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Abstract

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Research

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Research

Picturing the Underserved Audience: Photovoice as Method in Applied Communication Research

Abigail S. Borron

Abstract

The use of photographs in sociology and anthropology has grown over the last half of the 20th century, leading to various photo-based research methods that are intended to aid in building and enriching participant narratives. One specific photo-based method, known as photovoice, was developed for the purposes of enabling community members to capture photographs themselves in order to gain a deeper understanding of participant culture. In addition, it has the ability to visually portray and share experiences and knowledge about issues that otherwise would be difficult to explain through in-depth interviews alone. This professional development paper demonstrates the value of incorporating photovoice into a multi-method research project in the field of applied communications for the purposes of gaining valuable insights into the lived experiences of underserved audiences. Drawing from a larger study examining the culture of participants within the Extension-led Expanded Food and Nutrition Education Program (EFNEP), the results and discussion demonstrate that photovoice helps to function as a checkpoint in knowledge production and ways of knowing on behalf of the researcher. In addition, photovoice as method demonstrates an effort that can improve and diversify the field of applied communication research, especially as it relates to the National Research Agenda's priority of addressing vibrant and resilient communities.

Keywords

Photovoice, underserved audiences, qualitative researcher, culture, cross-disciplinary understanding

Introduction

Photography in the early 20th century played a significant role in deepening the understanding of select marginalized groups within mainstream society. For instance, documentary photography captured some of the powerful imagery of rural poverty and land erosion in the West during the Great Depression. Through the establishment of the Historical Section of the Resettlement Administration during the Roosevelt administration in 1935, photographers such as Dorothea Lange captured timeless and symbolic images of suffering in the face of adversity (Curtis, 1986). These images brought meaning and a reality to those back East who, through previously shared stories and news accounts, could not have imagined the actual state of affairs depicted in the photos. As a result, these photographs functioned as a powerful reform tool and were largely responsible for the development of public services to help migrant families (Huff, 1998).

Since then, the use of photography found a place in contemporary qualitative research approaches, especially as they relate to considering the narratives of research participants (Rodriguez & Bjel-

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land, 2008). Taking the initiative to move beyond just spectator or researcher interpretation, Freire (1970) recognized the value of predetermined line drawings or photographs to alternatively engage community members and critically examine their community through means other than written or stated questions. The use of images as method has taken on a number of titles and references, including photo-elicitation, photo ethnography, photo interviewing, and photofeedback (Rodriguez & Bjelland, 2008). All of these methods employ photos as a tool to collect data. Ruby (1991) used the term "photovoice" for "the possibility of perceiving the world from the viewpoint of the people who lead lives that are different from those traditionally in control of the means for imaging the world" (p. 50). Further, Wang and Burris (1997) claimed "photovoice" in an effort to enhance research in public health promotion, and modified it to go one step further by enabling community members to create the images themselves. In considering marginalized communities, Dutta (2008) incorporated photovoice in a multi-method approach to health communication research in an effort to bring together the silenced voices of marginalized communities and foster change through coalition-building at the grassroots level.

Photovoice creates an opportunity to visually portray and share experiences and knowledge about issues that otherwise would be difficult to explain through in-depth interviews alone (Nykiforuk, Vallianatos, & Nieuwendyk, 2011). In addition, it represents a commitment on behalf of the researchers to bring to the forefront the visual voices of participants in an effort to stimulate critical dialogue among policymakers (Wang & Burris, 1997).

With a basis in sociology and anthropology, photovoice has a functional place in strands of scholarship throughout the social sciences including health behavior and education (Wang & Burris, 1997), and health communication research (Dutta, 2008, 2010). For instance, photovoice has also been used in various forms of constructivist research, including community-based participatory research (Stedman-Smith, McGovern, Peden-McAlpine, Kingery, & Dreager, 2012), which places a priority on the sharing of knowledge and valuable experiences in order to reduce the disparity between scientists and communities (Schensul, 1985; Viswanathan, et al., 2004). It has also been incorporated into the culture-centered approach (CCA), which deliberately sets aside ways of understanding the marginalized community from the dominant structure point of view and, rather, privileges the narratives that emerge through conversations with members of marginalized communities (Dutta, 2008).

Purpose and Justification

The purpose of this professional development article is to illustrate how the inclusion of photovoice in agricultural communication research can foster a richer understanding of target audiences and enhance community engagement efforts. In order to demonstrate the value of photovoice as method, this paper first describes a larger multi-method project and the way in which photovoice was incorporated into the process of data collection among members of an underserved audience. The selected project results shared in this paper are derived from the participants taking part in the photovoice activity. These results enabled a co-construction of participant narratives, which allowed themes to emerge that would not have developed had photovoice not been incorporated into the project.

A number of developments in the field of agricultural communication point to the need of this type of work. Conducting a 10-year examination of the common themes and methodologies used in one of agricultural communication's major journals (*Journal of Applied Communications*), Edgar, Ruth-

erford, and Briers (2009) recommended that research methodologies in agricultural communication be improved, while at the same time striving to add depth, richness, and impact to overall research. In addition, the *National Research Agenda for the American Association for Agricultural Education's Research Priority Areas for 2011-2015* took into consideration a variety of societal needs, including the need to address food insecurity, and the importance of strong and resilient individuals, families, and communities (Doerfert, 2011). As a result, the agenda adopted a research priority (recognized as Priority #6) that specifically addresses vibrant and resilient communities and recognizes the need "to evaluate the capacity of a local community to lead positive change, and identify the factors that exert significant influence on change processes and outcomes" (Doerfert, 2011, p. 10).

Addressing the recommendation that agricultural communication research methods need to be improved (Edgar et al., 2009) and community evaluation needs to examine change processes and outcomes (Doerfert, 2011), this paper concludes by discussing how agricultural communication scholarship can benefit from the inclusion of methods, such as photovoice, to further scholarship in the areas of applied communication, theory building, education, engagement, and outreach.

Background

The project on which this paper is based was focused on the held meanings of health and nutrition of low-income families targeted by the Extension-led Expanded Food and Nutrition Education Program (EFNEP). Health and nutrition were used as the entry points with participants, for the purposes of ultimately developing and offering recommendations for land-grant university engagement efforts through educational programs. Two of the five project objectives were tied to photovoice. These objective were as follows: (1) To gain a deeper understanding of the culture of EFNEP participants, as it relates to their held meanings and practices of nutrition and food insecurity, and their negotiation of the structure in which they are situated; and (2) to demonstrate the ongoing and dynamic nature of structure, culture and agency as it relates to the EFNEP participants and university engagement efforts.

Using CCA (Dutta, 2008, 2010) as the methodological framework, photovoice was used with four other qualitative methodologies in the project—semi-structured, in-depth interviews; field observation; reflexive journaling; and two workgroups plus a community forum. All data collection took place from November 2011 to May 2012. The in-depth interviews and community forum targeted three groups: EFNEP participants, EFNEP paraprofessionals and EFNEP administrators.

CCA uses grounded theory to explore the interactions among culture, structure and agency that ultimately create circumstances of marginality (Dutta, 2008, 2010). In the current project, the CCA framework served to give voice to the underserved community members—EFNEP participants—through a series of interactions with them, which entailed all five forms of data collection. By including photovoice, the researcher's intent was to reveal held meanings of health and nutrition that may, otherwise, not surface during the in-depth interviews. In addition, photovoice becomes a key component to the co-constructed dialogue between participant and researcher—visually portraying that the ownership of issues belongs to the community members and not the researcher.

Targeting 15 to 20 current or recently graduated EFNEP participants to take part in the study, flyers were posted in the local Cooperative Extension office located in a large metropolitan city in the Midwest. Those who volunteered to be part of the in-depth interviews also had the option to be part of the photovoice, workgroups, and community forum portions of the project. As it relates to recommended sizes for focus groups, which is how the workgroups were structured, the target number of

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participation was eight (Tang, 1995). Therefore, to secure eight participants in the workgroups, it was determined that the first 10 interviews resulting in the participant volunteering to continue with the study would be considered sufficient.

As one of five research methods used, photovoice was a critical component of the workgroups and community forum. Participants who volunteered to take part in the photovoice project were expected to attend all three gatherings. The combination of all methods was intended to provide rich data and triangulation of findings. Triangulation helps validate findings through the comparison of various data collected (Lindlof & Taylor, 2010). Because CCA relies on grounded theory, these data collection modes were administered in a way that allowed for a continual building, analyzing and reflection of the data (Figure 1).

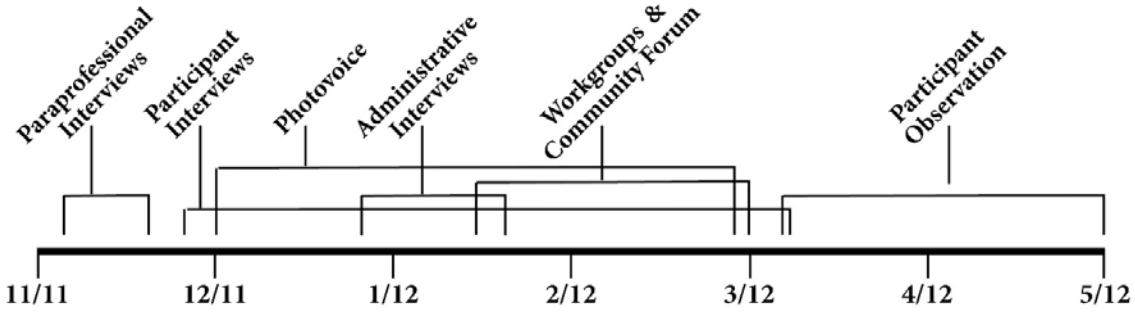

Figure 1: Participants' Involvement in Research Process and Timetable of Methods

In the photovoice component, the 10 participants who committed to the workgroup series were provided a 27-exposure disposable camera and asked to capture images they felt described their experience as it relates to good health and nutrition. In explaining the photo project, the researcher described example subject areas to consider such as challenges feeding the family, experiences in grocery shopping, and other areas potentially influencing health and nutrition. Therefore, the images captured might range from a prepared meal for their family, an empty milk jug, price comparisons when shopping, or the quality of food they purchased. In addition to choosing the content of the photographs, participants were asked to determine their location and timing. The participants had the cameras for three weeks, starting December 17, 2011. They were instructed to take pictures until the camera was spent, and before the first workgroup meeting.

During the first workgroup, participants turned in their cameras and the researcher shared with the participants the major topics based in health and nutrition that had surfaced during the in-depth interviews with the participants. The second workgroup built upon discussion and collective ideas from the first workgroup that could be organized into talking points the group felt best described their lived experiences as it relates to health and nutrition, and that they felt were important to share in the forthcoming community forum. In addition, the participants were provided their respective photos in 4-by-6 prints; a total of 153 photos were captured. Taking turns, each participant shared and talked about their photos with the group. Then, as a group, participants selected 30 photos they felt best captured and described their meanings of good health and nutrition, along with the challenges of achieving good health and nutrition. Issues brought up in the group discussions were led by the participants, while the researcher functioned as a facilitator. During the two workgroups and photovoice portion of the project, collected data included audio recordings of the workgroup sessions, along with the researcher's captured notes regarding the participants' level of emotion and

demeanor when sharing and talking about their photos and experiences. Other collected data via the researcher's notes included any connections or references participants made to key topics or issues discussed as a group in the first workgroup relating to good nutrition and health. Collected data did not include names or any other identifying information. Both workgroups sessions lasted 60 to 90 minutes. Because the photovoice and workgroup project segments were limited to the first 10 EFNEP participants to volunteer, the workgroup sessions took place at a transitional apartment complex located downtown. This complex happened to be the residence of all 10 participants.

The goal of the community forum was to bring together EFNEP participants, paraprofessionals and administrators into a single meeting space. The intent was for the participants to share with the rest of the group priority issues that they collectively determined in the first two workgroups. Prior to the community forum, the researcher reprinted the 30 photos that the participants had selected and mounted them on black poster board so they could be displayed on easels for the community forum. The photos were reprinted into larger sizes – 5-by-7 and 8-by-10 formats – to enhance their visibility and appearance for discussion. The EFNEP paraprofessionals and administrators previously interviewed for the larger study were invited to the community forum to listen to what the participants had prepared in terms of talking points and displayed photos (Figure 2). Including the eight EFNEP participants, a total of 24 people attended the forum.

During the course of the community forum, the EFNEP participants shared their stories, voiced concerns, and displayed and talked about their photo exhibits. In addition, university paraprofessionals and administrators present at the discussion had the opportunity to answer questions, clarify program goals and objectives, and further collaborate in the discussion of solutions. Throughout the duration of the 60-minute community forum, the researcher functioned solely as facilitator. At the completion of the community forum workgroup, participants were given a cash incentive and the option to keep the photos they took.

Each workgroup session was audio recorded with permission from all participants, and transcribed verbatim. Participants' names were replaced with pseudonyms. Using grounded theory processes, analytic interpretations began using open coding, followed by focused coding, axial coding, and selective coding. Selective coding begins to configure the developed constructs into sets of constructs, which examines how they are related to each other. From these relationships comes the development of constructivist interpretations resulting in co-constructed meanings and themes (Charmaz, 2006).

Photovoice Results

Of the 10 participants who volunteered to take part in the photovoice, workgroups and community forum, eight completed these phases of the study. Five were African Americans, and the remaining three were Caucasian; two were male. All eight participants were residents of a downtown transitional housing apartment complex. In order to be a resident of this complex, individuals had to be homeless prior to moving in. All participants had one to six children, aged 3 months to 18 years. None of the participants was employed. Reasons for unemployment, according to the participants, were emotional or physical disability, the need to care for small children, or lack of transportation. All received food stamps; six of the eight participants had diabetes or lived with someone who had diabetes.

Ongoing analysis throughout the duration of the study revealed that nutrition is often situated within the context of a larger discussion that involves substantial barriers to EFNEP participants' adoption of recommended nutritional practices. Amidst the complex social dynamics and evidence

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Figure 2. Two of the four display boards showcasing photos participants selected to be displayed at the community forum

of personal issues that lie just beneath the surface, two themes eventually emerged that were direct results of the photovoice exercise within the workgroup: (1) Frustrations in a downtown food desert, and (2) skewed meanings and ownership of issues.

Frustrations in a Downtown Food Desert

When participants were asked to share and discuss the photos they took, Vivian held up a photo of a cereal aisle (Figure 3) at "The Store" (a pseudonym for a grocery store chain that happened to be the only store within walking distance of the apartment complex). She explained how The Store

had asked to her to stop taking photos of the shelved food items. When asked why she thought they asked her to stop, she said she was not certain, but assumed it was because they didn't want people to know how high their food prices were.

Figure 3. A photo of a cereal aisle at The Store represents Vivian's experiences of dealing with high prices and unfair "big sales" at the end of the month.

If triple coupons were promoted, and subsequently honored at The Store, Vivian explained that it was not until closer to the end of the month, when everyone had exhausted their allocated monthly food stamps. "After you spend your stamps, then they've got all these big sales. Cuz [The Store] will have really nice deals around the 18th to the 22nd… and then they jack the prices up right before the first." Such a statement roused the group, with each individual confirming Vivian's statement and offering their personal complaints and experiences to the perceived unjustified acts of The Store.

This also led into a discussion of food stamps, in terms of monthly allotments and the struggle to have enough. Richard offered his own personal experience for the last few years:

> Plus, they keep dropping my stamps for some reason. They'll take $6 one month, and six months later they take $3 more, then they take four more dollars, and now I only get like $187 for two people. Where, I was getting $310 a couple years ago. Now I'm down to $187. But, it's cuz I get social security now. But, still I've got bills to pay, so I have to be on kinda like a C-Ration, you know what I mean? It ain't plentiful. So, I gotta do what I gotta do to try and pay the bills.

Sara supported Richard's statement, saying, "As long as babies drink formula or as long as kids drink milk, you ain't never going to have enough stamps." She also followed up her statement with a discussion of the high prices of food in general, even identifying that there are often certain unaf-

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fordable foods. "All that healthy stuff is more expensive. It's rich people's food. The only time I get fresh stuff is when I get $10 on WIC per month for fresh fruits and vegetables."

Sara's comment regarding fruits and vegetables sparked yet an additional conversation about personal eating habits and preferences, all tying back to Vivian's picture depicting the perceived high prices found in The Store and the challenge of purchasing healthy and nutritious food. Richard commented, "Anything downtown is high… My sister takes me to the store once a month, faithfully. So, I kinda got me a list of what I want. Ain't very many vegetables on it, you can count on that. Now, I usually get about 10 or 20 canned goods a month. [My son] will eat it, but I kinda have to make him eat it." He added to that, admitting that he did not care for vegetables and tried to get what he needed nutritiously by drinking canned vegetable juice.

Viewing the researcher as a representative of EFNEP, Diane followed Richard's statement by asking, "Have you ever thought about giving coupons or something? Because a lot of that healthy stuff is expensive. Like yogurt. I like yogurt. It's expensive." Penny immediately followed Diane with her own experience with yogurt, saying, "Yeah, I know what she's saying because I go out to Wal-Mart and get like 10 for $6 and that is kinda high."

Through the first two workgroup discussions, as participants shared their experiences, and the others confirmed or validated such experiences, the group began to collectively accept its limited agency within the structure—participants perceived few options for food they needed and could afford. Specifically relating to The Store, each participant agreed that it was not a good option for monthly shopping, but, unless they had access to transportation and could physically use it, then they did not feel they had other options. Participant thus had resolved themselves to accepting the circumstances and dealing with it the best they could. Diane was the first in the discussion to propose the solution of providing coupons for healthier food, such as yogurt.

