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Identifying Stakeholders' Needs for Agricultural Communications in Higher Education Curriculum in Australia

Abstract

Agriculture is a vital part of the Australian economy. With an industry poised for growth, and a growing disconnect between consumers and agriculture, additional communication efforts are needed. The purpose of this study was to complete a curriculum visioning process to inform agricultural communications curriculum development in Australia. This study used a qualitative research design consisting of face-to-face, semi-structured interviews with individuals from 14 agricultural organizations and two universities. The results indicated the industry is addressing many challenges, but also has opportunities that would benefit from strategic communication efforts. Participants provided suggestions regarding the specific communication skills and agriculture knowledge future employees should possess. Recognizing these competencies informed the curriculum visioning process for agricultural communications as an academic discipline within Australian higher education. Recommendations for both practice and future research are provided.

Keywords

curriculum development, academic programs, teaching, Australia

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Introduction/Need for Study

From vast sheep stations in Western Australia to tropical sugar cane plantations in Queensland to massive vineyards in South Australia and rolling paddocks of canola in New South Wales, the agricultural industry in Australia is vital to the country's economic, environment, and social sustainability. More than 87,000 agricultural businesses (Australian Bureau of Statistics [ABS], 2022a) contribute AUD\$71 billion to Australia's gross domestic product (ABS, 2022b). The leading commodities are beef, lamb, and wheat, but agricultural production is diverse and includes sugar cane, wine grapes, cotton, fruit, vegetables, poultry, wool, fisheries, and forestry (Australian Bureau of Agricultural and Resource Economics and Sciences [ABARES], 2022). Nearly three-quarters of Australian agricultural production is exported with meat and live animals representing the fastest-growing export segment (ABARES, 2022).

Similar to the United States, the Australian agricultural industry faces many challenges including environmental conditions, economic sustainability, and the ability to provide the growing worldwide population with healthy, wholesome food (Campbell, 2009). Factors such as population growth, urbanization, and rising global meat consumption are leading to greater demand for animal protein and ethical concerns about animal production (Buddle et al., 2018). Beyond animal welfare concerns, extreme floods and drought in recent years have caused major damage in Australia and drawn media attention. In 2018, Australia faced one of the worst droughts in its history. Dry conditions destroyed communities across Australia as the extreme heat ruined crops and forced farmers to decrease their livestock herds (Scarr et al., 2018). In 2021 and 2022, flooding in New South Wales caused a strain on the food supply chain with large crop and vegetable losses (Cassidy, 2022; May, 2021).

The challenges facing the Australian agricultural industry are compounded by a lack of consumer understanding. Fifty-seven percent of Australian consumers said they have never been in contact with a farmer within the last year (Lush, 2017). A study of more than 1,000 respondents who represented each state and territory in Australia found respondents had little knowledge of even the basic aspects of the agricultural industry (Worsley et al., 2014). Because the proportion of the public with a direct connection to agriculture is declining, there is an increasing need to inform more people about the issues surrounding Australian agriculture and how the industry is responding to them (Worsley et al., 2014). While the role of communication has become more significant, many Australian agriculture organizations lack the capability to communicate and engage with the community about the work they do (Vidot, 2017). The disconnect between agricultural producers and consumers (Irani & Doerfert, 2013) supports the need to equip agricultural communicators with the skills to identify information needs and appropriate solutions, and communicate those solutions properly to the audience (Telg & Irani, 2005).

Australian higher education has academic offerings in areas related to media analysis, media production, journalism, professional writing, public relations, and advertising (Irwin, 1993). Mercer-Mapstone and Matthews (2017) examined undergraduate students' perceptions of science communication skills at Australian research-intensive universities. They found higher education institutions are recognizing the need for communication skills in science graduates as the majority of students perceived written and oral scientific communication skills as important and useful for their future careers (Mercer-Mapstone & Matthews, 2017). Australia's agricultural science sector needs to improve its collaboration and communication efforts to meet the

challenges farmers will face in the future (Vidot, 2017). Thus, the future of agriculture in Australia may depend on the ability for individuals to communicate effectively to various audiences.

