%	.72
Superior tactical communication skills and instincts	Miscellaneous	Miscellaneous	85.9%	.72
Identify their own strengths and learn how to develop/enhance their strengths from a communications perspective	Miscellaneous	Miscellaneous	85.2%	.71
Ability to create and edit press releases	Journalism	Miscellaneous	84.8%	.70
Translate technical information for lay people	Journalism	Dissemination Systems	84.4%	.75
Reporting skills - formulate and ask meaningful questions	Journalism	Reporting	84.4%	.79
Ability to understand individuals at various educational levels	Journalism	Miscellaneous	84.1%	.74
Ability to work with clients to understand their public relations needs and goals	Public Relations	Campaign Planning	84.1%	.74
Properly select and edit photos for publication	Photography	Composition	83.9%	.66
The ability to differentiate between different styles of writing such as news writing vs. feature writing	Journalism	Miscellaneous	83.6%	.75
How to organize and write viable communications plans. These plans need to "run parallel" with the business/marketing plans	Public Relations	Campaign Planning	83.6%	.70
Knowledge of graphic design / page layout	Advertising	Graphic Design	83.1%	.87
Superior strategic communication skills and instincts	Miscellaneous	Miscellaneous	82.8%	.69
Ability to identify sources	Journalism	Reporting	82.8%	.74

https://newprairiepress.org/jac/vol94/iss1/3
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Table 2 (continued)
Communication Core Area Disciplines and Competencies

Statement	Discipline	Competency	Level of Agreement	SD
Graduates need to have a holistic view of communications	Miscellaneous	Miscellaneous	82.8%	.74
How to develop, write and execute a crisis management plan	Public Relations	Problem Solving	82.8%	.74
Ability to interview sources	Journalism	Reporting	82.8%	.78
How to develop a public relations marketing campaign	Public Relations	Campaign Planning	82.6%	.73
Telephone skills	Public Speaking	Oral Communication	82.6%	.68
The ability to manage people	Public Relations	Personnel Management	81.3%	.80

The final Core Area was General Education which encompassed a broad spectrum of 30 competencies, with the first four focusing on language arts skills: "Correct use of grammar" (90.2%), "Effectively communicating using the written word" (89.4%) and "Correct use of spelling" (89.4%, see Table 3). Competencies which may be difficult to teach set found consensus: "Motivated" (87.9%), "Hard worker" (87.9%), "Willingness to roll up their sleeves to 'Get things done' versus thinking that to fully accomplish a task one must assign this to others" (87.9%), and "Self-starter" (85.6%) were ranked in the top half of the statements.

Following the categories established by Terry, Lockaby, and Bailey-Evans' (1995), the Discipline of computer applications is included in General Education Core Area. "Working knowledge of PC computers" (84.8%), "Web based skills" (83.6%), and "Basic competencies in office software" (83.3%) were all found to be important. Likewise, a working knowledge of communication-oriented software was important as well. "Enough exposure to graphics software to get them into an office and ability to learn/adapt quickly" (83.1%), "Working knowledge of Microsoft Word" (82.6%), "Graduates should have a basic knowledge of the industry standard design programs" (80.5%), and "How to integrate market research and various database tools available" (79.8%). Similarly, many business-type competencies were found in this Area such as "Managing a budget" (84.1%), "Understanding budgeting" (82.6%), and "General business—an understanding of business models" (80.5%).

Table 3
General Education Core Area Disciplines and Competencies

Statement	Disciplines	Competency	Level of Agreement	SD
Correct use of grammar	English	Grammar	90.2%	.66
Effectively communicate using the written word	English	Grammar	89.4%	.65
Correct use of spelling	English	Grammar	89.4%	.66
Excellent writing skills, which I'm convinced is still one of the most lacking areas in business today	English	Miscellaneous	88.6%	.67