Skewed Meanings and Ownership of Issues

Diane was another participant asked to share and describe her photos with the group. The majority of her photos were taken of restaurant storefronts in the downtown area, portraying a variety of cuisine and ethnic options. Prior to the second workgroup, the researcher had spent some time examining each participant's photos and, through reflexive journaling, captured initial impressions and assumptions regarding the intended meaning among the photos, followed by a juxtaposition of what was shared during the workgroup:

> To me, my conclusions were quite plausible and, in fact, I would have been comfortable prior to the workgroup discussions to create reasonable explanations that could be shared with the dominant structure for the purposes of developing a deeper understanding of the participants in this study. Therefore, my conclusion from Diane's photos was that these were restaurants situated all around them in close proximity, but were not accessible to them due to high prices. Much to my surprise, my conclusion was far from the truth. As Diane began to share and describe each photo (Figure 4), she revealed that these were restaurants she and her family believe are good and healthy choices, and that they enjoy eating at often. Her response went completely against my assumption of her photos, revealing to me a need for heightened caution and responsibility in interpreting collected data.

Figure 4. A photo of a downtown restaurant storefront represents Diane's enjoyment of eating at such restaurants for their good and healthy options.

As the conversation turned back to The Store through the continuation of photo sharing, and how it served to be a constant source of frustration and limitation to them, the researcher asked, "Do you guys think you have the ability to change things at [The Store]?" The question was immediately met with a collective, "No!" Again, there was a pause, with only a couple of group members quietly saying something to themselves. The researcher then said, "I actually believe you do." As a result, someone in the group alluded to the fact that, because they receive government assistance, they did not have a right to complain and ultimately encourage change. A couple of participants spoke up with varying responses.

Sara said, "If a big group of people get together and have the same complaints about the same store, a lot of times they take it to the store and identify false advertising." Diane followed with, "Get a group of people together… you can try… if somebody don't say something, it's always going to stay just like it is now."

Later, during the course of another discussion, Vivian asked the researcher, "So, you think we can… that you can make some changes in here?" Her question suggested that she had continued thinking about it, contemplating it several moments after the initial statement was made. But, what it also suggested was that she had still not placed the ability on her or the others in the group. Rather she corrected herself mid-question and redirected the responsibility on the researcher, asking "So, you think we can… that you can…?"

Shortly after Vivian's question, it was suggested to the group that a reporter from the local newspaper be invited to the final meeting (the community forum) in order to hear about their plight and struggles with The Store. Group members instantly became very wary of this suggestion because of the fear they had of being seen or connected with speaking negatively of the grocery store. The following is a segment of the dialogue that followed:

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Vivian: "Like I said, if that guy come, and our face is on there, they probably treat you different down there."
Richard: "They'll bar you from over there, too."
Penny: "This is a free country. They can't stop us from speaking."
Richard: "I tell you, they can bar you from coming in their store."
Penny: "So! You ain't stole nothing… But, people will do… I've seen it before. If you piss people off, they will find a way to remove you."

In summary, while the group recognized the benefit of collectively standing up against unfair services, they did not believe that they were a collective that could successfully do it without repercussions.

Discussion

The photovoice methodology employed in this project was used in combination with other conventional social science methods. As a result, photovoice helped reveal and illuminate some of the key issues facing the group. By placing cameras in the hands of EFNEP participants, photovoice exemplified a participatory action research method so that the lived experiences of these participants could be visually represented to internal and external stakeholders of the program (Dutta, 2008). As a result, the participants used the photos to build narratives of their lives that otherwise would have been invisible to the social scientist trying to build an understanding.

Prior to the photovoice portion of the project, The Store had not surfaced as a significant issue influencing health and nutrition choices. It was not until Vivian shared and described her photo of the cereal aisle at The Store that the implications of living in the transitional housing apartment complex began to be revealed. Because The Store was located within walking distance from the apartment complex, participants did not technically live in a food desert, which is defined as an area devoid of a supermarket (Walker, Keane, & Burke, 2010). However, their lack of perceived agency in negotiating various obstacles related to The Store created food desert-like qualities.

This finding became relevant when it was juxtaposed with the overall outreach and engagement on behalf of EFNEP. The reason is because, while the lessons on and demonstrations of practicing good nutrition may be well-received by the participants (as the in-depth interviews had revealed), their ability to acquire the recommended resources is inhibited by the perceived injustices of The Store as described and shared by the participants. Photovoice, as an included methodology lead to the discussion of The Store, which ultimately brought it into the discussion that took place in the community forum. As a result, these experiences were shared with EFNEP paraprofessionals and administrators, most of whom were unaware of such specific struggles, but exhibited concern and a sense of compassion through responses that indicated a desire to help make changes. This finding came to light as a direct result of the participants' voices being heard through their shared narratives and pictures, and their overall lived experiences.

By bringing to the discussion issues such as a monthly decrease in food stamps, limited resources to acquire healthy foods, a fear of stepping up and speaking out against their identified perceived injustices at The Store, and sharing a collective perception of lacking the ability to make a difference, photovoice more clearly revealed the perceived lack of agency within this group of participants. Not only that, but it revealed to the researcher, the essential need to continually step out of the dominant-based epistemology, and set aside presumptive conclusions on what is initially seen or suggested, such

as with Diane's explanation of her restaurant storefront photos, or the participants' fear of speaking up and losing access to the limited resources by being pictured in the newspaper.

In this project, photovoice was a valuable research method in developing a deeper and richer understanding of the EFNEP participant culture and the held meanings. Essentially, it revealed and confirmed that comprehensively understanding the impact of outreach and engagement through EFNEP goes beyond just pre- and post-test measured behavior change or retention of nutrition knowledge, but it also is deeply grounded in the dynamic culture that continually exists in contested intersections with structure and agency. New knowledge may be gained, but what limits or prohibits putting that knowledge into practice?

Of course, there are limitations to this study as it relates to the value of photovoice as an included methodology. First, findings from this project, which took place with a small group of EFNEP participants in a single city, cannot be generalized across the EFNEP organization or other similar outreach programs to low-income, marginalized audiences. Second, it cannot be assumed that the use of photovoice, as part of a multi-method study guided by CCA, is compatible with other theoretical frameworks used by applied communicators. However, it should be kept in mind that, while emerged data are not considered representative in a social scientific way, such building and continual analysis of data can become a reliable slice of a particular historical moment (Wang & Burris, 1997).

Conclusions

In this professional development paper, the use of photovoice demonstrated the opportunity to add a level of depth and richness to the research project through shared experiences about issues that had not previously been shared in the in-depth interviews. In addition, photovoice continually challenged the researcher to set aside personal assumptions and conclusions and work more closely with participants to co-construct their lived experiences and narratives. It also challenged the researcher to set aside a personal agenda of what should be the priorities or next steps and simply listen to the participants and allow their stories to unfold.

In applying the methodology to public health promotion, Wang and Burris (1997) describe photovoice as a methodology that is:

> …well suited to address… 'theory failure.' For example, we frequently encountered the assumption that lack of knowledge was the major problem facing rural women. But by using the photovoice method, the village women themselves documented the fact that their major problems included lack of water, lack of transportation, and lack of child care. As a means of participatory needs assessment, photovoice provides a community-based diagnostic tool to redress the inadequate theory on which programs may be based (p. 384).

This assertion was supported in the current project as photovoice repeatedly made clear that the lack of knowledge retention, low literacy rates and variable rates of behavior change—all, of which, have been common measurements of program evaluation in EFNEP audiences (Brink & Sobal, 1994; Dickin, Dollahite & Habicht, 2005; Hartman, McCarthy, Park, Schuster, & Kushi, 1997)—ultimately became peripheral issues to the participants' lack of transportation, claimed injustices at the only readily accessible store, and overall concern with losing already-limited access to available resources.

Photovoice provides another dimension of understanding the audiences that agricultural com-

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munication researchers are often tasked to understand. Communicators have long recognized the value in allowing participants the opportunity to describe things in their own words. Photovoice accomplishes this goal in the research context by engaging participants in a way to identify and visually portray issues that may otherwise go unsaid. From a research methodology standpoint, it gives the participants a chance to capture a photo outside of the common researcher-participant interview environment, sharing the significance of an issue taking place organically in their everyday lives, when the researcher is not present. In addition, as a benefit to the researcher, newly revealed issues provides an entry point to return to the field and engage participants in additional in-depth interviews or other research methodologies in order to gain further insights.

Looking ahead in the area of applied communication research, photovoice represents an effort to improve and diversify the discipline. This is the case not only in methodologies employed, but also in the consideration of other disciplines, directly and indirectly related to agricultural communication. The larger project referenced in this paper utilized the culture-centered approach (CCA), which is a methodological framework commonly applied to health communication research. It would behoove agricultural communication scholarship to delve deeper into cross-disciplinary frameworks that challenge common epistemologies in order to strengthen the field and bolster the efforts and practices of communication research that need to be maintained and secured in the *National Research Agenda*.

About the Author

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Research

A Case Study of the Crisis Communications Used in the 2009 *Salmonella* Outbreak in Peanut Products

Erica Irlbeck, Jessica Fry Jennings, Courtney Meyers, Courtney Gibson, and Todd Chambers

Abstract

The 2009 *Salmonella* outbreak in peanut products caused by contaminated peanut butter created a period of negative publicity for the peanut industry in the United States. It was one of many large food outbreaks the United States has seen in the past few years. Although one company was the cause of the outbreak, the peanut industry worked together to maintain its reputation. Crisis communications plans were put into effect, and crisis management teams worked together throughout. The purpose of this study was to examine the crisis communications efforts taken by peanut industry public relations practitioners during the 2009 *Salmonella* outbreak and determine which efforts had a successful outcome and which were ineffective. A case study methodology was employed whereby interviews with public relations practitioners that were working in the peanut industry during the crisis were conducted to address the research objectives. The findings indicate that a crisis communications plan is imperative for any organization, with the understanding that every crisis is unique and plans should be adapted accordingly. Plans should include, at the minimum, a crisis management team, a list of audiences that should be contacted, and key messages. In addition, media training should be conducted for potential spokespeople and relationships should be developed with members of the media before a crisis occurs. Investigation of the data and literature allowed the researchers to create a pre-crisis, crisis, and post-crisis model for agricultural communications.

Keywords

risk & crisis communication, *Salmonella*, foodborne illness, public relations, peanuts

Introduction

A crisis can happen unexpectedly and can threaten an organization's expectations, place non-routine demands on the individuals involved, produce uncertainty, negatively impact performance, potentially produce negative outcomes, harm the organization or the public, and produce accusations concerning the organization(s) involved (Adkins, 2010). Crisis management can help fight a crisis, minimize the inflicted damage, and protect the organization, stakeholders, and industry from harm.

In 2009, the peanut industry was faced with a nationwide crisis: an ingredient-driven, widespread *Salmonella* outbreak that included 714 total cases and nine deaths in 46 states (Flynn, 2011). According to the Food and Drug Administration (FDA), there were more than 2,100 products in 17 categories voluntarily recalled by more than 200 companies, in addition to some pet food

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products that contained peanut paste made by Peanut Corporation of America (PCA), the company that was eventually found to be the source of the contamination (FDA, 2009). The outbreak ultimately cost American peanut producers $1 billion in lost production and sales, not including losses to the other channels of distribution in the peanut industry (Hollis, 2009). Sales of jarred peanut butter were down by 24% that January (Hollis, 2009). In addition, 46 people that worked at the Blakely, Georgia PCA plant and 50 people working at the Plainview, Texas PCA plant lost their jobs (WSBTV.com, 2009).

Identification of the outbreak began in November 2008, even though instances of *Salmonella* were being reported as early as September of that year. The Centers for Disease Control and Prevention (CDC) first identified the multi-state cluster of *Salmonella typhimurium* infections (13 cases in 12 states) and began monitoring for additional reports of cases with the same DNA fingerprint (CDC, 2009). The reports peaked with more than 70 cases discovered between December 13 and December 27, 2008. The last report of positive *Salmonella* cases were reported to the CDC on April 28, 2009.

The CDC linked the outbreak to peanut butter products originating from PCA, which had plants in Georgia and Texas. PCA was a supplier of peanut paste and other peanut ingredients to numerous food manufacturers and large containers of peanut butter to the food service industry, making this the largest food recall at the time (Hollis, 2009).

By the end of December 2008, products linked to PCA were determined as the cause of the first death of the *Salmonella* outbreak. In early January 2009, PCA ceased production, and the FDA initiated a food safety investigation (Hartman & Barrett, 2009). An FDA inspection report (2009a) cited large openings along the sides and tops of the trailers that contained totes of raw or roasted peanuts in PCA's processing plant in Georgia. The report also noted (a) roaches; (b) mold on the walls, ceiling, and storage cooler; (c) dirty utensils and equipment used in food preparation; and (d) open gaps in the roof which allowed for wet conditions that could cause *Salmonella* contamination (Glanton, 2009). An independent food safety expert stated that, in the case of the 2009 outbreak, a leaky roof at the processing plant in Georgia was the probable source of the *Salmonella* contamination which allowed bird droppings and rainwater to enter the plant (Borrell, 2009).

Crisis Communications in Agriculture

A major crisis can severely and rapidly damage an organization's reputation and financial standing (Jacques, 2010). When a crisis occurs, it creates a need for information, and through effective crisis communications, information and knowledge are refined and shared with key stakeholders (Coombs, 2010). A common mistake made by many companies and organizations is to think that a crisis cannot happen; however, crises happen all the time, and all organizations should be prepared with a crisis plan (Barton, 2001; Palmer, 2010). When a company does not have a crisis communication plan prepared, many times they do nothing in response to a crisis (Sandman, 1993).

The first step in preparing a crisis communication plan is to conduct a crisis audit, whereby an organization determines its strengths, weaknesses, and vulnerabilities, while also identifying key stakeholders, a potential crisis management team, and potential crisis situations (Heath & Coombs, 2006). The next step is to monitor for any potential risks and practice two-way communications in order to provide timely and accurate information to media, management, board members, and other stakeholders (Palmer, 2010). As a crisis occurs and evolves, the plan should be adaptable and

https://newprairiepress.org/jac/vol97/iss4/10
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able to still be utilized (Leighton & Shelton, 2008).

Literature suggests the following guidelines be used in planning for future crises: form a crisis management team that will create and be able to implement the plan (Crandall, Parnell, & Spillan, 2010); list all audiences the organization needs to communicate with (Ferrante, 2010); have all contact information for stakeholders, media, and other valuable contacts (Ferrante, 2010); develop key messages and a method of dissemination; identify trustworthy media sources (Coombs, 2007); and conduct a crisis audit or mock drill at least once a year to test all of the materials and methods and to check for possible updates (Fearn-Banks, 2001; Palmer, 2010).

The media has paid particular attention to food safety stories since the E. coli in spinach outbreak in 2006 became of interest (Hanacek, 2007). Environmental or health activists were quoted in the media five times as often as food scientists when communicating about food safety since then. However, few reporters have science training, and few scientists have training in communicating with the media in clear and simple language (Anderson, 2000). This creates a problem when trying to inform the public about food safety issues and stories, especially since this information is so scientific and can be complicated to explain and understand. Irlbeck, Akers, and Palmer (2010) found the agricultural industry was rarely mentioned by the national television media during the 2009 outbreak, even though the peanut industry reported losses in the millions. Ten Eyck (2000) found that a possible reason for this is that the food and agriculture industries tend to shy away from the media. Agricultural organizations and companies should be proactive and develop communication materials to tell agriculture's side of the story, and as Irlbeck (2009) found, many reporters want agricultural information, but they are simply not familiar with the topic and do not know where to turn to find information.

News networks were significant media outlets for information in the wake of the 2009 *Salmonella* outbreak. Although third-party organizations, such as government agencies and peanut industry leaders, provided information to the print media (Millner, Veil, & Sellnow, 2011), Barr, Irlbeck, and Akers (2011) found that farmers were not included in the television media coverage of the story. Irlbeck et al. (2010) found the following:

> Although the researchers noticed that no one interviewed a peanut grower, nor did any network present the frame of the farmer, peanut producers were not implicated at all by the national television media during the 2009 *Salmonella* outbreak. This was probably because peanut producers were not at fault, and the FDA's investigations clearly indicated that the blame was on the Peanut Corporation of America (p. 16).

As agricultural communicators have seen different large-scale crises in the industry in the past few years, many realize the importance of a crisis communications plan. This research can be used by public relations practitioners to prepare for and be proactive in creating and executing a crisis communication plan. This information can aid in the preparation for a potential crisis and can enable the practitioners to take proper measures in accordance to the current state of the crisis. This study is significant to the researchers because of the locus of the recall. One of PCA's plants is within an hour's drive from the researchers' institution, plus peanuts are a major commodity to the state, bringing in $1 billion annually (Texas Peanut Producers Board, 2012). In addition, peanut butter is a major supermarket item. The average American consumes more than six pounds of peanuts and peanut butter products each year (National Peanut Board, 2009) making this outbreak of great national concern for both consumers and the agricultural industry.

Theoretical Framework

This study was guided by the excellence theory first proposed by Grunig and Hunt (1984) with the four models of public relations: press agentry, public information, two-way asymmetric, and two-way symmetric, or excellence communications. According to Grunig (1992), when an organization wants its communication efforts to receive favorable publicity, it utilizes press agentry. Public information can be accomplished by communicating information to the public through the use of controlled media, such as newsletters, brochures, and direct mail. Both press agentry and public information are one-way models of public relations and also asymmetrical models.

According to Grunig (1992), the most effective public relations model is the two-way symmetrical model. This model uses research to manage conflict and improve understanding through communications with strategic publics, which makes this a suitable theory for this research. Symmetry-based thinking views public relations as ongoing communication whereby "the public should be just as likely to persuade the organization's management to change attitudes or behavior" (Grunig & Hunt, 1984, p. 23). A symmetrical model represents a balanced flow of communication whereby all parties are communicating with each other as equals (Stacks & Watson, 2007).

Although consumer buying patterns are monitored during a foodborne illness outbreak, they can also be used to determine the effectiveness of the communications efforts. Buying patterns plus other research helps develop messages to persuade the public to behave the way the organization wants (Grunig, 1992). Excellence communications in public relations can help organizations deal with an uncertain, and often threatening, environment (Murphy, 2007). Grunig et al. (1992) offered the following definition of strategic public relations related to crisis communications management:

> If public relations can identify the strategic publics in the environment and manage the organization's response to these interdependencies… public relations can help the organization reduce uncertainty and reduce conflict by stabilizing relationships with key publics on which the organization depends (p. 81).