Although there is great deal of literature about the agricultural communications discipline in the U.S. (Irlbeck & Akers, 2009; Miller et al., 2015; Morgan, 2010), there is limited research exploring agricultural communications curriculum development in other countries. In a study based in the United Kingdom, Miller et al. (2020) collected data from agricultural communications professionals and agricultural science students regarding what skills and competencies they would expect to have in an agricultural communications program. This quantitative exploration found all proposed aspects of the hypothetical program were important, but those working in the industry rated communication skills the highest and students rated the science-based aspects as more important.

Vidot (2017) said the Australian agricultural science sector needs to do a better job of collaboration and communication to meet the needs of farmers for future generations. To satisfy the changing communication needs of the agricultural industry, educators need to consider industry trends, issues, and problems as they prepare new communication graduates with the knowledge and skills to enter the workforce (Doerfert & Miller, 2006). Knowledge obtained through this qualitative study provided insights for initial curriculum development efforts to establish agricultural communications as an academic program area in Australian universities.

Conceptual Framework

Many factors, including an increased emphasis on success skills “have made it necessary for many teaching faculties to become more deliberate about continuous curriculum assessment and improvement” (Hill, 2007, p. 33). Curriculum development is an opportunity to reconnect programs with core strengths of the faculty and provide fresh perspective when training professionals (Devine et al., 2007). The conceptual framework for this study was Wolf’s (2007) curriculum development model. Curriculum development is a continuous process serving as a link “between student perceptions, student learning and assessment approaches, faculty goals for students and their program, alumni success, and employer and society needs” (Wolf, 2007, p. 16).

The model has three primary stages: 1) Curriculum Visioning, 2) Curriculum Development, and 3) Alignment, Coordination, and Development. We focused on curriculum visioning, the first stage of the curriculum development model, which begins with curriculum assessment. The main focus of curriculum assessment is to “examine and reexamine program objectives developed in the language of the attributes of the ideal graduate” (Wolf, 2007, p. 17). This begins by completing a SWOT (strength, weakness, opportunities, and threats) analysis. Data can be collected for the curriculum assessment through focus groups, surveys, and interviews with stakeholders, faculty, and alumni. According to Wolf, the main tasks for the education developer (i.e., an individual outside of the institution) are to “bring awareness of local and broader issues or opportunities, offer expertise in a broad range of curriculum and education approaches, and provide access to research literature” (p. 19). The other steps to complete within the curriculum visioning stage are to identify program objectives, specifically the attributes of an “ideal graduate,” and to describe the program focus. The program focus should identify foundational content and desirable educational experiences (Wolf, 2007).

Purpose & Research Questions

The purpose of this study was to complete a curriculum visioning process to inform agricultural communications curriculum development in Australia. The following research questions guided the study:

RQ1: What are the challenges and opportunities facing the Australian agricultural industry?

RQ2: What communication methods are used in the Australian agricultural industry?

RQ3: What skills and knowledge will be required for future agricultural communicators?

RQ4: What should be included in agricultural communications curriculum in higher education?

Methods

This qualitative study was completed using the tenets of phenomenology. Phenomenological studies allow the researcher to describe shared experiences found during interviews and disregard pre-conceived opinions (Van Manen, 1990). According to Marshall and Rossman (2015), the purpose of a phenomenology is to understand the experiences of a small group of people. The target population of this study was communication practitioners in Australian agricultural commodity groups and agricultural educators in Australian universities. Texas Tech University's Institutional Review Board approved the study's procedures before data collection commenced.

We used purposeful sampling to identify participants. First, we choose organizations representing the Australian agricultural industry and universities offering agricultural sciences curriculum. Because of budget and time restrictions, we focused on organizations and universities on or near Australia's eastern coast. This resulted in 14 organizations and two universities. We used a Google search to identify individuals who worked within the communications or marketing department for the selected organizations. These individuals were then contacted via email to seek their participation. Based on advice of key informants, two university participants were identified who worked at universities offering academic programs in agricultural science. These individuals were also contacted via email. After the interviews were scheduled, the researcher sent a follow-up email one week before each scheduled interview to confirm time and meeting location.