Table 3 (continued)
General Education Core Area Disciplines and Competencies

Statement	Disciplines	Competency	Level of Agreement	SD
Networking skills	Sociology	None	88.3%	.62
Correct use of punctuation	English	Grammar	87.9%	.67
Motivated	Miscellaneous	Miscellaneous	87.9%	.67
Hard worker	Miscellaneous	Miscellaneous	87.9%	.67
Willingness to roll up their sleeves to "Get things done" versus thinking that to fully accomplish a task one must just assign this to others	Miscellaneous	Miscellaneous	87.9%	.76
Grammar and writing skills are not enough - must understand the environment, including business, science and law.	Miscellaneous	Miscellaneous	86.3%	.68
Self-starter	Miscellaneous	Miscellaneous	85.6%	.71
Working knowledge of PC computers	Computer Applications	Miscellaneous	84.8%	.75
Managing a budget	Business	Gen Concepts and Principles	84.1%	.74
Web based skills	Computer Applications	Electronic Communication /Networking	83.6%	.75
Love of learning	Lifelong Learning	Miscellaneous	83.6%	.65
Intuitive	Miscellaneous	Miscellaneous	83.6%	.75
Basic competencies in office software	Computer Applications	Miscellaneous	83.3%	.74
Enough exposure to graphics software to get them into an office and ability to learn/adapt quickly.	Computer Applications	Graphic Design	83.1%	.60
Ability to identify appropriate file formats for printed documents	Computer Applications	Miscellaneous	82.8%	.74
Understanding budgeting	Business	Gen Concepts and Principles	82.6%	.68
Working knowledge of Microsoft Word	Computer Applications	Word Processing	82.6%	.77
Principles of marketing- understanding and communicating the differences between a goal, an objective, a strategy and a tactic	Marketing	Marketing Principles	82.6%	.77
Optimistic	Miscellaneous	Miscellaneous	82.0%	.73
Knowledgeable with company/product business/marketing plans	Marketing	Marketing Principles	81.8%	.72

https://newprairiepress.org/jac/vol94/iss1/3
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Table 3 (continued)
General Education Core Area Disciplines and Competencies

Statement	Disciplines	Competency	Level of Agreement	SD
Understanding consumer trends	Marketing	Buyer Behavior	80.5%	.66
Utilize proper research techniques	Miscellaneous	Miscellaneous	80.5%	.71
General business - an understanding of business models.	Business	Gen Concepts and Principles	80.5%	.79
Graduates should have a basic knowledge of the industry standard design programs	Computer Applications	Graphic Design	80.5%	.79
How to integrate market research and various database tools available	Computer Applications	Database Management	79.8%	.75
Experience with current graphic design programs	Computer Applications	Graphic Design	79.7%	.82

Discussion

Participants were in early to mid career, with none near traditional retirement age. They had been in the profession a substantial number of years (11.8), and in their current position for half as long (5.6 years). All participants were well educated, having earned a bachelor degree or higher. Most were involved with agriculture in high school (n = 19). Similarly, a majority of participants majored in agricultural communication/journalism (n = 27), journalism (n = 3), and various other disciplines (n = 5). Likewise, most participants' current position focused heavily on administration or management (n = 24) rather than communication skills. This may emphasize the need for students to be prepared for management and leadership roles and prompt agricultural communication programs to include coursework to address these needs.

Several of the Agriculture Core Area competencies identified by the participants may be indirectly taught in a college courses. For example, the competency "Ability to meet deadlines" is not usually taught in a course, but is assumed to be a component of courses based on assignment due dates and penalties for late assignment submissions. Similarly, the trait of "Reliability" was found by Irlbeck and Akers (2009); yet, these are not traditional objectives found in courses. Likewise, the competencies of "Dependability" and "Strong work ethic" are not usually subjects addressed in courses, but Irlbeck and Akers (2009) discovered similar traits (reliability and work ethic). Many of these competencies are not specifically addressed in course work, but through the structure of the university environment it is as if there is an assumption students will develop these competencies before graduating. Due to the agreement for these types of competencies stated in this study, perhaps more effort should be devoted to incorporating these competencies into courses.

Included in the Area of Communication was a breadth of competencies for graduates to achieve. While verbal communication topped the list, effective listening was also held in high esteem by the participants along with skilled journalistic writing. Verbal communication and writing was mentioned by other authors (Bailey-Evans, 1994; Ettredge & Bellah, 2008; Irlbeck & Akers, 2009), but listening was not seen in previous research. Additional, competencies that may be more difficult to define emerged such as "Superior tactical communication skills and instincts."