Organizations must communicate symmetrically with publics (taking the interests of both the organization and publics into account) to cultivate high-quality, long-term relationships with them. Grunig et al. (1992) suggested that in order for an organization to achieve its goals, building long-term, positive relationships with strategic publics is important. Grunig (2008) found that good relationships were valuable to organizations since they reduced the costs of litigation, regulation, legislation, and negative publicity caused by poor relationships.

Purpose and Objectives

The purpose of this study was to examine the crisis communication efforts taken by peanut industry public relations practitioners during the 2009 *Salmonella* outbreak and determine which efforts had a successful outcome and which were ineffective. The following research objectives were used to guide this case study:

1. Describe the crisis communication plans and actions executed by peanut industry public relations practitioners during the 2009 *Salmonella* outbreak.
2. Determine how well prepared the practitioners felt they were to deal with a crisis the size of the 2009 *Salmonella* outbreak.

https://newprairiepress.org/jac/vol97/iss4/10
DOI: 10.4148/1051-0834.1132

3. Describe peanut industry public relations practitioners' perceptions of the effectiveness of their organization's communication efforts during the 2009 *Salmonella* outbreak.
4. Explain the lessons learned by practitioners as a result of their involvement in the 2009 *Salmonella* outbreak.

Methodology

A case study investigates a bounded system, selected because it is intrinsically interesting (Smith, 1978). To study a case means that any method of gathering data, such as testing, interviews, observation, or others can be utilized (Merriam, 1998). For this study, the case was bound to the opinions, thoughts, observations, feelings, and memories of well respected national and state public relations practitioners and other spokespeople who were working in the peanut industry during the 2009 *Salmonella* outbreak. The lead researcher contacted numerous individuals that fit the criteria. After the researcher explained the goals and objectives of this study, seven practitioners agreed to be interviewed about their involvement in and opinions of the 2009 outbreak.

In-depth, face-to-face and telephone interviews were used to explore the viewpoints and perceptions of the public relations practitioners about the 2009 *Salmonella* outbreak. Interviews allow a researcher to gain personal insight from participants as well as obtain subjective information from those involved, including their feelings, attitudes, and beliefs (Berg, 2009).

The researcher used an interview guide and then asked follow up and clarification questions, which created an environment that fostered learning and insight into the participants involvement in and opinions of the outbreak (Berg, 2009). Participants were asked a series of questions concerning their involvement in the outbreak, preparedness, and effectiveness of their organizations' communications efforts, lessons learned from the outbreak, and improvements or changes to their crisis communication plan. The Texas Peanut Producers Board is near the researchers' university; therefore, several interviews took place in person. However, the peanut industry is located throughout the southern United States; so other participants were out-of-state, and the researcher did not have funding for travel. Berg (2009) stated that telephone interviews were an efficient means of collecting data, as long as they consist of precise and preconceived questions; therefore, three interviews were conducted via telephone. All interviews were conducted by the lead researcher and were recorded digitally.

Each participant was assigned a pseudonym before transcription, which assured confidentiality. Interviews were transcribed verbatim, and data were analyzed using open and axial coding with NVivo, a qualitative data analysis computer program. During the open coding, the researcher sorted the data into broad themes that helped address each research objective. Then the researcher categorized the data into sub-themes and used axial coding to ensure all aspects were considered.

The researchers recognized a potential bias as they typically advocate for agricultural producers. However, strategies were employed to achieve trustworthiness, such as establishing an audit trail of all recorded interviews, transcripts, observation notes, and NVivo files. Triangulation was accomplished through comparing interview transcripts, transcripts of news coverage of the outbreak, and literature related to the outbreak as well as crisis communications. Finally, the researcher was extremely cautious about interviewing participants who were actively employed and respected in the peanut industry at the time of the outbreak.

The time lapse from the actual 2009 *Salmonella* outbreak to these interviews, which were conducted in the fall of 2011, was a limitation to this study. The food industry has dealt with other

food recalls and foodborne illness scares since the 2009 outbreak, and the recollection of specific details and events from some public relations practitioners that occurred during the 2009 outbreak could have been impaired over time. The researcher requested an interview from the owner of PCA, but for legal reasons he was not allowed to participate. Interview requests from others associated with PCA went unanswered.

Findings

Five participants worked in public relations in the peanut industry during the outbreak, one was the director of communications for a grocery chain in the South, and one was a farmer who was frequently interviewed during the outbreak.

Findings in Relation to Research Objective One

Research Objective One sought to describe the crisis communication plans and actions executed by peanut industry public relations practitioners during the 2009 *Salmonella* outbreak. Three themes emerged from the data for this objective: communication strategy, effective communications, and ineffective communications.

PCA did not communicate at all during the outbreak, so grower organizations and other peanut industry stakeholders had to provide the information throughout the crisis. All of the individuals interviewed stated that the American Peanut Council (APC) took the lead in all communication efforts. Through APC's planning and coordination, the state and other national groups worked together to communicate that the contamination was not the fault of peanut producers.

NAOMI (director of external affairs at crop producer's organization): APC did a great job of handling the communication during the outbreak. The main contact there took the lead in all communications and kept us informed through market reports and updates through daily email to keep us all on the same page. The peanut butter sales trends showed us how our efforts were affecting the market and helped us to know what was most effective.

CHET (director of state peanut commission): Our main message was that the industry had a bad actor that had been equally condemned by the industry and the public but that this was a rare exception and not a rule. We quickly followed this message with how many good companies are out there and you could buy anything (peanut product) you wanted provided you used caution to avoid recalled products.

The organizations decided delineation needed to be made between PCA and the farmers they represented, considering the farmers had nothing to do with the outbreak. The participants said their strategy was effective.

NAOMI (director of external affairs at crop producer's organization): We got to tell the story about farmers through press releases to local, state, and national media… We did interview after interview locally and over the phone, and we never turned an interview down. If we denied it and turned our back on it, we would be in trouble, and we had nothing to hide.

Another strategy participants found successful was to keep their executive committees, board members, officers and/or other stakeholders informed. The commodity group representatives said

https://newprairiepress.org/jac/vol97/iss4/10
DOI: 10.4148/1051-0834.1132

that as soon as they did an interview or received talking points from APC they would notify their board members. The participants said all board members needed to be prepared to answer questions related to the outbreak as the board members were getting direct information requests from media. The participants said any communications mistakes were minimal, but several said they felt they had to work harder in light of PCA's refusal to comment.

CATHY (director of state peanut board): PCA was the textbook definition of what you should not do. I just remember there was a lot of no opinions, no comment, pleading the fifth, and stating that the owner was not available for comment. In my opinion, mean people were ready to string PCA up anyway and that immediately painted them as the villain.

Findings in Relation to Research Objective Two

Research Objective Two sought to determine how well prepared the practitioners felt they were to deal with a crisis the size of the 2009 *Salmonella* outbreak. Although members of state peanut associations did not expect to be a part of the crisis communications team, they soon were as the outbreak spread nationally. Timeliness was key and the organizations did not delay.

CATHY (director of state peanut board): We knew we had to act fast because they were linking (our state's) peanut producers and farmers to the outbreak.

Some of the organizations effected by the outbreak had a crisis communications plan, and others did not.

WILLAM (involved at the national level of the peanut council): Initially we had a crisis plan for our crisis team and we knew we had to work immediately. We knew that all parts of the industry had to be represented: farmers, suppliers, and allied members. Everyone in the industry had a voice in order to respond to the crisis and that is how we were participating.

CHET (director of state peanut commission): The industry, through the American Peanut Council, had a crisis plan but it was more of a 'who' than 'what' type of plan. There is no way you can have a plan for the details of what we went through. We did have media trained spokespersons and an understanding that we had to have a common message which was clearly understandable to the consumer.

Overall, the public relations practitioners shared the central thinking that with or without a crisis communications plan, it was necessary to take action immediately in light of that crisis. The national organization was prepared with a plan and crisis team already composed and this allowed the smaller state organizations to work with them to implement the plan.

Several participants noted they had conducted media training sessions with their board members, executive officers, or other stakeholders before the crisis had occurred. This standard practice for many of the organizations' board members was invaluable in 2009 as it took much of the workload and worry off the practitioners.

NAOMI (director of external affairs at crop producer's organization): Having those guys and girls know how to talk to the media, how not to ramble, what they should or shouldn't say, and how

not to get off topic- having that done beforehand is very useful and then once you provide them with talking points and make sure they are familiar with them so that when it is their time in front of the camera and you know they are ready to roll and they will stay on target.

Findings in Relation to Research Objective Three

Research Objective Three sought to describe peanut industry public relations practitioners' perceptions of the effectiveness of their organization's communication efforts during the 2009 *Salmonella* outbreak. Most said their communications efforts were effective as peanut butter sales for 2009 as a whole were not impacted.

CATHY (director of state peanut board): I think that we would have really seen supplies drastically decrease for a whole lot longer had we not been turning it around and communicating to everyone. When the economy gets bad, people really start eating a lot of peanut butter.

Having strong contacts with the media before the crisis occurred was one helpful way in which the participants were able to communicate with the general public.

CATHY (director of state peanut board): Having a core group of media people already in the wings to submit information to is helpful. We had made a couple of contacts with local media, including an AP writer, which is an automatic ticket to anywhere and everywhere.

Strong media contacts, answering all information requests, granting interviews, keeping stakeholders informed, and posting information daily to the organization's website are all methods in which the participants were able to effectively communicate their messages throughout the crisis.

Findings in Relation to Research Objective Four

Research Objective Four sought to determine what lessons practitioners learned as a result of their involvement in the 2009 *Salmonella* outbreak. Flexibility was a key lesson that several shared; although a crisis plan is a must, a crisis itself will not follow a plan.

WILLIAM (involved at the national level of the peanut council): The thing is, plans are a wonderful thing, but unfortunately crises do not follow plans. They have their own speed and life. They have a lot of aspects that you cannot anticipate. No one would have ever anticipated that the biggest recall in American history would come from our products. Obviously that is not the case anymore, there have been other recalls, but at that time it was the largest in American history. You know you cannot account for that in a crisis plan.

In addition to a plan, William noted that having a team that was trained and understood responsibilities in the event of a crisis was a key factor in handling the communications during the outbreak. Some of the state organizations said that although they did not have a crisis plan in place, they realize its importance and had since made preparations for a potential crisis.

In 2009, social media was not as important as it is now. Many of the state organizations said their communications would have been different had Twitter been more widely used at that time.

https://newprairiepress.org/jac/vol97/iss4/10
DOI: 10.4148/1051-0834.1132

SAVANNAH (Naomi's intern): I look back and it wasn't that long ago, but you think about the difference of social media now and social media then, and it is huge. The difference now is social media.

Savannah, Naomi, and Cathy all agreed that their plans have changed to incorporate social media as a major component. Having information readily available in a matter of seconds means practitioners must be quick in releasing accurate information and responding to media questions.

Conclusions

It is important for any organization to realize that a crisis can happen; therefore, a plan should be in place. As the crisis stages change, the plan should be adaptable and able to still be utilized (Leighton & Shelton, 2008). APC had a plan and the state organizations adopted it during the 2009 crisis. An important activity in creating the plan is to establish a crisis management team (Crandall et al., 2010). APC kept its team, which included the state organizations, well informed of market trends, changes in the situation, interviews, key messages, talking points and stories broadcast or printed. The state organizations followed APC's example. In addition, nearly all of the participants said they had trained spokespeople well ahead of time. Because of this preparedness, Naomi said her organization never turned down an interview request.

Ferrante (2010) said that all plans should have a list of audiences with contact information. The participants in this study said they had established lists that included board members, staff, farmers, members of the peanut supply chain, and especially the media that they used throughout the crisis. Cathy noted that her organization had developed relationships with reporters ahead of time, which proved to be extremely helpful when she needed the media to help her get information out, which aligns with the suggestions of Coombs (2007). It is important to note that many reporters are unfamiliar with agriculture, and as Irlbeck (2009) stated, many reporters would like to have more agricultural information, but they do not know where to go to find it. This creates an opportunity for all agricultural communicators to make contact with the mainstream media, and in the case of the 2009 *Salmonella* outbreak, it worked.

Although they may not have realized it, the participants involved in this study were utilizing the excellence theory by responding to the public throughout the outbreak. The public relations practitioners used market trends; therefore, they were able to establish if their communications efforts were successful or if they needed make to adjustments, as suggested by Grunig (1992). While PCA was silent and sales plummeted, the public relations practitioners knew they had to step in and build back consumers confidence. Public relations can often help reduce uncertainty (Grunig, 1992), and it did in 2009 as peanut butter sales did not drop that year (D. Koehler, personal communication November 2, 2011).

Recommendations

For practitioners

Previous literature (Coombs, 2006) states that it is imperative for any organization to have a crisis communications plan in place. Palmer (2010) warned all agricultural organizations to be prepared and realize a crisis can occur. The APC had a crisis communication plan as well as media trained spokespersons that were able to handle the crisis communication.

The plan should be in place before any crisis occurs, but it should be flexible enough to be used

for various crises that might occur (Barton, 2001; Coombs, 2006). The team should know what their goal is as well as each individual's role in the case of a crisis. This will help to prevent confusion and a delay in response to a crisis (Barton, 2001; Coombs 2007a; Fearn-Banks, 2001).

Public relations practitioners need to establish a relationship with members of the media before a crisis. This is key to disseminating information quickly and accurately. Individuals in the agricultural industry are not always interviewed or contacted for information (Irlbeck, 2009); however, if the media are familiar with an organization, reporters will be more apt to contact them with questions or concern in light of a crisis (Fearn-Banks, 2001; Coombs, 2007a). This was confirmed by Cathy. Because they had already established a relationship with an AP reporter, they had more success in getting their stories published throughout the crisis.

To keep public relations practitioners up to date, market trends of the agricultural commodity at the center of the crisis should be sent to the crisis team and other relevant stakeholders on a regular basis during a crisis. Everyone can see how the efforts are making a difference in the way that consumers are buying and if they should do things differently.

Steps to take during a crisis

Previous literature from Barton (2001), Coombs (2007a), and Fearn-Banks (2001) suggested to practitioners the steps to take when creating a crisis plan; however, few sources explain what to do during an agricultural or food crisis. Using on previous literature and the data gleaned from this study, the researchers were able to create a pre-crisis, crisis, and post-crisis model for agricultural communications (see Figure 1). Some of the information has already been suggested (Barton, 2001; Coombs, 2007a; and Fearn-Banks, 2001), but a step-by-step model for pre, during, and post crisis specific to agricultural communications has not been proposed. For example, during a crisis, many reporters prefer to speak with an agricultural producer rather than an organization staff member. Regularly training the organization's key producers, board members, or officers helps to ensure they are prepared to address the media should a crisis arise. Also specific to agriculture during a crisis is working together with state, regional, or national commodity groups (when applicable) to create a unified message, field media inquiries, and inform each other of new information. In addition, working with related commodity groups (again, if applicable) could be helpful, depending on the crisis.

It should be noted that the peanut industry has a national organization that took leadership during the 2009 *Salmonella* outbreak; therefore, these suggested steps might be better utilized by a national agricultural organization. However, some of these conclusions could be helpful for any size or type of agricultural organization during a crisis. It is best to review and understand these steps during the crisis planning stage and to utilize the steps during and after a crisis.

For Future Research

Participants in this study briefly mentioned how social media was just getting off the ground during the 2009 *Salmonella* outbreak. Future research could focus on the implementation of social media during a crisis and the effects that it has on consumers' confidence and loyalty once the crisis is over.