We conducted face-to-face, semi-structured interviews to collect the data needed to address the research questions. Twenty-nine individuals participated in 16 interview sessions. A separate questioning guide was created for the organization and for the university groups to provide some structure in the interview process. The questioning guide for organizations was created to help gain a better understanding of the challenges and opportunities facing the Australian agricultural industry and the communication skills needed to work within each organization. The questioning guide for universities was developed to help gain a thorough understanding of the curriculum development opportunities as well as current industry support and partnerships. The interview guide was reviewed by a panel of experts consisting of faculty members with expertise in curriculum development, agricultural communications, and agricultural education. One of the panel members had previous experience working with Australian universities and agricultural organizations. We made slight revisions to the interview guide based on panel members' feedback to improve the clarity of some questions.

A faculty member trained in interviewing and focus group moderation served as the lead interviewer to conduct 16 in-depth, face-to-face interviews between July 1-12, 2019. With the consent of all participants, each interview was audio recorded and detailed notes were taken to ensure accuracy during transcription. Participants were also informed pseudonyms would be assigned to ensure the confidentiality of their identity.

After transcribing the interviews verbatim, we used NVivo 12 data management software to assist data analysis. NVivo was used to help store and organize the data, but we read and coded information for common themes (Morse & Richards, 2002). In this study, the lead researcher read each of the interviews then coded the information to identify dominant themes. Initial themes were identified from the first transcription, and remaining information was placed into the previously determined themes. As needed, additional themes were created.

To ensure trustworthiness, Creswell (2013) recommended credibility, transferability, dependability, and confirmability as aspects of establishing research rigor in qualitative studies. Conducting interviews in a professional setting can help add credibility to a study; the interviews in this study were completed in the individuals' place of business. For transferability, the context of the study is described while maintaining participants' confidentiality. An audit trail was utilized throughout the study to ensure dependability (Ary et al., 2010). Finally, to ensure confirmability, we organized the information found and reported the findings while recognizing biases during the bracketing process. The lead researcher wrote a personal statement *a priori* to describe personal opinions about the topic area. From this statement, the researcher is able to set aside personal biases toward the research topic or participants (Creswell, 2013).

Findings

Analysis of the interview transcripts led to the identification of emergent themes to address each research question. These are presented in the following paragraphs.

RQ1: What are the challenges and opportunities facing the Australian agricultural industry?

To answer this research question, we identified six emergent themes related to challenges and three themes regarding opportunities facing the Australian agricultural industry. The challenge themes were: *Protecting the Social License to Farm*, *Cultivating Sustainable Agricultural Practices*, *Mending the Gap Between Farm and Fiction*, *Protecting Agriculture Against Detrimental Circumstances*, *Telling Agriculture's Story*, and *Uncertain Future for the Agricultural Industry*. The opportunity themes were: *Increasing Demand for Australian Agricultural Products*, *Emerging Technologies Enrich the Industry*, and *Campaigns to Address Environmental and Agricultural Concerns*.

Protecting the Social License to Farm. The topic of animal welfare and activism was discussed as a major challenge among those who work in agricultural organizations. Riley described social license as “the responsibility to the consumer and stakeholder to implement safe methods of food production.”

Because consumers are paying for the products and becoming more vocal about the type of meat they prefer to eat, Ryan said consumers are demanding “this assurance that you're all totally above board.” William said discourse about animal welfare is more prevalent in Australia

than other countries such as the United States. He said a growing number of Australians are eating less meat due to environment or animal welfare concerns, so it is getting more difficult as an industry to continue doing what they do.

Cultivating Sustainable Agricultural Practices. Violet said her organization is constantly trying to communicate to urban dwellers how their production practices are sustainable. She said conversations about sustainability will continue to strengthen and grow louder. “We look at sustainability as the next animal welfare [issue],” she said.

Charlotte said the sustainability outcry could be from misinformation about the industry. One example is the misrepresentation that cotton is a water-intensive crop and harmful for the environment. Because of negativity surrounding the chemicals used to protect and enhance the growth of the crop, Charlotte said there is a communication challenge to show “Roundup Ready cotton and things like that have enormously changed the way cotton is produced.”

Mending the Gap Between Farm and Fiction. Another challenge facing the Australian agricultural industry is the urban-rural divide. Participants recognized many people in Australia are now two, three, or more generations removed from agriculture. William said there was, at one point, a real connection between agriculture and people because more people lived closer to the agrarian lifestyle, a connection by proximity. However, he said that is no longer the case, as many people have no idea where their food comes from and “have lost a bit of affinity” toward the Australian farmer.