Overall, it appeared a holistic approach to communications surfaced. Statements such as ability to "Understand the media mix and use them effectively," "Create and edit a newsletter," "Write, design, strategize, and come up with concepts for clients" and "Graduates need to have a holistic view of communications" lend themselves to the notion that students must be capable to undertake all aspects of a project. Similarly, Sprecker and Rudd (1997) found that "students need to be versatile, able to do many communication tasks thoroughly" (p. 9) and comparable skills were found in prior research (Ettredge & Bellah, 2008; Irlbeck & Akers, 2009). Based on this, it appears students do not have the luxury of narrowing their focus to one area of communications and becoming proficient, but rather need to incorporate all of the elements of communication successfully for clients.

The competencies with the highest level of consensus pertained to English, and in particular grammar. Competencies such as "Correct use of grammar," along with spelling, writing effectively, and punctuation, which are competencies expected of any college graduate, were ranked high in this study by participants. Past research emphasized grammar, spelling, and writing as well (Bailey-Evans, 1994; Irlbeck & Akers, 2009). However, students must go beyond writing and grammar to succeed. The statement "Grammar and writing skills are not enough - must understand the environment, including business, science and law" links to the earlier "holistic" comment in the communications section, emphasizing students are expected to understand how all the disciplines interlink.

Interestingly, rankings related to technology were included with General Education. Having a "Working knowledge of PC computers" was ranked higher than knowing how to use Mac computers (which received less than 80% level of agreement). When addressing competency in software use, participants came to consensus on only one specific program: Microsoft Word®. Regarding graphics programs, consensus showed that having a familiarity with graphics programs was valued, but more important was the ability to learn any program the graduate is required to use. Previous studies did not address these specific competencies. This seems to indicate that knowing a specific operating platform is less important than having the ability to learn a given platform or software.

A general understanding of business principles emerged as well. Although few specific disciplines of business received consensus, managing and understanding a budget was found to be important, as well as a general understanding of business models. Similarly, many dimensions of marketing were valued. Principles of marketing, understanding marketing plans and consumer trends received consensus. Bailey-Evans (1994) found similar results, specifically the competencies of business, management, and marketing all earned a 90% level of agreement or higher. Based in this information, it appears that curriculum should include a solid foundation in business.

As with the Competencies found in the Agriculture Core Area, many of the competencies in the General Education Core Area may be taught indirectly in many courses. Statements such as "Motivated," "Hard worker," "Willingness to rollup sleeves and get things done," "Intuitive," "Optimistic," and "Self-starter" may be more difficult to teach and assess, and perhaps are more associated with one's personality rather than a concept to be taught in class. Previous studies did not address these specific competencies.

The fact that so many of these "indirect" competencies were stated in Round 1, and then gained consensus in subsequent rounds makes one question the qualities employers are finding in new employees today. With statements such as "Willingness to roll up their sleeves to 'Get things done' versus thinking that to fully accomplish a task one must assign this to others," and "Self-starter" ranking in the top half of the statements, could it be that graduates are not meeting employer's expectations? And if this is the case, is it possible to structure courses in such a way that these characteristics are

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developed in students? Irlbeck and Akers (2009) seem to reinforce this finding, as their study found "recent graduates do not seem to understand 'paying dues'" (p. 67).

Additional research should be conducted to determine if graduates possess these competencies that industry participants have identified and if these competencies are learned in the university environment or are they learned after graduation once the graduate enters their career field? A follow-up study should be conducted to determine the specific objectives to be associated with each competency found. In addition, the discipline should pursue feedback from graduates and industry so programs can be periodically reviewed, revised, and improved. Finally, the system of categorizing communication competencies developed by Terry, Lockaby, and Bailey-Evans' (1995) should be updated to include current technologies and skills, such as the World Wide Web and revised to determine if the current categories are appropriate.

Keywords

Delphi, curriculum, undergraduate

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