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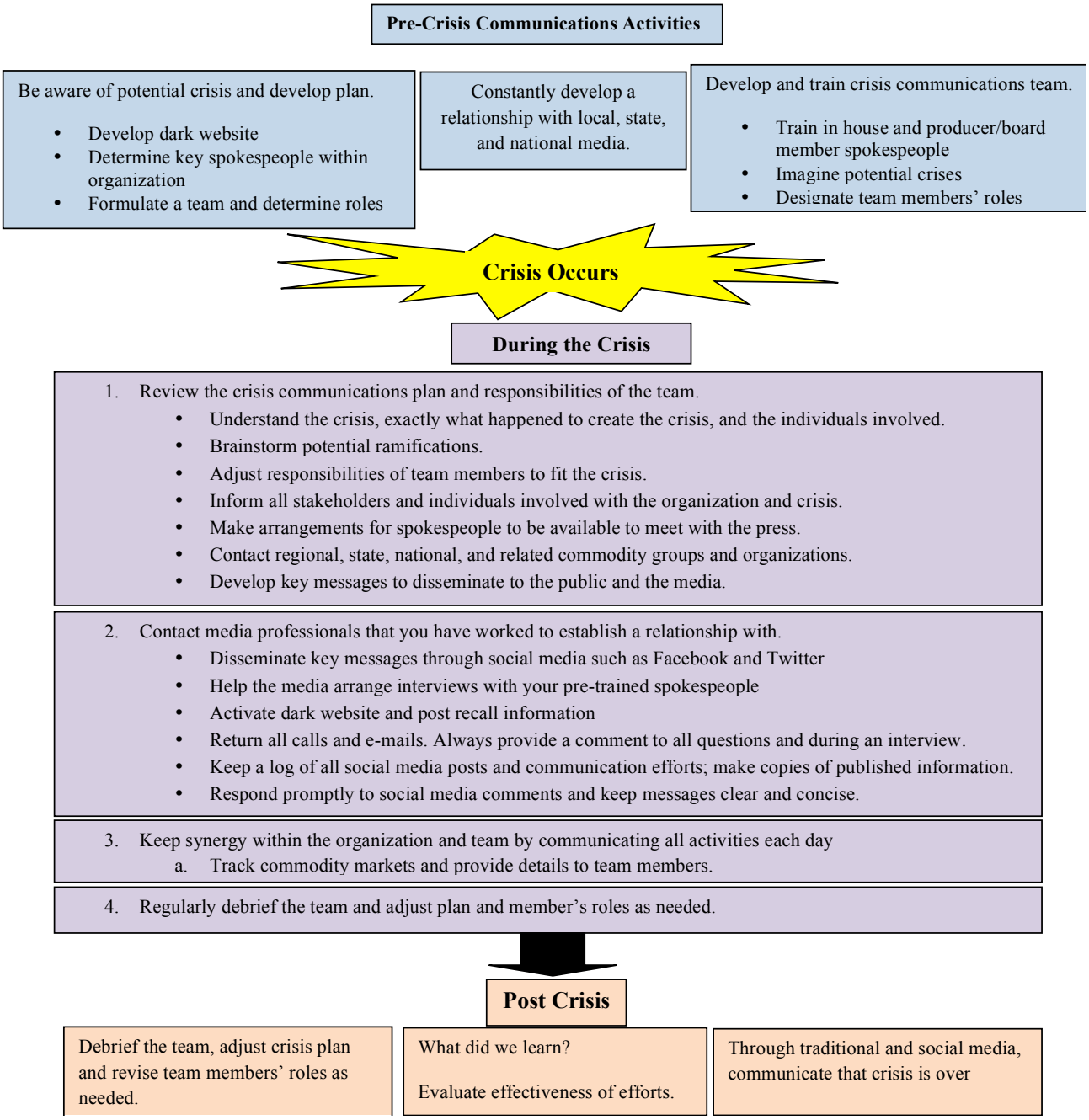

Figure 1 Pre-Crisis, Crisis, and Post-Crisis Model for Agricultural Communications

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Research

Recruiting and Retaining Shareholders for Community Supported Agriculture in Texas

Kelsey Hall, Courtney Meyers, David Doerfert, Cindy Akers, and Phillip Johnson

Abstract

Community supported agriculture provided consumers, known as shareholders, with a share of locally grown products from a farm. Recruiting potential shareholders and retaining current shareholders were challenges for CSA owners since retention rate varied from 20%-70% for CSAs located throughout the United States. The purpose of this study was to explore how Texas CSA shareholders received information about local food and how CSA owners have recruited new consumers and retained existing shareholders. A mixed methods collective case study approach was employed to collect data from an online quantitative survey from shareholders of three CSAs in Texas and qualitative interviews with the CSA owners. Shareholders preferred to search for food choice information on a daily or weekly basis. Websites and interpersonal communication were communication channels sometimes used by shareholders for seeking out information about food choices. CSA owners used a variety of information sources to recruit potential shareholders, including local media, LocalHarvest, events, and word-of-mouth advertising. One of the most common messages delivered to potential shareholders explained the purpose of a CSA. Communication with current shareholders occurred through weekly email newsletters, website, events and conversations. Texas fruit and vegetable producers could use this information in community-based social marketing campaigns to recruit new individuals to join a CSA and retain existing shareholders. Additional research is needed on the information channels preferred by shareholders when learning about the local food movement, particularly CSAs. Research needs to discover CSA owners' marketing challenges, development of relationships with shareholders, and needed resources.

Keywords

local food, community supported agriculture, community-based social marketing, mixed-methods

Introduction/Theoretical Framework

Community supported agriculture (CSA) started as a form of direct marketing in the United States in the 1980s. Interest in CSA membership has increased among consumers who are interested in purchasing locally grown, fresh produce (Farnsworth, Thompson, Drury, & Warner, 1996; Keeling-Bond, Thilmany, & Bond, 2006; Kolodinsky & Pelch, 1997; Polimeni, Polimeni, Shirey, Trees, & Trees, 2006). Consumers become shareholders in a CSA by purchasing either a full share or half share of the products harvested on the farm (Brown & Miller, 2008). Shareholders share the risks and benefits of food production because they pay for a fixed amount of the harvest regardless

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of its actual quantity and quality (Woods, Ernst, Ernst & Wright, 2009). A CSA owner can require shareholders to pick up their shares at the farm, or a CSA owner can deliver shares to a designated pick-up location, farmers' market, or homes. The majority of CSAs provide shareholders with vegetables, fruits, and herbs; however, some CSAs sell shares of eggs, meat, milk, baked goods, fiber, honey, beeswax, or firewood (Brown & Miller, 2008). As a means to meet Texas consumers' interest in purchasing local food, roughly 120 CSAs have sold shares of products harvested on farms to consumers (LocalHarvest, 2011). Since the retention rate of shareholders has varied 60%-70% per year in the nation, recruitment and retention are important factors that could determine the success of an alternative agriculture enterprise, such as a CSA (Adam, Balasubrahmanyam, & Born, 1999; Appalachian Sustainable Agriculture Project, 2011; Oberholtzer, 2004; Strochlic & Shelley, 2004).

Techniques for Recruiting and Retaining Shareholders to a CSA

Shareholders have identified information channels used to recruit them to join a CSA. Word-of-mouth advertising was an important way of increasing the number of shareholders (Kolodinsky & Pelch, 1997). Furthermore, 220 of the 257 CSA shareholders who responded to a survey about their experiences with their CSA owner learned about the CSA from either a friend or family member in the CSA or another member of the CSA (Polimeni et al., 2006). Similarly, the majority of CSA shareholders in Minnesota joined due to knowing the farmer or another shareholder (Cone & Myhre, 2000). Similar to the CSAs in Minnesota, Sweet Peas CSA in the Midwest grew its number of shareholders through various social networks, personal contact with the CSA owners, word-of-mouth, and information distributed at gathering places of consumers who had probable interest in alternative food sources (Sharp, Imerman, & Peters, 2002). Fliers and posters were ineffective sources for recruiting shareholders (Kolodinsky & Pelch, 1997; Polimeni et al., 2006).

CSA owners have used a variety of techniques to recruit new shareholders. Eight CSAs in Minnesota developed their memberships by relying on their friends and associates (Cone & Myhre, 2000). These CSA owners also recruited shareholders through word of mouth, newspaper articles, radio interviews, and fliers (Cone & Myhre, 2000). Similar results were found through in-depth interviews with 13 CSA owners in California, Oregon, and Washington (Strochlic & Shelley, 2004). These 13 CSA owners recruited shareholders by hosting farm events, conducting membership drives, distributing brochures, speaking at local events, and advertising through local newspapers and radio stations (Strochlic & Shelley, 2004). CSA owners received phone calls from prospective shareholders in response to articles printed in local newspapers. Community leaders who promoted community supported agriculture influenced individuals to become new shareholders (Strochlic & Shelley, 2004).

Some CSA owners have hosted events for individuals interested in joining. Roughly 251 CSAs from 41 states offered potluck dinners, farm tours, events for children of shareholders, and educational programs for the community and local schools (Lass, Bevis, Stevenson, Hendrickson, & Ruhf, 2003).

Communication was equally important for the retention of shareholders in CSAs (Oberholtzer, 2004; Strochlic & Shelley, 2004). CSA owners communicated with their shareholders using newsletters, email, websites, and bulletin boards at drop-off sites (Oberholtzer, 2004). Thirteen CSA owners in California, Oregon, and Washington explained that newsletters were the most common and important form of communication with existing shareholders. These newsletters include recipes for each week's share, stories about farm life, profiles of farm employees, and articles addressing

https://newprairiepress.org/jac/vol97/iss4/10
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farming and sustainable agriculture (Strochlic & Shelley, 2004). CSA owners also used institutions (churches, schools, and specific employers) for posting information on their bulletin boards and for updating shareholders using the institutions' communication channels (Woods et al., 2009).

CSA owners have ranked the effectiveness of communication channels used to communicating with their shareholders. Of 205 CSA owners in nine states, more than 90% of CSA owners indicated that one-on-one conversations were the most effective strategy for communicating with shareholders (Woods et al., 2009). The majority of the 13 CSA owners from Oregon, California, and Washington agreed that word-of-mouth was the most effective and cost-effective strategy for recruiting shareholders (Strochlic & Shelley, 2004). The majority of CSA owners from nine states (85%) rated email newsletters sent to shareholders as effective communication channels (Woods et al., 2009). Other effective communication tools were the CSA's own website and the free listing on the LocalHarvest website. CSA owners realized their shareholders often participated in social networks where individuals valued local food and the idea of a CSA. Social networks, such as Facebook, were considered as effective as direct mail. Three CSA owners used a blog, and one CSA owner used Twitter to communicate with shareholders (Woods et al., 2009). In descending importance were farmers' markets, email, mass media, advertisements, on-farm signs, and direct mail.

Community-Based Social Marketing

Community-based social marketing (CBSM) is an approach that promotes the adoption of sustainable behavior in agriculture, such as eating locally grown food (Kennedy, 2010; McKenzie-Mohr & Smith, 1999). According to Kennedy (2010), personal contact at the community level is one of the most effective ways to change behavior. The CBSM approach includes several components: (1) identifying barriers and benefits to performing the sustainable behavior, (2) designing a strategy that uses behavior change tools, (3) piloting the strategy with a small segment of a community, and (4) evaluating the behavior change once it has been adopted in the community.

This study was concerned with communication and prompts as behavior change tools in the CBSM approach (McKenzie-Mohr & Smith, 1999). Communication efforts use messages, credible sources, personal contact, modeling, and community leaders to capture the attention of individuals and initiate behavior change (McKenzie-Mohr & Smith, 1999). These messages need to be tailored to the different segments of the community to be effective. Additionally, effective messages need information that is vivid, concrete, and personalized. Messages delivered through personal contact from credible sources are more influential on forming individuals' attitudes and behaviors than mass media coverage. Persuasive communication research indicates that personal contact is more influential than mass media when influencing attitudes and behaviors (McKenzie-Mohr & Smith, 1999). Examples of personal communication sources are farmers, consumers, extension agents, family members, and neighbors. However, mass media channels—newspapers, radio, and television—disseminate information to a large audience and can increase knowledge, which can change weakly held attitudes and behaviors (Rogers, 2003).

Visual and auditory prompts remind individuals to engage in a sustainable behavior that they have already performed; however, these prompts do not increase individuals' knowledge or change their behavior (McKenzie-Mohr & Smith, 1999).

Few studies have used CBSM to promote local food movement activities. Pierre (2010) used a single case study methodology to explain how Parry Sound Community Garden can use CBSM techniques to recruit community members that want the responsibility of a garden plot and to re-

tain those members for the duration of harvest and distribution. Results identified the benefits and difficulties to community gardening at the individual, family, and community levels. Then, the researcher chose to develop a website as the main communication tool to inform residents about the community garden (Pierre, 2010). In another study, an environmental advocacy class at a small Maine school used CBSM to determine what behaviors need to change to increase the amount of local food provided in the cafeteria (Ross, 2005). Students in the course conducted focus groups with students to discover their opinions about local food in the cafeteria and what norms, barriers, and incentives influenced their local food eating habits. The class wrote marketing messages in response to the focus group findings and created posters and table tents.

Purpose and Research Questions

The 2011-2015 National Research Agenda Priority Area 6 encouraged the development of solutions that engage citizenry and profitable agricultural enterprises, such as CSAs, in rural communities (Doerfert, 2011). The average retention rate of shareholders is approximately 60-70% per year in the nation, so CSA owners must continually recruit new shareholders to remain viable (Strochlic & Shelley, 2004). Successful recruitment and retention is an issue of vital importance because a CSA depends on a direct relationship between the owner and shareholders (Oberholtzer, 2004; Strochlic & Shelley, 2004). Fruit and vegetable farmers could use the knowledge gained from this study to implement their own marketing campaigns for retaining existing shareholders and recruiting new consumers to join a CSA. The purpose of this study was to explore how Texas CSA shareholders receive information about local food and how CSA owners have recruited new consumers and retained existing shareholders. The following research questions were used to guide the study:

1. What are the information channels shareholders use to learn about food choices?
2. What were successful strategies owners have used to market their CSA?

Methods/Procedures

The research questions addressed in this study were included in a larger collective case study, discovering the marketing strategies used by three CSA owners and the factors that influenced their shareholders to join. Bromley (1990) described a case study as "an attempt to systematically investigate an event or a set of related events with a specific aim of describing and explaining this phenomenon" (p. 317). One variation of the case analysis is a collective case study, which uses several data sources from several sites to illustrate an issue or concern. A collective case study is frequently regarded as more robust than other variations of case studies because it is considered more compelling and it is used to compare and contrast situations (Yin, 2003).

The researchers employed a mixed methods design that collected and analyzed the results of an online quantitative survey and qualitative interviews concurrently but separately (Creswell & Plano Clark, 2007). For the quantitative data collection, the researchers called the 126 CSA owners in Texas from a list accessed from LocalHarvest, an organic and local food website that maintains the most comprehensive searchable database of CSAs in the United States (LocalHarvest, 2011). These CSAs were located in cities, such as Houston, Dallas, Fort Worth, Austin, San Antonio, or rural communities. Sixty-four out of the 126 CSAs in Texas either ceased operation or did not have a working telephone number. The remaining 62 Texas CSAs from the database were used as the population for the study. The researchers called the 62 CSA owners asking for their participation in

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the study. Out of the 62 CSA owners, three CSA owners agreed to participate in the study. Most of the CSA owners would not participate in the study because sharing their customers' contact information with a third party was a violation of their CSA member agreement or contract. CSA 1, located near Dallas, has 50 shareholders from the Dallas and Fort Worth areas. CSA 2, located in a rural community in Northeast Texas has 83 shareholders of which 39 shareholders gave permission to receive the emails asking for their participation in the study. CSA 3 was in a rural community near San Antonio and has 120 shareholders from several communities, including Austin, San Antonio, New Braunfels, and San Marcos.

A researcher-developed questionnaire was used for collecting the quantitative data presented in this manuscript. One construct indicated how frequently shareholders used 12 information channels when seeking out information about food choices, using a 5-point Likert scale ranging from 1 (never) to 5 (always). A panel of experts comprised of faculty and graduate students in agricultural education and communications established face and content validity of the questionnaire. The panel's comments were used to revise the questionnaire before submission to the university's Institutional Review Board. Prior to administering the questionnaire to the study's sample, researchers conducted a pilot test with shareholders of two CSAs in the state to establish reliability of the researcher-developed questionnaire. The Cronbach's alpha value from the pilot test was 0.50 for the information channels construct. The low alpha level could be explained by the homogeneity of the responses by the sample or the use of a researcher-developed questionnaire (Ary, Jacobs, Razavieh, & Sorensen, 2006). Researchers administered the survey using SurveyMonkey™, an online questionnaire builder and administrator service. The CSA owners did not permit access to the names, mailing addresses, phone numbers, and email addresses of the CSA shareholders due to a privacy clause in their CSA contracts. The researchers created the emails and online survey that the CSA owners sent to their shareholders. As the first contact with participants, CSA owners sent a pre-notice email to their shareholders requesting assistance with completing the questionnaire. One week later, CSA owners sent an email with the link to the online survey as the second contact. CSA owners sent an email two weeks later to thank their shareholders for responding to the questionnaire and reminding others who had not.

Eighty-five out of 209 participants responded to the online survey for a response rate of 41%. The data for each CSA were combined into one Excel spreadsheet and imported into SPSS® 18.0 for Windows™ PC. The researchers handled non-response rate to the online survey by using the Fisher's exact test (Ary et al., 2006). No significant differences were found between early and late respondents for ethnicity, employment situation, marital status, ownership arrangement, and the number of children under 18 living in their households. Frequencies and descriptive statistics described shareholders' use of information sources. The results presented in this study are cumulative of the three CSAs.

For the qualitative data collection, one of the researchers followed an interview guide to complete semi-structured telephone interviews with the three owners of the CSAs in Texas used for the quantitative data collection. The questions addressed the CSA owner's recruitment strategies, successful marketing strategies, marketing failures, consumer relationship building strategies, needs for marketing support, and feedback setup. Each telephone interview lasted roughly 40 minutes and was completed the same month the survey was administered. Each interview was audio taped to facilitate accurate transcription. The researcher also wrote down responses to the questions and thoughts during the interviews. The researcher protected the identities of the CSA owners by masking their

names in the data. The interview transcripts were analyzed using NVivo 9.0, a qualitative data management software. The data analysis process followed a standard format of open coding then axial coding. In open coding, researchers organized the data and made sense of the information by forming initial, major categories (Creswell, 1998). Axial coding allowed researchers to re-analyze the data after open coding to create categories that are associated around a phenomenon (Creswell, 2007).

For the mixed methods design, the quantitative and qualitative data were collected concurrently and were given equal weighting. Researchers chose to merge the data after separate analysis of the quantitative and qualitative results (Creswell & Plano Clark, 2007). Researchers select this mixed methods approach when they want to better understand a research problem by collecting "different but complementary data on the same topic" (Morse, 1991, p. 122).

Results

Question 1: What are the information channels shareholders use to learn about food choices?

Respondents indicated how frequently they sought out information sources to learn about food choices on a 7-point Likert-type scale ranging from 1 (never) to 7 (more than once a day). Table 1 showed the most common responses were daily (*n*=15, 30.6%) or weekly (*n*=12, 24.5%).

Table 1
Respondents' Frequency of Searching Food Choice Information

Frequency	*n*	%
More than once a day	3	6.1
Daily	15	30.6
Several times a week	5	10.2
Weekly	12	24.5
Monthly	9	18.4
Yearly	3	5.1
Never	2	4.1

Respondents were asked how frequently they used 12 information channels when seeking out information about food choices. Frequency of use was measured on a Likert-type scale ranging from 1 (never) to 5 (always). As seen in Table 2, websites (M=3.81, SD=0.95) followed by interpersonal (M=3.10, SD=0.95) were sometimes used. Email (M=2.71, SD=1.12), events (M=2.38, SD=0.99), and print publications (M=2.33, SD=1.07) were rarely used.

Question 2: What were successful strategies owners have used to market their CSA?