Protecting Agriculture Against Detrimental Circumstances. Participants noted drought is an ongoing battle for Australian agriculture. Lauren said the drought is a major challenge specifically for the Australian red meat industry and there have recently been more bad years than good years. She said: “It’s the drought that is having the most pronounced impact for us as an industry.”

Aside from drought, participants said biosecurity is a major challenge within the agricultural industry to protect agricultural commodities from diseases brought in from other countries. Madison said people are constantly bringing things across the Australian borders that could decimate the industry. One example she mentioned was foot-and-mouth disease, which was found in products brought into the country. In regard to this topic, the main issue for the industry is the gap in communication and helping “the general public to understand the role they play around biosecurity.” She said her organization is working overtime to manage biosecurity on the farm, state, and country level.

Telling Agriculture’s Story. Participants mentioned the capability to communicate their organization’s story in a clear, concise, and consistent manner can be difficult. Some organizations said they do not have an unlimited budget to conduct extensive communication activities across Australia so finding the most effective communications strategies to reach the most people is fundamental to address the negativity surrounding the industry.

Daisy said her organization’s communication efforts are geared more toward producers and making sure the information is conveyed in a manner they can understand because different groups of producers require information provided in ways to meet various levels of engagement. Daisy added targeting the intended audience with customized information and making sure the information is in “nice digestible chunks that makes sense to them” is an important part of their

communication efforts. She said: “You're not throwing an 80-page research report at them and expecting them to digest it on their own.”

Uncertain Future for the Agricultural Industry. This theme addressed how the Australian agricultural industry is facing an aging worker demographic – farmers’ and ranchers’ average age continues to increase. Additionally, participants stated it was an ongoing challenge to obtain and retain skilled agriculture workers. Summer said labor shortage is regularly affecting producers and processors across the Australian agricultural industry. She said: “Some of the big challenges I am seeing is about finding and securing labor, and then training and maintaining them for the longer-term perspective.”

Scarlett said the aging farm population is a challenge for her organization because only about 8% of the organization’s membership is under the age of 35. A concern she said goes back to attracting younger individuals to the agriculture field and retaining them for years to follow. Scarlett said: “The kind of culture shift of younger people coming through and not joining up. It's not what they do like their parents did.”

Increasing Demand for Australian Agricultural Products. Particularly for the live export markets, Quinn said the opportunity for the industry is the increasing demand for protein globally as incomes rise. She said: “There's a lot of demand for protein. Our animals are seen – whether slaughtered here, boxed and chilled, or whether that's the live animals – they're seen as quality.”

Even though participants said Australia is a strong component of the red meat market, Lauren added Australian producers only account for 4% of the global production scale, leading to opportunities to find niche markets.

Emerging Technologies Enrich the Industry. Another opportunity for the agricultural industry is the integration of technology systems and science development to help decrease the cost of production and increase each producer’s ability to raise safe, affordable food. Rick said: “There's all sorts of emerging technologies as to how we can do biosecurity and traceability in particular better.” Violet said innovations in the technology and systems around traceability will allow new avenues for producers and consumers within the red meat industry. She said: “I think once we can start traceability that is adopted by producers, we can actually trace our products from paddock to plate.”

Campaigns to Address Environmental and Agricultural Concerns. A major opportunity for the Australian agricultural industry is to create campaigns to enhance the agricultural industry. One campaign announced was the vision to be a \$100 billion industry by 2030. Ultimately, this means the industry will need to grow by 70% to meet the goal, which will require industry partners to engage in conversations about the future and strategic initiatives. Another campaign and opportunity for the industry is to be carbon neutral by the year 2030. Sofia said a red meat organization has announced the carbon neutral campaign, and “that's definitely a big opportunity. Obviously, there's an appetite for that product already out in the market.”

RQ2: What communication methods are used in the Australian agricultural industry?

We identified four emergent themes to describe the communication methods used in the Australian agricultural industry: *Emphasis on Digital Communication*, *Essentials of Visual Storytelling*, *Write an Engaging Narrative*, and *Utilize Strategic Communications*.