Three themes described successful marketing strategies: (1) activities for recruiting potential shareholders, (2) messages delivered to potential shareholders, and (3) communication with current shareholders. For the recruitment of potential shareholders, CSA owner 1 already operated an organic garden center year round and a farmers' market twice a month on the farm. In 2008, the owner used a mailing list of individuals who attended the farmers' market. The owner sent a polling question to the individuals seeking their interest in joining a CSA, receiving 80 responses. Most of the individuals found the farmers' market through the owner's posting on the LocalHarvest website or an Internet search engine. CSA owner 3 also advertised on the LocalHarvest website with a description of the farm's organic practices, the CSA, and pick up locations.

CSA owner 1 and 2 recruited potential shareholders using local media. Local neighborhood

https://newprairiepress.org/jac/vol97/iss4/10
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newspapers and a large metropolitan newspaper were notified with a press release about the CSA. CSA owner 2 has run a short classified advertisement in the local newspaper. The advertisement listed five chemicals found on many produce and the question "Are these in your food? They are not in mine." The owner included a phone number and website address for readers. The message in the classified advertisement was slightly changed every three to six weeks to catch the eye of different readers. CSA owner 2 contacted the local television station, airing a news story on the CSA. So many viewers responded positively to the story on the station's website that the station returned to cover a story about the farm's bee operation. A local television station learned about CSA 3 from a Facebook advertisement and contacted the owners for a television interview. The owners completed the interview at the station talking about the purpose of the CSA, the vegetables grown, the delivery pick-up areas, and the cost of joining. The interview helped recruit a few new shareholders.

Table 2
Respondents' Frequency of Using Information Channels

Information Channel	*n*	*M*
Websites	47	3.81
Interpersonal	50	3.10
Email	49	2.71
Events (farmers' markets, on-farm)	50	2.38
Print publications (fliers, newsletters, brochures)	49	2.33
Social media (Facebook, MySpace, Twitter)	50	1.96
Local broadcast (television, radio)	50	1.88
Cooperative extension (agent, website, materials, events)	49	1.88
Local newspaper	49	1.86
Presentations at local organizations	49	1.73
Direct mail	49	1.53
Other	27	1.33

Note. The scale was 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, and 5 = Always.

CSA owner 3 invested a lot of time to design a website describing the CSA, the vegetables given in a share, the length of the CSA seasons, the cost, and delivery locations. The CSA owner also sold produce at farmers' markets where consumers could learn about the CSA. A display of photos from the CSA website was set up at the farmers' markets. Brochures were also available for consumers to pick up. The brochure has the website address where they could go for more information.

Another strategy relied on word-of-mouth advertising of farm activities and involvement by shareholders. CSA owner 2 encouraged shareholders to volunteer time on the farm to complete daily tasks:

> When they walk around and see that I'm real busy in the morning with my customers, my customers go out and feed my rabbits, water them. One customer actually cleans the cages and hauls the manure over to the compost pile for me. I got a customer who turns the compost pile. They are doing something involved on the farm, and when they get home they are going to talk about that. That is more word-of-mouth advertising going for you.

On-farm events were another recruitment strategy for potential shareholders. CSA owner 2 placed a sign in front of a study plot on the CSA to promote the organic farming practices studied by

a university and AgriLife extension. University alumni and fans stopped by the farm to learn about the study, and a few have joined the CSA as a result of this activity. The local extension agent held an event at the CSA for 30 Master Gardeners in the area. The owner spoke with the attendees and showed them the farm facilities. Some of these attendees purchased a CSA membership. After the event, the agent sent a press release to promote the success of the event. CSA owner 1 offered a meeting and tour of the farm to potential shareholders. Before the potential shareholders join the CSA, the owner requires that the potential members meet and tour the farm. CSA owner 1 explained the reasoning behind hosting the event:

> It [joining the CSA] is an investment, and you wouldn't ever expect people to invest money without doing due diligence. It is an opportunity for me to make sure that no one comes in with misconceptions. I do not want people coming and thinking that this is a huge commercial farm, and we are just growing acres and acres of food and that there is never going to be a week where there isn't something to pick up. I don't want them to think that because they will be disappointed, complain, and quit.

Messages Delivered to Potential Shareholders.

CSA owners delivered a variety of messages to potential shareholders. In an informational letter sent to potential shareholders, the CSA owner 1 explained what the CSA entailed, the importance of supporting small, local farms, and the concept that a CSA was not pre-paying for groceries. The informational letter further explained that the produce from the CSA did not replace a trip to the grocery store because there were products the farm did not grow. The owner wanted potential shareholders to understand that they invested in a small farm and the return on their investment was a share of the food produced. Production was weather driven and seasonal. Owner of CSA 3 talked to potential shareholders about farm's 20-year reputation and the purpose of the CSA, explaining that the CSA was ideal for individuals who were willing to try many fresh vegetables that were tasty. A farmers' market or other way of getting local food was more appropriate for people who had limited eating habits. The owner educated shareholders by telling them a membership provided a share of the crops, and they received what was produced. Additionally, CSA owner 3 told potential shareholders about the cost of the CSA in comparison to nearby CSAs. This CSA offered a smaller share that cost $20 per week, which was almost half the cost of other CSAs in the area. CSA owner 3 explained the reasoning for this message.

> We are competitively priced because we were trying to make the CSA more reasonable. We have heard over the past few years that people buy a $30 or $35 share from a farm, and they can't use all of it. Unfortunately, some people see too much produce as a negative thing in their view, and they don't want to sign back up if they see their produce going to waste. They are losing money too because they are not eating and getting the full benefit of what they spend. We stress that we are a more reasonable CSA that's fitting for a couple of people or a family.

CSA owner 2 discussed organic farming practices used on the farm. Many of the conversations started with gardening questions individuals had about using organic practices to grow tomatoes, control weeds, and eliminate algae on the surface of ponds. When the owner's advice worked for these individuals, many of them joined the CSA.

https://newprairiepress.org/jac/vol97/iss4/10
DOI: 10.4148/1051-0834.1132

Communication with Current Shareholders.

All three CSA owners sent electronic newsletters or emails to shareholders. A weekly email newsletter or email told shareholders about the produce included in that week's share and the activities of the farm, such as irrigating melons, picking strawberries, or working on other projects. CSA owner 3 said the shareholders wanted to know about the weekly share because they liked to plan meals and go to a farmers' market or grocery to supplement what was given. Shareholders in CSA 2 also received emails encouraging them to comment or advise the owner on what they would like grown. Other emails requested that CSA 2 shareholders bring newspapers, yard waste, and compost to the farm. Follow-up emails recognized those who helped.

When a lot of the shareholders were new to CSA 1, the owner sent recipes through email as a reminder for the Saturday pick-up. CSA owner 3 received emails from shareholders asking for the names of specific vegetables. Therefore, the owner sent emails with a few recipes to try when shareholders received an unusual vegetable, such as bok choy or fennel. The email messages also encouraged shareholders to search the Internet for additional recipes. Similarly, shareholders in CSA 2 could visit the CSA website for recipes on how to prepare the vegetables provided in the share:

CSA OWNER 2: What we try to do is that every week as we introduce a new vegetable, like eggplant, we try to put up three to five recipes for ways to use it. What we do is use old southern recipes and maybe more contemporary recipes. We would still include old southern recipes for southern fried tomatoes and things like that.

Conclusions/Implications/Recommendations

This study sought to determine how frequently CSA shareholders used specific information sources to make food choices. Furthermore, the study revealed strategies for the CSA owners to recruit potential shareholders and communicate with current shareholders. Websites and interpersonal communication were sometimes used by shareholders for finding food choice information. Two of the CSAs received requests to join their CSAs through the LocalHarvest website. Previous studies indicated that interpersonal communication was an information source commonly used by CSA owners to communicate with current shareholders and potential shareholders (Cone & Myhre, 2000; Kolodinsky & Pelch, 1997; Polimeni et al., 2006). The finding about word-of-mouth advertising from this study was similar to what Cone and Myhre (2000) and Sharp et al (2002) found in their research. Friends and associates assisted in building membership, and an existing relationship with the CSA owner or another shareholder could influence a consumer to join a CSA.

In the current study, CSA owners primarily used email and their websites to communicate with their current shareholders. These two forms of communication could reach shareholders on a daily or weekly basis, which were the shareholders' desired frequency for communicating about food choice information. While email was an effective information channel for existing shareholders, respondents to the shareholder survey rarely used email, events, and print publications to search for food choice information.

Local broadcast, local newspapers, and cooperative extension were information channels rarely used by respondents to learn of food choices. However, CSA owners in this study did receive a few memberships from the local newspaper's or television station's coverage of their CSA. Events hosted by cooperative extension at one of the CSA farms in the study resulted in new memberships. The CSA owners in Texas need to continue to use events, newspaper articles or radio interviews, just as

CSA owners in Minnesota, California, Oregon, and Washington did to recruit shareholders (Cone & Myhre, 2000; Strochlic & Shelley, 2004). However, the CSA owners in Texas could expand to offer recruitment events mentioned by the 251 CSA owners from 41 states: potluck dinners, farm tours, school events, and educational programs for the community (Lass et al., 2003).

All three CSA owners in Texas communicated weekly with shareholders by sending an email message that contained details of the produce included in the share and recipes. CSA owners from other states also used weekly newsletters to communicate about farm happenings, how to use their shares, and to increase shareholders' interest in the CSA (Oberholtzer, 2004; Strochlic & Shelley, 2004; Woods et al., 2009).

Although the results of this collective case study have provided insight into the communication channels used by shareholders and the marketing strategies CSA owners use for recruiting them, several limitations do exist. The first limitation is that the results are limited to the shareholders and owners of the three CSAs in Texas, which might differ from other CSAs in Texas. The second limitation was the process used to access CSA owners. No organization or government agency tracks the number of CSAs in the United States, so the researchers relied on the Local Harvest website, which had 64 CSA entries not in operation or without correct contact information. The third limitation of the study concerned the quantitative data collection process. The CSA owners insisted on sending only three email messages to their members on behalf of the researchers: a prenotice email, email with the survey link, and a thank you/reminder email. More contacts with CSA shareholders could have increased response rate to the survey.

Implications

Findings from this study have potential implications for developing community-based social marketing strategies for CSAs located in or near Texas communities, particularly focused on communication and prompts as behavior change tools (McKenzie-Mohr & Smith, 1999). An individual's attitudes and/or behaviors could be influenced with persuasively written messages (McKenzie-Mohr & Smith, 1999). One of the messages CSA owners sent to potential shareholders focused on the purpose for having the CSA. However, each CSA owner in this study also used different messages for recruiting their potential shareholders. CSA 1 sent a letter emphasizing what the CSA entailed, the importance of supporting small, local farms, and the concept that a CSA was not pre-paying for groceries. The informational letter further explained that the produce from the CSA did not replace a trip to the grocery store because there were products the farm did not grow. CSA 2 stressed the organic farming practices used and the traits of the produce. CSA 3 focused on the farm's 20-year reputation for producing fresh vegetables and the affordability of the share.

Prompts are friendly reminders to individuals to engage in a specific sustainable behavior (McKenzie-Mohr & Smith, 1999). A CSA owner should continue to email a weekly newsletter to shareholders telling them what produce they should expect to receive in the week's share. It was recommended that CSA owners send recipes through email or in an electronic newsletter as a reminder for shareholders to pick up their shares and to pre-plan their meals according to produce in the share. Prompts could continuously remind shareholders about their role in a CSA. A CSA owner could send email messages requesting shareholders' assistance with bringing newspaper, yard waste, and compost to the farm. These email messages kept shareholders involved with the CSA's activities.

After writing effective marketing messages, CSA owners need to disseminate these messages through the information sources used by potential shareholders. Shareholders reported that they

https://newprairiepress.org/jac/vol97/iss4/10
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most often sought information about food choices on a daily or weekly basis. Shareholders used websites most frequently to search for information, followed by interpersonal communication with CSA members, family, friends, and neighbors. Two CSA owners mentioned using a website to advertise the CSA. It was recommended that CSA owners design a website with information about the CSA, its purpose, produce grown, cost of shares, distribution locations, and recipes. A CSA website could also be an important way to reach potential shareholders who did not live near the CSA. These three CSA owners already used email to communicate with potential and current shareholders. CSA owners mentioned email content about the produce harvested and the available items for the weekly share; however, potential shareholders might not use this information when making decisions about their food choices. CSA owners should use the messages about the cost of the share, the length of the CSA season, pick-up details, etc.

Community-based social marketing emphasizes that face-to-face communication is more effective than mass media channels for influencing individuals to change their behaviors (McKenzie-Mohr & Smith, 1999). Some of the most effective face-to-face communication activities were meet-and-greet events and social activities. Potential shareholders have been responsive to tour the CSA, met the CSA owner, and see sustainable behaviors.

Recommendations for Future Research

Shareholders used very few of the information sources frequently when making food choices. Qualitative interviews or survey questions might shed light on the information channels preferred by shareholders when searching for food choice information. These new findings would help CSA owners make decisions on how to invest their marketing funds effectively, so they reach their audiences using the most appropriate communication channels. Additional research is needed to know what influence these information channels have on shareholders when making food choices. With this additional information, CSA owners would know what information channels to use for delivering their marketing messages. Further research should discover shareholders' motivations for joining a CSA so that CSA owners could write messages about shareholders' motivations. These motivations have already encouraged membership from shareholders, so messages about the motivations could entice similar individuals to join. As a way to assist CSA owners in marketing their CSAs, additional research is needed about their marketing challenges, development of relationships with shareholders, and needed resources. This information would help CSA owners better serve their current shareholders and reduce the effort needed to constantly recruit new shareholders.

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Research

Using Video as a Replacement or Complement for the Traditional Lecture/ Demonstration Method in Agricultural Training in Rural Uganda

Tian Cai and Eric Abbott

Abstract

This study explored the effectiveness of video as a tool to either complement or replace existing lecture-demonstration training for small farmer groups. The effectiveness of video in decreasing the knowledge gap among farmers who differ by gender was also evaluated. Quantitative and qualitative data were gathered through a quasi-experiment including a pretest and a posttest design with three experimental groups. Results showed that video could be an effective complement and replacement for the traditional lecture-demonstration training method. Video alone or video plus traditional lecture-demonstration was as effective as traditional training in increasing learning. The training method that included both video and traditional lecture-demonstration was especially effective for groups with relatively low prior knowledge of the training topic. However, video only was not as effective as traditional training or traditional training plus video in decreasing gaps in learning between men and women. Video has advantages in rural areas because it does not require face-to-face presentation by skilled trainers. Video might be an attractive alternative or supplement if the production cost is low enough, or if traditional lecture-demonstration cannot meet the demand for training. Using local actors, shooting video in the local environment and using local languages add to video's advantages for training purposes. When used to demonstrate a farming technique or practice in a group setting, videos were found to enhance interaction (e.g. discussion and peer learning) among farmers.

Keywords

video training, knowledge gaps, group training, Uganda, pico projector

Introduction and Statement of the Problem

The purpose of this study was to learn about the effectiveness of video—especially using new small battery operated projectors—as a tool to either complement or replace the existing lecture-demonstration mode of training small farmer groups in a rural African country. Farmer groups in the Kamuli District of Uganda have been receiving training in topics relating to sustainable rural livelihoods since 2005 as part of a livelihood improvement program coordinated by Volunteer Efforts for Development Concerns (VEDCO), a Ugandan non-government organization, the Center for Sustainable Rural Livelihoods (CSRL) at Iowa State University (ISU), and Makerere University, Uganda. Although some interactive charts, handouts and photos have been developed to support the traditional approach, lectures and hands-on demonstrations have been the most commonly used

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training methods.

Currently, approximately 1,200 farmers are reached by the program. Training messages are delivered by community-based trainers (CBTs), who are paid VEDCO staff members selected from the local rural community. These CBTs have been trained and are supported by VEDCO Program Extension Officers. Each CBT is responsible for eight to ten groups with a total of approximately 100 farmers.

Evaluations have shown that although farmers have adopted some of the recommended technologies, such as improved banana planting practices, there have been problems in motivating farmers to attend group sessions. In addition, the CBTs report that farmers respond better when different training approaches are used. Role playing, field demonstrations, and other techniques have been tried in addition to standard lectures. Project staff members are interested in increasing the impact of their activities in the area by expanding the number of farmers who can benefit from farming recommendations. Video offers a means of complementing current training modes or providing a stand-alone training method for other farmers.

Video is now commonly used as a training tool in many development projects. The use of moving images and video's flexibility of use have been cited as important advantages for agricultural training in developing countries (Van Mele, 2011). However, in most cases, the use of videos has not been carefully evaluated in terms of its possible complementary role as well as its ability to replace current training approaches (Gurumurthy 2006; Gandhi, Veeraraghavan, Toyama & Ramprasad, 2007; Zossou, Van Mele, Vodouhe & Wanvoeke, 2009a; Van Mele, Wanwoeke & Zossou, 2010; Van Mele, 2011). The current study examines the use of locally created videos that show local farmers on local fields using the local language.

A 2010 study by Van Mele, Wanwoeke and Zossou found that 78% of development organizations, including universities, research institutes and non-government organizations (NGOs) use video to train farmers. Until recently, however, video training in rural areas required generators, DVD players, projectors and other audio-visual equipment. Farmers often had to come to central areas to see them. These characteristics pose serious limitations to those who live in the countryside with poor roads and often no electricity. In the past few years, small battery-powered pocket projectors have been developed and tested to offset these difficulties. Trainers on foot or bicycle can easily carry these portable devices to places where farmers live. The increased capacity of these devices to extend training to rural areas has again focused attention on how video might be used for training purposes. Thus, this study asks: (1) Can locally created video enhance and/or complement existing training techniques? (2) Can video alone or with minimal facilitation potentially replace the traditional training approach by the CBTs? (3) Does the video training method decrease the knowledge gap between men and women?

Theoretical Framework

Information Processing and the Power of Visuals

Information processing theory emphasizes cognitive learning, which is considered to involve receiving, processing, extracting, and remembering information initially stored in short-term memory. Individuals construct a connection between a stimulus and prior knowledge and store such associations in long-term memory. Information encoding and retrieval are also important steps in the cognitive information processing approach (Miller, 1956), which encourages learners to transfer and assimilate new information by processing, storing and retrieving information for later use (Bovy, 1981).

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In the information-processing framework, visual information has established its potential for cognitive impact directly or by representing and allowing the elaboration of concepts, abstractions, actions, metaphors, and modifiers (Scott 1994).

Educational literature suggests that individuals demonstrate a preference for particular information processing styles to assimilate new information (Eastman, 2010). For example, some learn better from and prefer the visual media compared to materials primarily delivered by audio. MacInnis and Price (1987) compared what they call the "imagery (or symbol) process" and "discursive (or language-oriented) process" that people generally resort to when exposed to stimuli. The fundamental difference was that imagery processing promoted multi-sensory experiences, such as smell, taste, sight and tactile sensations in working memory. In the discursive process, sensory experience was absent, which made the discursive information process more abstract.

When it comes to quick, clear communication, visuals have advantages over text. Psychologists (e.g., Mehrabian, 1981) have demonstrated that 93% of human communication is nonverbal. This is so, Mehrabian (1981) explains, because the human brain deciphers image elements simultaneously, while language is decoded in a linear, sequential manner, taking more time to process. The powerful images and contextualizing reality in video could help remove the learning obstacle of low literacy people. By visually portraying many complicated issues or arguments that might be hard for audiences to understand, video can be an effective tool for raising awareness (Lie & Mandler, 2009). In 1986, a study at the University of Minnesota School of Management found that presenters who use visual aids were 43% more effective in persuading audience members to take a desired course of action than presenters who did not use visuals (Vogel, Dickson & Lehman, 1986).

Video Training in Development Projects

Videos can be very persuasive (Lie & Mandler, 2009). Agricultural concepts and technologies hard to describe in words are easily understood when demonstrated visually (Gandhi et al., 2007). Long agricultural processes can be compressed into short video segments, thus enhancing training efficiency (Lie & Mandler, 2009). Video is flexible because it can be shown anywhere at any time (Coldevin, 2003). Video also has been used to standardize the information provided when interacting with farmers (Gandhi et al., 2007). These benefits can be harnessed as the cost of audio-visual technologies substantially declines (Coldevin, 2003).

In general, localized videos that integrate content, production and dissemination into the social context are most likely to be accepted (Anderson, Dickey & Perkins, 2001). This is so because such content provides evidence that recommended practices work in the local environment (Gandhi et al., 2007). Chowdhury, Van Mele and Hauser (2011) found that farmers were more likely to be convinced by videos featuring actors similar to themselves in dialect and accent, culture, education and agricultural expertise.

When used for training purposes, videos are often shown to small groups of five to 30 farmers who live in close proximity to one another (Gandhi et al., 2007; Zossou, Van Mele, Vodouhe & Wanvoeke, 2010; David & Asamoah, 2011). Digital Green formed training groups based on existing local farmer cooperatives. Group training in India (Gandhi et al., 2007) and in Ghana (David & Asamoah, 2011) indicates that group participation guarantees a regular schedule of content screenings; encourages learning, adoption and innovation through peer pressure; and even reunites estranged family members. In many instances, local facilitators with some agriculture training are hired to conduct the training and record attendance, feedback and adoption rates of recommended practices.

Until recently, the shortage of electricity and limited access to the Internet and other modern technology have limited the adoption of modern training devices such as computers or TV to present digital contents in rural areas (Jain, Birnholtz, Cutrell & Balakrishnan, 2011). A small battery-operated video projector called the "pico" has been tested in rural areas. Smaller than a normal projector (the 3MPro150 version is 1 by 2.4 by 5.1 inches and weighs 5.6 ounces) (PCMag, 2010), it is "bright, battery powered, portable, durable and affordable" (OMPT, 2010). In two trials in India, a pico projector was connected to a camera phone to present training materials stored on a cell phone (Jain et al., 2011; Mathur, Ramachandran, Cutrell & Balakrishnan, 2011). Pico projector images are suitable for viewing by groups of 15-20 people (Mathur et al., 2011).

Video as a Complement to or a Replacement for Traditional Training

Van Mele (2008) finds video "easy to integrate with other rural training methods" (as cited in Zossou et al., 2009a, p. 120). Training that combines video and traditional methods such as lectures and farmer-to-farmer extension has proven to be more effective than traditional training methods alone (Zossou, Van Mele, Vodouhe & Wanvoeke, 2009b; Gandhi et al., 2007). In an experiment, greater knowledge gain was recorded for a group of farmers given a lecture and shown a video compared to another group that received only the lecture (Shanthy & Thiagarajan, 2011). In other studies (Gandhi et al., 2007; Zossou et al., 2009b), the adoption intentions of suggested practices were higher in the video + traditional training group than those who learned in the traditional only group.

In many projects, video has replaced traditional training and served as a stand-alone knowledge and innovation dissemination approach. Video training is cheaper than traditional extension methods such as farmer-to-farmer extension and lecture, especially when more farmers need to be trained.

In Ghana, experimental groups shown videos had higher knowledge test scores compared with farmers in the control group who received traditional training (David & Asamoah, 2011). Exposure to video training alone was more successful in creating interest in rice parboiling technology than attendance at a traditional workshop (Zossou et al., 2010).

Video Training and Knowledge Gaps between Men and Women

In general, individuals with higher socio-economic status are able to experiment with and adopt new technologies more quickly than those with low income and education (Rogers, 2003). The latter characteristics often describe rural women who comprise the majority of the world's poorest (FAO, 2009). In addition, they lack access to information and resources that may save labor and increase productivity (Butler & Mazur, 2007). However, women are often responsible for multiple tasks in their family and their community.

Uganda ranked 161 out of the 195 countries in the United Nations' Gender Inequality Index (UNDP, 2013). Women have limited access to information beyond their local communities (Rogers, 2003). Most women lack the opportunity to communicate outside of their families (Zossou et al., 2010). Video-mediated training has a strong potential to overcome this information inequality (Bery, 2003; Lie & Mandler, 2009; Zossou et al., 2010).

Studies have shown that women prefer video-mediated approaches to text materials and are willing to pay more to get video disks (Tumwekwase Ahabwe, Kisauzi & Misiko, 2009; Van Mele, 2011). In Central Benin, men who lacked access to video were eager to learn from women who have access (Van Mele, 2006). In a Bangladesh village, women became increasingly involved in decision-making on how to spend the family's disposable income after exposure to a training video. Their ability to explore options, bargain for better prices, and manage organizational support was strengthened by

https://newprairiepress.org/jac/vol97/iss4/10
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training programs that made use of videos (Chowdhury et al., 2011).

Shingi and Mody (1976) concluded that the communication effects gap could be prevented if "appropriate communication strategies are pursued in development efforts" (p. 189). In their field experiment, they found that the gap between farmers with different prior knowledge levels was closed after their exposure to credible TV programs made up mostly of training videos. Low-knowledge farmers learned more, while those with higher knowledge about the topic before viewing the TV program gained less information because of the "ceiling effect." Farmers with higher knowledge before video exposure also showed lower interest in the TV program because they perceived the content to be of low value to them.

Purpose and Objective

This study examined whether video training can complement and/or replace the traditional lecture-demonstration method to increase farmers' knowledge of the training topic. This study also explored changes in knowledge gaps between men and women after training in three treatment groups. Specifically, this study addressed the following research questions:

1. How effective is video for increasing knowledge when used to complement traditional lecture-demonstration training?
2. How effective is video as a replacement for traditional lecture-demonstration training with minimal facilitator involvement in knowledge gaining?
3. Can training methods including video as a complement or replacement for traditional lecture-demonstration effectively decrease the knowledge gap between men and women?

Methods/Procedures

Participants and Sampling

Farmers (N=325) from four parishes of Butansi sub-county, Kamuli District (See Figure 1) who grew beans and were members of farmers' groups served by a local NGO named VEDCO participated in the study. Before this study, these farmers had been trained in their 8-15 member groups by VEDCO each month using lectures, demonstrations and flip charts. On average, these farmers were 41 years of age and women (75.4%). The average household size was eight (often with three adults and five children). The average years of education (see Table 2) was 5.81(SD=3.81), but 6.3% of the men and 22% of the women had never been to school. Participants planted an average of 0.54 acres (SD=.41) of beans, which is about 14% of the average total farmland they own.

A quasi-experimental design (Wimmer & Dominick, 2006, p. 243) was used because treatments were not randomly assigned to participants. Instead, the farmers were assigned to one of three experimental groups depending on which parish they came from (see Table 1)

Experimental Treatments

The participants in the three groups were exposed to different training components (Table 1). The traditional-only group received only the traditional lecture-demonstration presented by the community-based trainers (CBTs). In this condition, the CBTs first presented the theory underlying the practice of planting beans in rows and then showed the tools, seeds and process during the 30-minute field demonstration. The traditional + video group received both the traditional lecture-demonstration (same as the traditional only group) and an eight-minute video that features a local male farmer explaining the theory of row planting and demonstrating how to plant beans in rows

on his land with assistance from his wife. They used local tools and explained the topic in the local language. The video-only group received the training video with minimal facilitation from CBTs. The video was shown twice to this group to enhance recall. For this group, the CBTs only mobilized farmers and organized the training.

Figure 1. Location of Kamuli District, Uganda
Note: from http://www.ezilon.com/maps/africa/uganda-maps.html

Table 1.
The Study's Experimental Design

Experimental Group	Parish	Training components (in order)	Duration (min.)
1. Traditional lecture-demonstration	Naibowa & Bugeywa	1. Traditional lecture and field demonstration	30
2. Traditional lecture-demonstration + Video	Butansi	1. Traditional lecture and field demonstration	30
		2. Video	8
3. Video only	Naluwoli	1. Video	8
		2. Video	8

https://newprairiepress.org/jac/vol97/iss4/10
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In order to control uniformity of traditional training quality, only two CBTs were selected to conduct training in this research. A training outline was provided by local NGO staff, and the two CBTs were required to cover all the contents during their training. The first author and members of the local NGO staff operated the pico-projector to guarantee uniform video quality throughout all groups.

Experimental Procedure: Pretest > Training (Experimental Treatment) > Posttest

Before each training session, a knowledge pretest about row planting was administered to the subjects to evaluate their knowledge of the recommended practice for row planting of beans. After training, subjects completed a posttest that included the same knowledge test used for the pretest. Local interviewers who spoke English and the local languages were trained and hired to conduct the pretest and posttest. Each participant was tested individually at the training site immediately before and after the training. The first author participated in all experimental procedures and ensured data quality in the field.

A pilot study was conducted before the experiment to evaluate the experimental procedure and the questionnaire. Thirty-one participants who are residents of a non-experimental parish in Butansi sub-county were involved in the pilot study. All of them received the traditional + video training and took the both pretest and posttest. After the pilot study, small changes in the questionnaire were made, but there was no change in experimental procedure.

Conceptual and Operational Definitions of the Dependent Variable

Knowledge score.

A knowledge test composed of four open-ended questions about row planting was used to evaluate what farmers learned. The questions are: (1) What are the problems row planting is intended to solve? (2) What are the main procedures involved in row planting? (3) What are the benefits you would get from adopting row planting? (4) What tools do you need to implement row planting?

To measure knowledge, trained interviewers asked farmers to answer each of the four questions in their own language. Farmers received one point for each correct answer. For example, one participant who mentioned "higher yields" and "making spraying easier" in answer to the question, "What benefit(s) can be derived from adopting row planting?" received two points. The knowledge score was determined by counting the number of correct answers about bean row planting. The highest possible score was 15; the lowest was 0. The score a participant received before training was labeled time1 score. After training, the posttest score was called the time2 score.

Data Analysis

The first and second research questions tested whether videos could effectively complement or replace the traditional lecture-demonstration training method. Given the between and within subject design described above, these research questions were addressed by using a repeated measurement.

The third research question examined whether the video method can decrease the knowledge gap between men and women. This research question was studied by conducting a separate repeated measurement with gender as the covariant.

Results/Findings

Comparisons of Time1 and Time2 Knowledge Scores

The pretest conducted prior to the training was especially important in this case because local

CBTs had already conducted training on row planting once during the previous growing season (September/October 2011) with the very same groups of farmers involved in the experiment. However, the local CBTs had reported that many farmers had already forgotten their knowledge of row planting, perhaps because what they learned had not been reinforced since the last growing season.

A complicating factor for the experiment was that the time1 scores for the traditional training group were higher than those in the other two experimental groups ($F [2, 298]=6.88, p < .01$) (Table 2). Ideally, they would have been the same. These differences could be caused by the differing effectiveness of previous training, which might be attributed to differences in the ability of CBTs to deliver content and to mobilize farmers.

Table 2.
Results of ANOVA Tests of the Difference in Knowledge Scores Among the Three Groups at Time1, Time2 and the Gain Score

Experimental Group	N	Mean	SD	M.S.	df	F	p
	Time1						
Traditional	107	10.02	2.61				
Traditional + Video	99	8.64	2.54	49.14	2	6.88*[a]	.00
Video only	95	9.34	2.86				
	Time2						
Traditional	111	13.93	1.47				
Traditional + video	108	13.93	1.40	2.15	2	.92	.40
Video only	100	13.81	1.70				
	Gain in Score (Time2 - Time1)						
Traditional	106	3.92	2.57				
Traditional + video	98	5.28	2.71	47.46	2	6.95*[a]	.00
Traditional	93	4.48	2.56				

[a]LSD *post hoc* test confirm a significant pairwise mean difference between traditional only group and traditional + video group* $p < .01$

Unlike the time1 scores, results in Table 2 for the time2 score indicate that there were no statistically significant differences among the three groups. The last ANOVA test in Table 2 showed that there is a significant difference of gain score among three groups ($F [2, 294] = 6.95, p < .01$). The post hoc test showed that the gain score in traditional + video group is significantly higher than those in traditional only group. Four separate t-tests (see Table 3) show that time2 scores were significantly higher than time1 scores in all three groups and in total. Subjects in the traditional + video group had the highest difference ($M=5.29, SD=2.71, t =19.34, p< .001$) in knowledge scores between time1 and time2, while subjects in the traditional only group had the smallest difference.

Table 3.
Results of t-Tests Showing Difference in Time1 & Time2 (Gain) Score Within Groups

Experimental Group	df	Time 2- Time 1 (SD)	t-value
Traditional	105	3.92 (2.57)	-15.75*
Traditional + video	97	5.29 (2.71)	-19.34*
Video only	92	4.48 (2.56)	-16.86*
Total	296	4.55 (2.66)	-29.42*

*$p < .01$

Figure 2 presents the knowledge score of the three groups at time1 and time2. All three lines show increases in knowledge over time. However, there was a clear difference in time1 scores between groups. The traditional lecture-demonstration group had the highest time1 score, and the

https://newprairiepress.org/jac/vol97/iss4/10
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traditional + video group had the lowest. The difference in scores between groups decreased, and a crossing of the traditional + video group and video only group lines was found, which means that at time 2, the traditional + video group outperformed the video only group.

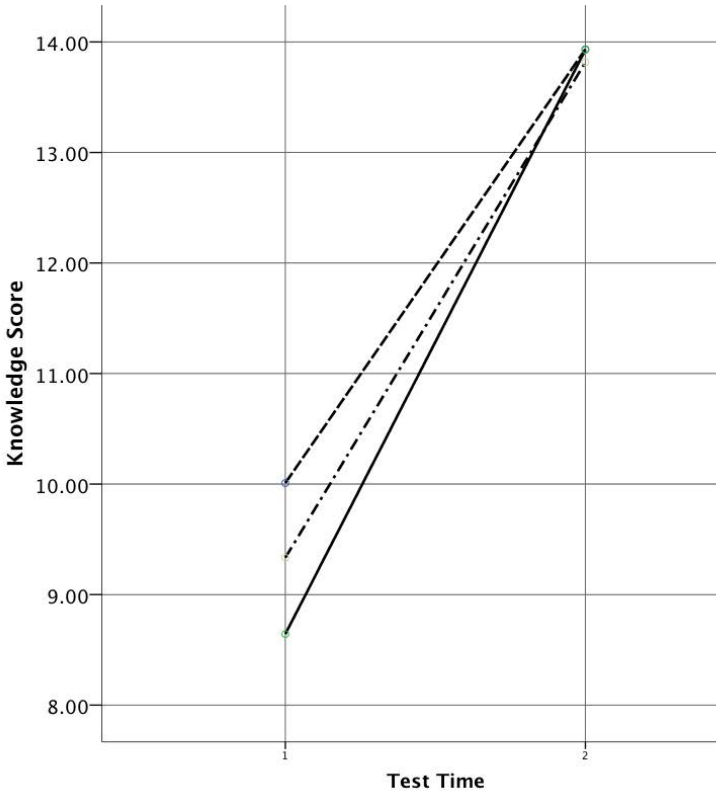

Figure 2. Knowledge Score of Three Experimental Groups Before and After Training

A repeated measures ANOVA test was conducted to test whether differences in knowledge scores between groups over time observed in Figure 2 were significant. The results, shown in Table 4, revealed that the knowledge score change observed in the traditional lecture-demonstration group, which had the highest time1 score (Table2), was significantly less than the change in scores seen in the traditional lecture-demonstration + video group ($p < .01$) and the video only group ($p=.04$).

Research Question 1 asked whether or not the addition of video increased the learning of the farmers. Because the group receiving the traditional lecture-demonstration + video learned significantly more than the group receiving only the traditional lecture-demonstration, the answer for this experiment is that video was an effective complement to traditional training, resulting in more knowledge gain than the traditional lecture-demonstration only method.

Research Question 2 asked if video could replace the traditional lecture-demonstration training. In this experiment, results show the video only group members increased their knowledge scores significantly more than the traditional lecture-demonstration group. This suggests that video alone could be an effective replacement for the traditional training approach.