Emphasis on Digital Communication. Almost all participants said digital communications allows them to reach their intended audience and share information easily about agricultural issues. Riley said his organization is utilizing more digital communication to target stakeholders because social media platforms allow a particular audience to be targeted. However, Riley said he sees the need for more printed materials, but it is easier to maintain digital resources based on the organization's budget. He said: "There's always a spot online where you would actually get more information, because that's something that we can update and distribute much more easily."

Part of digital communications is utilizing a website for stakeholders to easily find information about the organization. Daniel said his organization sees the need for a functional website and, during the time of the interview, they were in the process of revamping the website to better meet stakeholders' needs. He said: "We're revitalizing the website because that's the centerpiece of how we deliver communication these days."

Essentials of Visual Storytelling. Visual storytelling allows an organization to uniquely share its narrative through photography, visual graphics, and videos. Lauren said producers within her organization find videos featuring other agriculturalists as credible because they are "more likely to lean in and listen to a short video from another producer." Layla said her organization utilizes the videos featuring Australian farmers "during social campaigns to better tell their story." In addition to videos, infographics were a common tool used to share information in an engaging, distinctive manner. Quinn said her organization needed items that would be noticeable and valuable throughout various work locations, such as work cafeterias. She said: "We do some infographics and those sorts of things that are really simple."

Write an Engaging Narrative. Participants noted most of their communication efforts involve providing text-based publications for stakeholders and members to receive information about industry trends and issues. Violet said her organization utilizes newsletters to provide its members with information. She said: "As an organization, we focus on delivering information for our research, or guidelines" for operating an agricultural cooperation "as opposed to warm and fuzzy information." Lauren said her organization utilizes print media to target specific audience segments, and Sofia, a colleague at the same organization, said: "We've actually got a few different e-newsletters. We are trying to become more targeted."

Utilize Strategic Communications. Participants mentioned having a strategic communication strategy – which allowed key messages to be clear, concise, and transparent – was important for telling a captivating story. Sienna said her organization's communication strategies revolve around "smart" objectives: measurable, strategic, achievable, results driven, and time bound. She said: "The smarter and [more] targeted your objectives are, the easier you can evaluate towards the end of your communications campaign."

According to Lauren, her organization's strategic communication objectives are to foster and prosper the red meat industry, and one particular objective is to ensure her organization's members are confident in how the organization is investing their funds. Lauren added an ongoing

communications challenge for her industry is to enhance consumer support of their products through effective communication strategies.

RQ3: What skills and knowledge will be required for future agricultural communicators?

When asked to consider what skills and knowledge future agricultural communicators should have, the participants responses were categorized into five emergent themes: *Written and Verbal Competencies*, *Multi-Skilled Media Experiences*, *Understanding the Agricultural Industry*, *Thinking About the Big Picture*, and *Presenting Research in Understandable Ways*.

Written and Verbal Competencies. Many participants said strong written and oral communication skills are crucial competencies in the workplace. The ability to write for multiple audiences and objectives is a necessary skill within communications, Quinn said, because “you need to be able to write the annual report, as well as write a Facebook post or an e-newsletter article or whatever.” Regarding verbal communication skills, Sienna said individuals need to be able to write well to communicate effectively. Quinn said communication practitioners need to be able to structure their written and oral communication skills to incorporate more of the storytelling piece. She said: “I do think that's why so many journalists get into communications, and I think do quite a good job because they know what people are looking for.”

Multi-Skilled Media Experiences. Most participants said they need multi-functional, multi-skilled individuals who can display a broad range of skills beyond written communication. Specifically, in media production, Ryan said if he could add one person to the team “video and audio production would be who I would be looking for.” Summer mentioned design and visual communications are both important aspects to a communication team, which she has struggled to find when looking for individuals to hire. She said: “You know very quickly what good communication looks like and despair when you're faced with something that you know just isn't good, that is inaccessible because of the way that's presented, or because of its length.”

Understanding the Agricultural Industry. Although a few participants said agricultural knowledge is not necessarily an expertise needed within their organization, most participants said knowing basic agricultural terminology can help the individual better understand the organization's key messages and communicate those more effectively to the intended audience. Quinn said when she is looking for new staff, a communication background is necessary but an individual who understands the agricultural industry, “whether that was growing up on a farm or in regional Australia or actually working in agriculture more specifically,” better equips the communication practitioners for the challenges the organization faces.