One cautionary note is that the relatively low change score in the traditional lecture-demonstration group may be due to a ceiling effect (Richardson, Kitchen & Livingston, 2002, p. 339). The ceiling effect could occur because those in the traditional group already had relatively high knowledge scores at time1 which made it difficult for them to learn more. Their time2 scores approached the maximum of 15. However, even if a ceiling effect was present for the traditional group, the results

indicate that the video only groups increased their knowledge significantly due to the training, which supports the idea that video might be able to replace the traditional lecture-demonstration approach.

Table 4.
Result of a Repeated Measurement ANOVA Testing Differences in Knowledge Score at Time1 and Time 2 by Experimental Groups

	df	ss	ms	F	p
Between subjects					
Group	2	48.5	24.25	4.01* [ab]	.02
Error	295	1784.75	6.05		
Within subject					
TestTime	1	3085.3	3085.30	904.08**	.00
TestTime*Group	2	46.74	23.37	6.95**	.00
Error	294	1002.54	3.41		

[a]LSD *post hoc* test confirms a significant pairwise mean difference between traditional group and traditional + video group.
[b]LSD *post hoc* test confirms a significant pairwise mean difference between traditional group and video only group.
** $p < .01$, * $p < .05$

The third research question asked whether the use of video in training decreases the knowledge gap about row planting of beans between men and women. To examine this research question, the change in knowledge scores over time was evaluated based on the repeated measurements adding gender as a covariant.

Table 5 presents knowledge scores by group for men and women at time1 and time2. In total, women increased their average knowledge score from 9.09 at Time 1 to 13.72 at Time 2, an increase of 4.63. These scores were lower than those for men, who averaged 10.15 at Time 1 and 14.19 at Time 2, an increase of 4.04. These results indicate that women had lower knowledge scores than men at Time 1, and although they never increased their scores to a higher level than men, they increased their scores more than men.

Results in Table 5 also show that in the traditional lecture-demonstration only group, women gained 4.09 points and the men's knowledge score increased 3.56 after training; the difference in knowledge scores between gender narrowed from 0.63 (time1) to 0.1 (time2). In the traditional + video group, the women's score increased by 5.64; and men's score was up by 4.39. In the video only group, there was only a slight difference of knowledge score gain between men (4.45) and women (4.49). Women learned as much as men in this group, and the gender knowledge gap about the training topic remained.

The changes in knowledge scores over time, the differences between treatment groups, and differences in knowledge scores between men and women are shown in Table 6. Across time, significant differences between groups [F (2,293)=3.82] were detected after controlling for the effects of gender. In addition, there were significant gender differences after controlling for the group effect as indicated by the between-subjects average scores for men and women. These were consistent with the finding that women started with lower scores at Time 1 in all three experimental groups, so differences in knowledge about row planting between men and women existed before the training (see Table 5). However, after the training, the gap in knowledge scores between genders decreased. Women's knowledge scores increased most rapidly in the traditional + video group (from 8.17 to 13.81).

https://newprairiepress.org/jac/vol97/iss4/10
DOI: 10.4148/1051-0834.1132

Table 5.
Knowledge Score Means (with Standard Deviations) at Time 1 and Time 2 by Treatment and Gender

	Traditional only		Traditional + Video		Video only		Total	
	Mean (N)	SD	Mean (N)	SD	Mean (N)	SD	Mean (N)	SD
Women T1	9.81 (72)	.31	8.17 (71)	.32	9.24 (84)	.29	9.09 (227)	2.80
Women T2	13.90 (74)	.18	13.81 (78)	.18	13.73 (87)	.17	13.72 (239)	1.59
Men T1	10.44 (35)	.46	9.82 (28)	.50	10.00 (11)	.80	10.15 (74)	2.33
Men T2	14.00 (36)	.26	14.21 (30)	.28	14.46 (13)	.45	14.19 (79)	1.26

There were also significant within-subjects differences, also indicated in Table 6. The F-test associated with TestTime [F (1, 293)=611.70] is consistent with the fact that average knowledge scores were always higher at time2 compared with time1. There was also a significant TestTime x Group interaction (F [2, 293]=6.97), which indicated that the changes in knowledge scores before and after training between experimental groups were significant after controlling for the effects of gender.

The findings suggest that the traditional + video and the traditional only methods could effectively close knowledge gaps between men and women. The video only method demonstrated a lesser ability to narrow the knowledge gap although both men and women learned about equally.

Table 6.
Results of a Repeated Measures ANOVA Testing the Differences in Knowledge Scores at Time 1 and Time 2 Using Gender as a Covariate

	df	SS	MS	F	p
Between subjects					
Group	2	45.09	22.54	3.82*	.02
Gender	1	49.46	49.46	8.38**	.00
Error	293	1730.31	5.91		
Within subject					
TestTime	1	2066.44	2066.44	611.70**	.00
TestTime*Group	2	47.10	23.55	6.97**	.00
TestTime*Gender	1	13.50	13.50	4.00*	.05
Error	293	989.81	3.38		

*$p < .05$, **$p < .01$

Discussion/Conclusions

The first finding in this study indicates that participants in the group that received the combined traditional lecture-demonstration and video methods got higher scores than the group that only received the traditional lecture-demonstration. This finding suggests that video could be an effective complement to the traditional lecture-demonstration method, which is consistent with previous research (Shanthy & Thiagarajan, 2011) and supports the prediction from information processing theory that the use of multiple training methods can enhance learning (Eastman, 2010). This finding answers the first research question.

A comparison of knowledge scores between the traditional lecture-demonstration only group and the video only group showed that subjects in both groups had almost the same knowledge score after the training, and that there was no significant difference in knowledge improvement from time1 to time2 between the two groups. This result indicates that the video only method can be as effective as the traditional lecture-demonstration only approach. This finding answered the second research question; video can replace the traditional lecture-demonstration method to help farmers learn new planting techniques. This finding supports several previous studies showing that video can

be at least as effective as and sometimes more effective than traditional approaches (Zossou et al., 2010; David & Asamoah, 2011).

The current study suggests that all farmers in different treatment groups learn when they get access to quality information. The traditional + video method would especially benefit those farmers who had lower prior knowledge or education levels by providing information reinforcement. Furthermore, the video only method can be an appropriate training method in rural development, especially when the number of trainers is too small to meet farmers' demand. Sseguya, Mazur, Abbott and Matsiko (2012) found that less than 30% of households in Kamuli district are covered by reliable information sources (i.e. local NGOs). Working in these areas, video training alone could be used to increase the scale of farmers trained and decrease the costs of reaching each farmer (Van Mele, 2006). It is also possible that farmers could be exposed to training more frequently because video training could deliver information without the need for a professional trainer. As a result, farmers would get the chance to watch video covering the same topics repeatedly. In previous research, this repetition helped farmers to understand the contents and the benefits of the innovation (Chowdhury, Van Mele & Hauser, 2011) and to build enough confidence to try it out on their own land (Gandhi et al., 2011).

The third finding is that women, who had lower mean knowledge scores at time1, gained more knowledge than men in the traditional lecture-demonstration groups and the traditional lecture-demonstration + video groups. Gaps in knowledge about row planting between women and men actually decreased in these two groups. In the video only group, men and women increased their knowledge by about the same amount. This result demonstrated that video alone can at least benefit both men and women even though it did not narrow the gender knowledge gap.

Women in rural Africa commonly have lower social status and often lack mobility to participate in training and the opportunities to communicate with development staffs or rural extension workers (who are predominantly men) because of social norms (Zossou et al., 2010). Researchers have been worried that the introduction of new information communication technologies (ICTs) would deepen the gender knowledge gap (e.g. Oudshoorn & Pinch, 2003). This research suggests that video training delivered by pico-projectors could be an appropriate ICT tool to overcome gender barriers by providing understandable visual messages addressing women's needs in an encouraging group learning environment.

Recommendations for Future Study

Because of the poor road quality and the lack of transportation, it is hard to bring all participants together in a fixed location and randomly assign them to experimental groups. So participants were assigned according to their geographic location in this study which may explain the unequal pre-knowledge of the training topic among the three experimental groups.

In the current study, all three experimental groups were trained on the same topic. Although this enhanced the experimenter's level of control, it is not possible from this study to speculate about the potential effectiveness of video for other training topics. Future studies should explore videos for different agricultural procedures (e.g., planting, post-harvest practices, and marketing) and other issues such as health and nutrition to test video's potential for knowledge enhancement for multiple topics and disciplines, especially those that are new to farmers.

A right-after-training knowledge test was used in this research to evaluate the effectiveness of video training. It would be helpful if future studies could measure actual changes in behavior that occur during future planting seasons due to training. It is quite possible that participants may forget some knowledge of row planting quickly in the absence of appropriate reinforcement.

https://newprairiepress.org/jac/vol97/iss4/10
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The pico-projector proved to be a useful device to deliver video training in this study. More research concerning simple, portable and durable devices to provide video training in rural areas, especially for disadvantaged groups, would be useful to increase accessibility.

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Research

NAMA Members' Perceptions of Corporate Social Responsibility

Lacy M. Muntean, Traci L. Naile, and Greer Gill

Abstract

As corporate social responsibility becomes increasingly important within organizations, it is imperative that professionals define their role in setting the CSR agenda. Through a descriptive survey, this study investigated National Agri-Marketing Association members' perceptions of their roles in CSR and acceptable practices for releasing data about an organization. Respondents were neutral that the agricultural communications industry has a clear code of ethics and standards of performance. NAMA members agreed that developing programs that are good for society is both good for business and good citizenship, and that public relations professionals should be deeply involved in helping management define an organization's social role. A majority of respondents reported working for an organization that recruited and hired employees who had an agricultural communications major, and had worked with someone who had an agricultural communications major, but were unsure of their preparation, management skills, and strategic thinking skills. Agricultural communications programs should take this perception into account and incorporate these three issues into their curriculum. No research was found that discussed CSR and public relations in the agriculture industry. With this study, agricultural public relations practitioners might see their role in CSR and the need for a clear code of ethics to unify the industry. This study creates a foundation for additional studies of agricultural public relations professionals, delving deeper into more specific roles related to CSR.

Keywords

corporate social responsibility, public relations, agricultural communications, National Agri-Marketing Association, business

Introduction

Public relations began in the early 1900s and, for many years, was used synonymously with advertising and marketing until it became its own niche of the business world in the 1960s

(Podnar & Golob, 2009). Since its inception, public relations has been a broad field, which makes its exact role difficult to define (L'Etang, 1994).

Hutton (1999) concluded that only one definition could truly define public relations: managing strategic relationships. The Public Relations Society of America (PRSA) formally adopted an official statement on public relations in 1982 by stating that public relations contributes to a mutual understanding among groups and institutions, and it "serves to bring private and public policies into harmony" (PRSA, n.d., p. 1). Heath (2006) concluded that:

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> Public relations is a piece of some whole. The challenge is to continue to search to discover the whole and public relations' place in it. One view of that whole is the nature of society and, consequently, the constructive and destructive roles that public relations can play to that end (p. 110).

In the media, public relations often is used as a negative term, although it is rarely used correctly (White & Park, 2010). Persuasion is seen as a central part of the public relations practice, which is preferable to being seen as manipulative (Fawkes, 2007). Because of negative perceptions associated with manipulation by the public, companies need to assess and adopt a PR approach that is effective and not offensive (Khodarahmi, 2009). Thus, this study was conducted to describe agricultural public relations professionals' perceptions about corporate social responsibility and its application in their profession.

Public Relations in Action

In early 2003, a children's hospital in Seattle, Washington, reported a high number of E. coli infections, and two days later, the health department determined that food sold at Jack in the Box restaurants was at least partly responsible (Ulmer & Sellnow, 2000). After three children died from E. coli and 400 were infected with the bacterium, Jack in the Box was unwilling to take responsibility for the issue, as it was able to trace the contaminated meat to a single supplier.

Ulmer and Sellnow concluded ambiguity is a component of effective crisis communication, but that ambiguity can raise ethical issues because of the negative effects it has on stakeholders.

Johnson & Johnson, during the Tylenol-tamper scare, redeemed all previous purchases, recalled all products on store shelves, and took preventive measures by creating a new product seal (Murray & Vogel, 1997). "Indeed, as a result of its public actions as a responsible pharmaceutical producer, Johnson & Johnson enhanced its public image by taking decisive action" (Murray & Vogel, p. 143). An outbreak of E. coli was linked to Taco Bell restaurants in 2006 (Miller, 2006).

Although it waited until six days after the incident to address the public, Taco Bell controlled the damage by closing a number of restaurants and switching produce suppliers, and by pulling green onions from 5,800 stores (Miller).

Public Relations in Agriculture

Many issues with important public relations aspects are related to agriculture, including food safety and security, animal welfare and production, pollution and environmental sustainability (Busch, 2003), technological change and agricultural production techniques, and corruption of regulators and policy makers (James & Hendrickson, 2008).

A study by Langosch and Schlenz (1990) examined the agricultural sector, focusing on public image and how the field can improve as a whole, and found that public relations requires that the entire industry realize the necessity and possibilities of public relations, even beginning with the farmer himself. Bhardwaj, MacKawa, Nimura and Macer (2003) found that information dissemination is central to the modern information society, and that the United Nations Food and Agricultural Organization viewed it as a major role. For example, the media has created a negative opinion of genetically modified (GM) technologies, and ethics should be involved in providing people unbiased information at the community level and the country level (Bhardwaj et al.). Tockman (1993) said that finding ways to educate consumers about four major issues affecting agriculture—food safety,

environmental concerns, biotechnology, and animal rights/welfare—was critical to communications and marketing-related jobs. Public relations must be handled differently depending on the situation, but a disconnect between interests of individuals in the field detract from an overall positive image for the farm sector (Langosch &Schlenz).

Conceptual Framework

Grunig and Hunt (1984) identified four models of public relations: press agentry/publicity, which concentrated on propaganda; public information, which was used for the dissemination of information; two-way asymmetric, which used scientific persuasion; and two-way symmetric, which concentrated on mutual understanding (p. 22.). In modern society, the two-way symmetric model is more utilized by PR representatives and companies and is the most pertinent to current PR scholars (Khodarahmi, 2009). Edward Bernays, commonly known as the "Father of Public Relations," was quoted as saying, "Public relations is the practice of social responsibility" (p. 47) at the 1980 meeting of the Association for Education in Journalism (Bernays, 1980, as cited in Clark, 2000).

As long ago as the 1920s, practitioners began to pay more attention to the idea of social responsibility, noting that it was good for public relations and thus, good for business (Clark, 2000). "At the start of the 21st century, Corporate Social Responsibility seems to be a leading principle in innovating business practices with a positive impact on People, Planet and Profit"(Zwetsloot, 2003, p. 202). Campbell (2007) concluded:

> CSR might include measures of how the corporation treats its employees with respect to wages, benefits, and levels of workplace safety; how it treats its customers with respect to product quality, truth in advertising, and pricing; how it treats its suppliers with respect to its willingness to uphold contracts and honor more informal commitments; how it treats the government with respect to operating within the law and not trying to subvert it; and how it treats the community with respect to making charitable contributions, ensuring not to foul the environment, and so forth (p. 950).

CSR is essentially corporate attempts to meet the expectations of the society and at the same time maintain and improve their reputations (Murray & Vogel, 1997). Ethical public relations practitioners can be enormously useful to corporations wishing to make the transition from a state in which the sole emphasis is on capital accumulation to one in which equal emphasis is placed on profit generation and on socially responsible action (Ryan, 1986, p. 741). Prabu (2004) suggested that social responsibility demands require corporations to accommodate the social good, and that public relations could play a critical role in fostering corporate citizenship.

"Interdependence means that the success of the organization rests on its effectiveness in selling products while at the same time winning public approval for its mission, citizenship, and practices" (Stoker, 2005, p. 276). Heath (2006) wrote that the expectations that people create, negotiate, manage, and apply in their social actions as they work and live in societal arrangements is important to this interdependency. "Interdependence and relationships assume that all stakeholders share universal norms and values—the deeper loyalties. Unlike marketing, public relations must communicate the organization's deeper loyalties if it hopes to create relationships based on interdependence" (Stoker, p. 276).

Most executives recognize the importance of social and environmental responsibility to the bottom line, to their companies' reputations, and to their customers, but without customer satisfaction in

https://newprairiepress.org/jac/vol97/iss4/10
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the social responsibility of the company, the bottom line will suffer (Zhang & Swanson, 2006). Kim and Reber (2008) found that public relations professionals' personal viewpoints in ethics or their personal experiences seem to be a key factor in how they see their part in CSR. "Some companies (like Wal-Mart) are beginning to require their vendors and suppliers to adhere to a strict code of conduct, and to report on how they manage environmental, social, and governance issues" (KPMG, 2008, p. 6).

Clark (2000) explored the link between public relations and CSR, tracing the origins of both, in an attempt to gain insight into how to optimize their effectiveness and their impact on the corporate world. She suggested that the link between public relations and CSR began in 1973 with the Texas Gulf Sulfur (TGS) case and was reinforced when public relations leaders began to recognize that a role of public relations is to assist organizations with developing appropriate responses (Clark). TGS was indicted because officials of TGS purchased shares in the company based on undisclosed information regarding the discovery of silver and copper deposits in Canada and did not publicly disclose this information until 5 years after the discovery (Allen,1990). The TGS case changed the practice of public relations by creating the need for public relations practitioners to "focus on their role as insiders and make sure they did not arbitrarily select what information to reveal and what to conceal" (Clark, p. 365).

Kim and Reber (2008) suggested that acting in a socially responsible way could have an effect on public relations attaining professionalism, as professionalism and CSR are closely intertwined (Wilcox, Cameron, Ault, & Agee, 2003). Grunig, Grunig, and Dozier (2002) said that public responsibility has been understood and emphasized as nearly synonymous with the concept of public relations.

"It is clear that corporate public relations and CSR have, throughout this last century, a set of similarities, which provide clues to their integration and increased joint effectiveness" (Clark, 2000, p. 376). In 2008, Podnar found that both scholars and managers have paid greater attention to CSR, as a company has a social responsibility to its stakeholders. The connection between the two suggests that public relations and CSR have similar objectives; both disciplines are seeking to enhance the quality of the relationship of an organization among key stakeholder groups (Clark).