Thinking About the Big Picture. Another important skill for agricultural communicators to have is the ability to think critically and analyze information for the “bigger picture,” a skill Chelsea said adds value because her organization can actually “connect areas for a better experience for our audience.”

Sienna said the biggest gap she currently experiences is finding someone who can think about the different perspectives of a project. She said:

What I see a lot of is people get a task and they just run with it, do it quickly and it's done without really actually sitting down thinking about the big picture and the different perspectives. And then finding the best way of solving the issue.

Presenting Research in Understandable Ways. Participants from organizations and universities alike said it is imperative for agricultural communicators to read a research paper, understand it, and make it coherent for the lay audience. The ability to “understand the research and understand what it is about” is a major skillset. Quinn said this ability allows an individual to read a research report and relay the findings in a user-friendly and adoptable form.

Lauren said the industry has participated in beneficial research over the years, but she currently sees a boundary of translating the findings into something practical and useful. She said: “Sometimes I feel if I could only appoint one more person, [it would be] someone who's really skilled in that translation of the science to the application.”

RQ4: What should be included in agricultural communications curriculum in higher education?

Research question four aimed to identify a potential plan for what agricultural communications curriculum should be incorporated in Australian higher education. We did not summarize these insights into themes; instead, they are presented using the initial phases of Wolf's (2007) curriculum development model (see Figures 1 and 2). Overall, the participants highlighted a need to incorporate more communication skills within agricultural courses at Australian universities. Multiple university participants said a model is needed to understand where graduates are lacking and how to solve the problem with curriculum. Henry said: “Trying to produce what the industry needs sometimes can be difficult if you can't actually understand the target. And when you realize the target is not just one thing, but it's this catacomb of different ideas.”

Jack said there is a demand for agricultural communicators in the industry and students from rural backgrounds who have an interest in this area may pursue it by studying a more general communications degree. In the absence of an agricultural communications course, he said: “You might find kids with an ag background will go and do media and communications course or a journalism course or something like that.”

Conclusions & Discussion

As the percentage of people with a direct connection to agriculture in Australia continues to decline, there exists an opportunity to inform more people about the issues surrounding Australian agriculture and how the industry responds to them (Worsley, 2014). Vidot (2017) noted it is important for the Australian agricultural sector to do a better job of collaboration and communication efforts to meet the needs of farmers and consumers. Research question one sought to gain a better understanding of the opportunities and challenges facing the Australian agricultural industry. Overall, these themes acknowledge the scope and scale of issues the Australian agricultural industry faces. Although an agricultural communications practitioner alone cannot address the challenges of each organization, communication efforts can lead to positive advancements and collaboration within the industry.

Research question two identified the Australian agricultural industry's communication landscape. The findings indicated Australian agricultural organizations used a variety of communication channels to reach their intended audience segments. This finding complements earlier studies identifying the necessity of using a variety of communication efforts to reach the organization's audience segment (Irani & Doerfert, 2013). The participants did note the need for more online and visual communication (specially video) efforts in the future.

Research question three was to identify the skills and knowledge future agricultural communicators need to have. Consistent with Irlbeck and Akers (2009), Miller et al. (2015), and Morgan (2010), this study found participants need agricultural communications graduates who have strong written skills for various types of print media and have the ability to tailor a message for the intended audience. A specific example of this would be translating peer-reviewed agricultural research into plain language so farmers could make practical improvements to their operations. Future agricultural communicators need to be multi-skilled individuals with strong written, oral, and digital media competencies. Specifically, these individuals need to be able to write for print outlets, websites, social media, and public presentations as well as design visual aids for each of these channels. Additional findings suggest individuals need a basic knowledge of the agricultural industry and the ability to think critically. These findings are similar to Miller et al.'s (2020) conclusions from their study regarding the potential for the agricultural communications discipline in the United Kingdom. Miller et al. (2020) recommended courses/modules in a variety of communication courses (e.g., crisis communication, technical writing, online communication, public relations, communication campaigns) and agriculture coursework (e.g., agronomy, animal science, agricultural economics).

Research question four was to gather initial data to inform agricultural communications curriculum development in Australian higher education. The increasing need for agricultural advocacy coupled with a desire for enhanced communication efforts from agricultural organizations are encouraging growth in the agricultural communications discipline (Miller et al., 2015). This study's findings provide insights for the development of agricultural communications curriculum in Australian higher education that could address some of the challenges the agricultural industry encounters. This can be achieved initially by implementing communication classes within existing agricultural degree plans. What is currently not available is the crossover between agricultural sciences and communication to provide an integrated area of academic study. When discussing the future of agricultural communications curriculum in Australian higher education, university participants said they support the idea and believe they can recruit students for this academic area.

After drawing conclusions to address the research questions, we were able to complete the initial steps in the curriculum development model (Wolf, 2007), which guided this study. The first step of the curriculum visioning phase of this model is to complete a SWOT analysis (Figure 1). As the Australian agricultural industry has grown, one strength is the ambition for innovative ideas to further expand the industry. In terms of weaknesses, the industry has a limited number of practitioners who have both an agriculture and communications background. An additional weakness is the potential lack of support for communication efforts within an organization when other factors are competing for time and resources. As the industry continues to grow, there will be more opportunities for communication practitioners to share those innovations. However, a threat does exist related to those in the agricultural industry not valuing the role of communication efforts to achieve strategic goals.

Figure 1

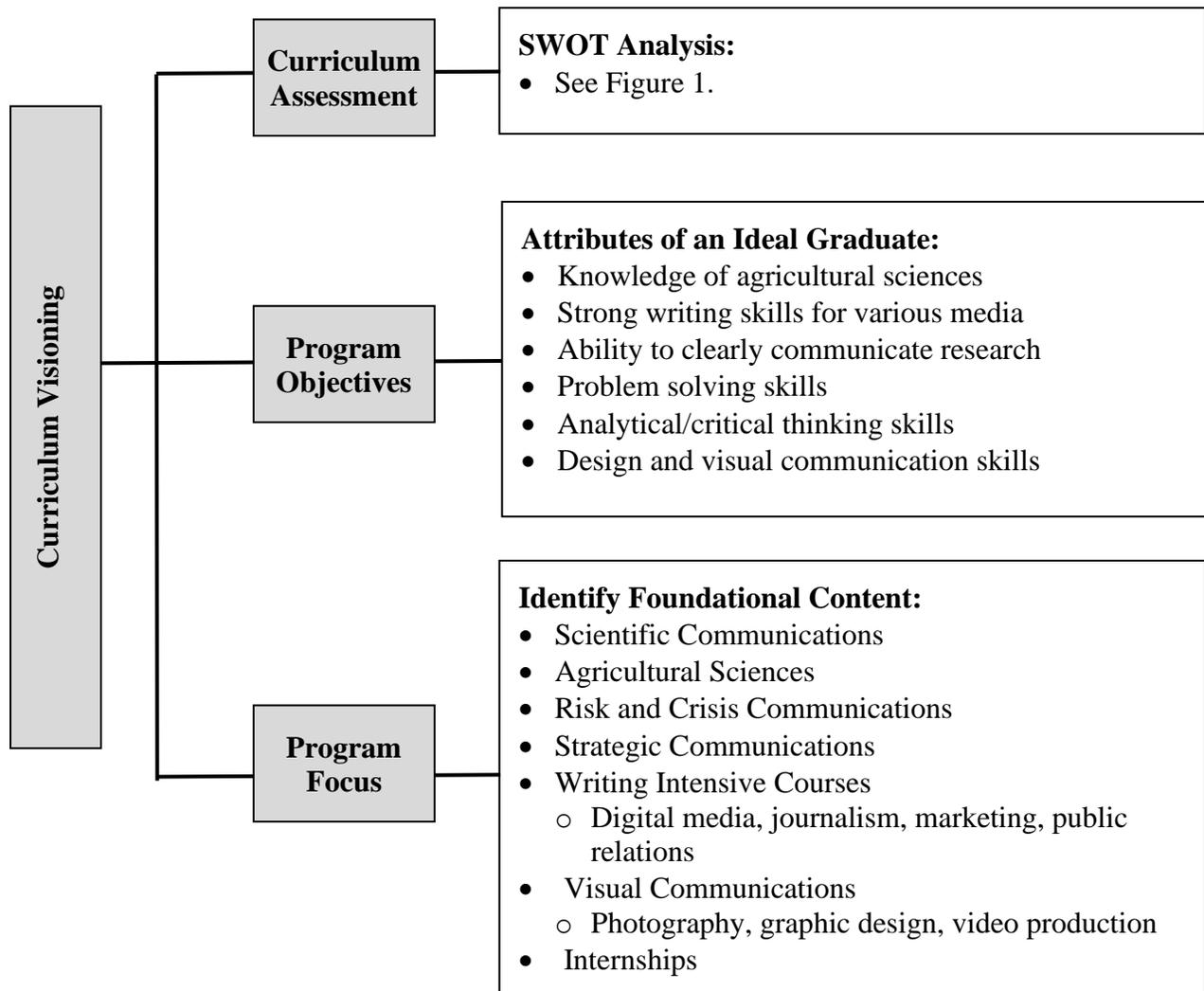
SWOT Analysis for Agricultural Communications Curriculum Development in Australia

S Strengths	W Weaknesses	O Opportunities	T Threats
<ul style="list-style-type: none"> • Agricultural industry supports innovation. • Industry recognizes potential growth areas. • Industry values communication efforts. • Consumer-centered communication is appreciated. • Industry is engaged in curricular efforts. 	<ul style="list-style-type: none"> • Few professionals have both communications and agricultural education backgrounds. • Industry is working to fill voids in communication efforts. • Some individuals may not value communication efforts. 	<ul style="list-style-type: none"> • Need exists for effective communication materials. • Agricultural sciences students recognize value of strong communication skills. • As industry grows, need for skilled communicators will also increase. • Australian higher education recognizes need to equip graduates with communication skills. • Agricultural communication provides another career option. 	<ul style="list-style-type: none"> • Lack of pre-existing agricultural communications academic discipline. • Industry is trying to address challenges and may not value the communicator's role. • Organizations may want to hire graduates from recognizable, established degree areas instead of new agricultural communications degree.

After conducting a SWOT analysis, the next step in the curriculum visioning process is to recognize the program objectives, program focus, and attributes of an ideal graduate (Wolf, 2007). In this study, these include knowledge of the agricultural industry, strong writing skills, scientific communication skills, visual communication skills, and problem solving and analytical skills (Figure 2).

Figure 2

Curriculum Visioning for Agricultural Communications in Australia



Recommendations

This study was completed prior to the COVID-19 pandemic and although agriculture remains an important aspect of Australia’s economy and national identity, the challenges and opportunities identified then may be different from today’s priorities. With this recognition, it is beneficial to continue to explore the potential for developing an agricultural communications discipline in Australian higher education with insights gained from additional research.

The participants in this study were supportive of the need to equip more agricultural science graduates with communication skills. Participants acknowledged agricultural students should possess diverse skills in oral and written communications. How these skills are integrated will look different in various degree programs, but the purposeful focus on improving students’ communication skills will begin to emphasize the role effective communication can play within organizations and the agricultural industry at large. Over time, it may be possible to create a

standalone degree in agricultural communications that integrates the competencies identified in this study with the flexibility to evolve to meet the industry's needs. Universities should partner with agricultural organizations to provide opportunities for students to gain valuable real-world communications experience. This can be accomplished through field trips, guest speakers, internships, service learning, work placement, and research projects. The experiential learning opportunities would provide concrete examples of how communication is necessary in a variety of career fields.

Additional research to inform agricultural communications curriculum development in Australian higher education is also necessary. This would benefit universities that express an interest in implementing agricultural communications curriculum. Miller et al. (2020) collected quantitative data from students and employees regarding the development an agricultural communications degree in the United Kingdom. This approach in Australia would provide a larger dataset from which to draw conclusions. As Miller et al. (2020) recommended, the current study did collect in-depth data from potential employers to describe the communication skills necessary in the agricultural industry. Additional research regarding Australian agricultural organization representatives' communication needs could influence the decision to incorporate agricultural communication courses within Australian higher education. Finally, more research is necessary to develop curriculum for teaching and to further align the program and course learning experiences. Because curriculum development is a continuous improvement process (Wolf, 2007), additional research is necessary to explore approaches to student learning, students' educational outcomes, and industry needs.

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