Corporate Social Responsibility and Agriculture

CSR is especially important in agriculture because of the many ethical issues faced by the industry and because of the consequences that could result from poor judgment on the part of agricultural organizations. Agribusinesses should be very concerned with responsibility to stakeholders, as many ethical issues facing agriculture could have a negative effect on human health and safety (Murphy-Lawless, 2004). As Whitaker (2005, as cited in McCleneghan 2005) pointed out:

> Public trust—from both my internal and external publics—is everything. Without it, the organization quite likely could cease to exist; or, at a minimum, will function only marginally effectively. If we do not perform our mission responsibly and with integrity, our support will be withdrawn and our leaders replaced.

Purpose and Objectives

The purpose of this study was to describe National Agri-Marketing Association (NAMA) members' perceptions of corporate social responsibility in agriculture and their roles related to corporate social responsibility. Specific objectives in meeting the purpose of this study were to:

1. Describe NAMA members' perceptions of their roles in corporate social responsibility.
2. Describe NAMA members' perceptions of career practices in the agricultural communications industry.
3. Describe relationships between NAMA members' demographic characteristics and their perceptions of CSR.

Methods

This study used a descriptive online questionnaire to gather information related to NAMA members' perceptions of corporate social responsibility. The questions were adapted to reflect the NAMA membership from two previous surveys of public relations practitioners about professionalism and CSR (Kim & Reber, 2008; Ryan, 1986). The questionnaire included 46 close-ended questions divided among three sections: Career Practices, Social Responsibility, and Career and Organization Demographics. Questions in the Career Practices and Social Responsibility sections were answered using a 7-point Likert-type scale, with 1="strongly disagree," 2="disagree," 3="somewhat disagree," 4="neutral," 5="somewhat agree," 6="agree," and 7="strongly agree." Questions in the Career and Organization Demographics section were multiple-choice.

A panel of experts that included an agricultural communications faculty member, NAMA organizational staff member, and NAMA member was used to confirm the face and content validity of the original questionnaire were maintained. A post-hoc Cronbach's alpha was calculated for the scaled items because a pilot test with a similar population could not be conducted. The Cronbach's alpha for for 15 items related to perceptions of CSR was .750 and the Cronbach's alpha for 15 items related to career practices was .758; both values fall within the acceptable range of coefficients for scaled items.

A census of professionals registered as members of NAMA who were accessible via email (N=1,623) was conducted. At the request of the organization, all messages containing the link to the online questionnaire were sent by NAMA staff members to the organization's email list. An introductory message was distributed as part of the National NAMA e-News, followed by a reminder in an agri-marketing special edition e-news email 10 days later. A second reminder was sent 13 days after the first reminder as part of a NAMA agri-marketing conference attendee update. Three hundred seven responses were obtained for a response rate of 18.9%.

The characteristics of early and late respondents were compared to control for nonresponse error (Lindner & Wingenbach, 2002). Members who responded following the introductory message were classified as early respondents (n=163), and members who responded after the first reminder message were classified as late respondents (n=144). No differences in the responses of early and late respondents were found, so all responses were pooled for analysis and interpretation.

Findings

Of the 307 survey respondents, 54.5% were female and 45.5% were male. More than half (53.4%) of the respondents were between 40 and 59 years of age, with 23.9% between 40 and 49 years, and 29.5% between 50 and 59 years. Also, 21.6% of respondents were between 20 and 29 years old, 17% between 30 and 39 years, 6.8% between 60 and 69 years, and 1.1% over 70 years. About one-quarter of respondents (26.3%) earned degrees in business, followed by respondents with degrees in mass communications (22.3%), public relations (5.7%), advertising (5.7%), speech communication (2.9%), and English (2.3%). About one-third of respondents (34.9%) indicated they earned degrees in other fields.

https://newprairiepress.org/jac/vol97/iss4/10
DOI: 10.4148/1051-0834.1132

A summary of respondents' years of experience in public relations, in their present organizations, and in their current positions is presented in Figure 1. A majority of respondents (73.9%) indicated their current positions involved public relations. The greatest proportion of respondents (18.2%) reported having between 16 and 20 years of public relations experience, while the smallest proportion of respondents (5.3%) had between 21 and 25 years of public relations experience. In addition, the highest number of respondents (29.4%) had 1 to 2 years of experience in their present organizations, while the lowest number of respondents (2.8%) had 26 to 30 years of experience in their present organizations. The highest number of respondents (38.6%) had between 1 and 2 years of experience in their current positions, and the lowest number of respondents (1.1%) had between 26 and 30 years in their current positions. Those positions included manager (19.1%), CEO/president/owner (15.7%), director (12.9%), vice president (12.4%), other (12.4%), communication specialist (10.1%), account executive (5.1%),assistant account executive (2.8%), and public relations specialist (2.2%).

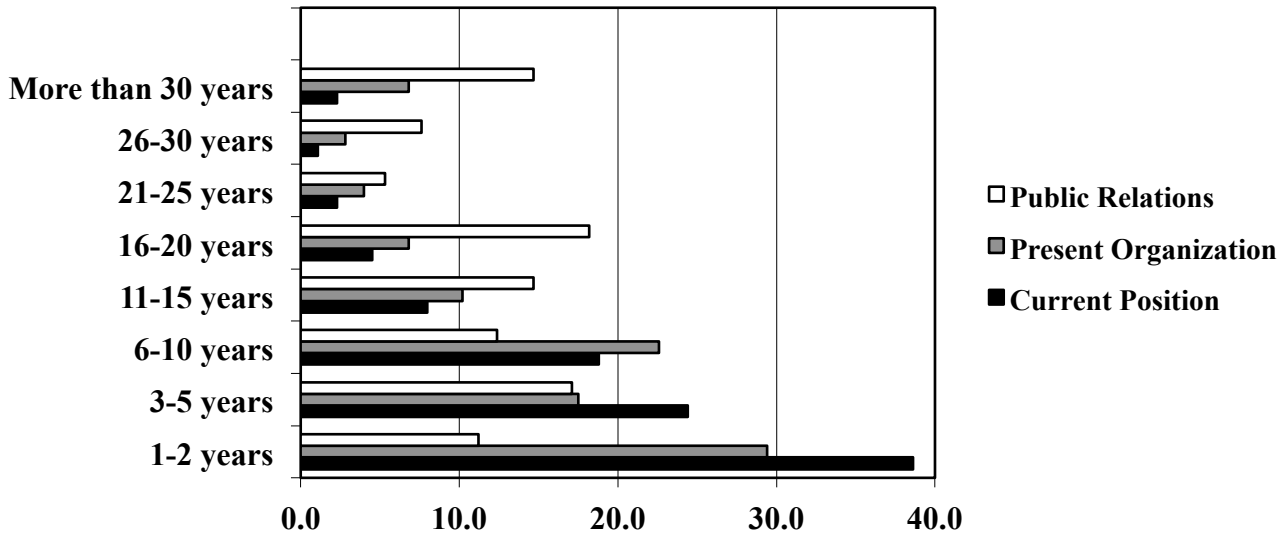

Figure 1. Respondents' experience in public relations, in their present organizations, and in their presentation positions.

A majority of respondents reported that their organizations had recruited employees who had an agricultural communications major (65.0%) and had hired employees who had an agricultural communications major (70.6%). In addition, a majority of respondents (83.6%) had worked with someone who had an agricultural communications major. Of the respondents' organizations, 47.8% were corporate, 21.9% were public relations agencies, 19.1% were "other,"4.5% were nonprofit organizations, 2.8% were trade associations, 2.2% were independent public relations consultants, and 1.7% were education-related. Those organizations had annual revenues of less than $1 million (9.6%), $1-5 million (16.6%), $5-10 million (10.2%), $10-50 million(21.7%), $50-100 million (5.1%), $100-500 million (5.7%), $500 million to $1 billion (5.1%), more than $1 billion (15.3%), and other (10.8%). Revenues specified as other included respondents who chose not to share the information because of corporate policies or unknown reasons, or who were unsure of the correct answer.

A majority of respondents (75.5%) worked for organizations with fewer than 500 employees, with 33.5% reporting fewer than 50 employees, 21.0% reporting 50-100 employees, and 21.0% reporting 100-500 employees. The remaining respondents reported working for organizations with 500-1,000 employees (2.3%), 1,000-5,000 employees (6.3%), 5,000-10,000 employees (7.4%), 10,000-25,000

employees (4.0%), 25,000-50,000 employees (1.1%), 50,000-75,000 employees (1.1%), and 75,000-100,000 employees (0.6%). The mean number of employees in the organizations' public relations department was 8.83 (SD=16.70).

Perceptions of Corporate Social Responsibility

Fifteen items related to respondents' perceptions of CSR were included in the questionnaire. The 7-point Likert-type scale for each item was interpreted as follows: 1.00 – 1.49="strongly disagree," 1.50 – 2.49="disagree," 2.50 – 3.49="somewhat disagree," 3.50 – 4.49="neutral," 4.50 – 5.49="somewhat agree," 5.50 – 6.49="agree," and 6.50 – 7.00="strongly agree."

Respondents agreed that developing programs that are good for society is good for business and good citizenship (M=6.11, SD=.90, Mdn=6.00), that an organization that is socially responsible over a long period is more credible with the public than one that is not (M=6.19, SD=.91, Mdn=6.00), and that the pursuit of social goals strengthens an organization's ability to earn a fair profit (M=5.50, SD=1.19, Mdn=6.00). Respondents also agreed that management must act socially responsible regardless of how those actions influence profit (M=5.74, SD=1.30, Mdn=6.00), and that corporate social responsibility must stem from a firm, deep-seated conviction of management that it is important for organizations to act in the public interest, and not just when it is convenient to do so (M=6.15, SD=1.07, Mdn=6.00). In addition, respondents agreed that organizations must try to calculate the social impacts of major decisions before implementing policies or taking actions (M=5.78, SD=1.05, Mdn=6.00).

Respondents somewhat agreed that public relations professionals should act as the consciences of the organizations for which they work (M=5.14, SD=1.42, Mdn=5.00), and they agreed that public relations professionals should be deeply involved in helping management define an organization's social role (M=5.67, SD=1.07, Mdn=6.00). Respondents somewhat agreed that public relations professionals must avoid putting organizational obedience ahead of personal conscience (M=4.99, SD =1.55, Mdn=5.00) and agreed that public relations professionals must work hard to ensure that organizational secrecy is not used to hide organizational misconduct (M=5.93, SD=1.09, Mdn=6.00). Respondents agreed that a socially responsible public relations staff presents several sides of an issue and provides an objective appraisal of conflicting opinions when it disseminates information (M=5.56, SD=1.29, Mdn=6.00), but they were neutral about the statement that presenting all sides of an issue and providing an objective appraisal of conflicting opinions is the job of the news media, not public relations (M=3.92, SD=1.94, Mdn=4.00).

Respondents somewhat agreed that they thought that the agricultural communications industry has a clear code of ethics (M=4.89, SD=1.25, Mdn=5.00) and that the agricultural communications industry has clear standards of performance (M=4.77, SD=1.27, Mdn=5.00).

Respondents somewhat disagreed that it is right for an individual to have one ethical standard in his or her private life and a different standard in business affairs (M=3.01, SD=1.78, Mdn=2.00).

Career Practices

Fifteen items related to career practices were included in the questionnaire. The 7-point Likert-type scale for each item was interpreted as follows: 1.00 – 1.49="strongly disagree," 1.50 – 2.49="disagree," 2.50 – 3.49="somewhat disagree," 3.50 – 4.49="neutral," 4.50 – 5.49="somewhat agree," 5.50 – 6.49="agree," and 6.50 – 7.00="strongly agree."

Respondents agreed that they set strategic goals (M=5.76, SD=1.11, Mdn=6.00) and quantifi-

https://newprairiepress.org/jac/vol97/iss4/10
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able objectives (M=5.57, SD=1.12, Mdn=6.00) often, and that their organization was considered an industry leader (M=5.95, SD=1.18, Mdn=6.00). Respondents somewhat agreed that they consider themselves a long-time employee in their organization (M=5.35, SD=1.84, Mdn=6.00) and were neutral that their organization had a large executive staff (M=4.08, SD=2.00, Md =4.00). Respondents somewhat agreed that they decide on communication policy often (M=5.17, SD=1.60, Mdn=6.00) and that their clients/organization asked the agency/communications department to get involved in strategic planning (M=5.38, SD=1.51, Mdn=6.00). Respondents agreed that their clients/organization asked for communications programs that go beyond media relations (M=5.74, SD=1.43, Mdn=6.00).

Respondents agreed that they thought professional associations contribute to professionalism (M=5.79, SD=1.01, Mdn=6.00) and that professional associations have membership benefits (M=5.76, SD=.97, Mdn=6.00). Respondents agreed that academic training was important for communications professionals (M=5.55, SD=1.21, Mdn=6.00), but were neutral in their agreement that agricultural communications graduates' overall preparation was excellent, (M=4.33, SD=1.10, Mdn=4.00) agricultural communications graduates' management skills were excellent (M=4.06, SD=1.13, Mdn=4.00), and agricultural communications graduates' strategic thinking was excellent (M=4.04, SD=1.16, Mdn=4.00). Respondents somewhat agreed that formal qualifications should be compulsory to be a communications professional (M=4.56, SD=1.44, Mdn=5.00).

Relationships among Demographics and Perceptions of Corporate Social Responsibility

Differences among responses based on demographics were examined using analysis of variance. Two significant differences were found. Females had a higher level of agreement than males, F(1, 172)=8.23, p=.005, that management must act socially responsible, regardless of how those actions influence profit. Females also had a higher level of agreement than males, F(1,173)=12.64, p=.000, that organizations must try to calculate the social impacts of major decisions before implementing policies or taking actions.

Conclusions, Recommendations, and Implications

Most respondents were a manager, CEO/president/owner, director, or vice president, and were employed by corporations, public relations agencies, or other organizations, such as media, marketing agencies, and associations. This is representative of the NAMA membership. NAMA members come from agribusiness companies (corporations), marketing communications firms (public relations agency), or other organizations, such as media and associations/organizations.

Most respondents reported that their organization's annual revenue is less $50 million and had fewer than 500 employees. About half (54.3%) of respondents in Kim and Reber's (2008) study also reported fewer than 500 employees.

Most respondents had 16 to 20 years of experience in public relations, but only 1 to 2 years of experience in both their present organization and current position. More than half of respondents were between the ages of 40 and 59. This closely follows Buck and Barrick's (1995) study, in which it was found that the typical agricultural communicator was 45 years of age and had around 20 years of experience. A difference between the two studies is that a greater amount of respondents in this study were female (54.5%), and a majority of respondents (63.4 %) in the Buck and Barrick study were male. This difference may be attributed to the increase in female college graduates over the years (U.S. Census Bureau, 2011). Buck and Barrick's study included respondents who were members of six different professional organizations in 1992. Respondents who were 45 years of age in 1992

should have graduated from college in the late 1960s or early 1970s. According to the U.S. Census Bureau, the percentage of females that were enrolled in college in 1969 was 40.17%, and in 1970 was 40.64%. Half of the respondents from the current study should have graduated from college between 1974 and 1993. The U.S. Census Bureau found that there were 45.16% females in 1974 and 54.15% females in 1993. The late 1960s marked the beginning of a steady increase in female college students. Agricultural communications programs also have shown an increase in the number of females. In 1970, Kansas State University had 100% males in their agricultural communications program, compared to 23.26% males in 1995.

The greatest amount of respondents agreed that academic training was important for communications professionals, but were mostly neutral on their evaluation of graduates' overall preparation, management skills, and strategic thinking, as excellent. Despite their uncertainty, respondents reported that their organization had recruited and hired employees who had an agricultural communications major, and had worked with someone who had an agricultural communications major. Irlbeck and Akers (2009) found that agricultural communications professionals would like to see improvements among graduates in critical thinking and business etiquette. Even though NAMA members were unsure of graduates' skills coming out of college, agricultural communications students are sought after and are valuable to the agricultural communications industry.

Conclusions Related to NAMA Members' Perceptions of CSR

Respondents agreed that the pursuit of social goals strengthens a corporation's ability to earn a fair profit, but that management must act socially responsible, regardless of how those actions influence profit. This supports Johnson's (1971) view of CSR called "utility maximization." In utility maximization, maximum profit is not the only goal. Although CSR can influence profit, it should not be the primary goal related to CSR efforts. Zhang and Swanson (2006) concluded that although the bottom line is important, it will suffer without the presence of CSR.

Respondents agreed that developing programs that are good for society is good for business and good citizenship; that an organization that is socially responsible over a long period of time is more credible; that CSR must stem from a firm, deep seated conviction of management that is important for organizations to act in the public interest, and not just when it is convenient to do so; and that organizations must try to calculate the social impacts of major decisions before implementing policies or taking actions. Ryan's (1986) study, which asked 135 public relations practitioners who were not specifically in the agriculture industry the same questions, agreed with all of these statements as well. This also further supports the findings of Jahdi and Acikdilli (2009) that the commitment and dedication of senior-management to CSR in a holistic manner is unquestionably crucial.

Respondents also agreed that organizations must try to calculate the social impacts of major decisions before implementing policies or taking actions. This supports research that has shown that public relations is the managing of relationships internally and externally (Hutton, 1999), as well as the PRSA's statement that public relations professionals are concerned with bringing private and public policies into harmony (PRSA, n.d.). Respondents also agreed that public relations professionals should be deeply involved in helping management define an organization's social role. Most professionals who provide public relations services offer counsel regarding the public implications of an institution's decisions and actions (Fitzpatrick & Gauthier, 2001).

Respondents agreed that a socially responsible public relations staff presents several sides of an issue and provides an objective appraisal of conflicting opinions when it disseminates information,

https://newprairiepress.org/jac/vol97/iss4/10
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but varied greatly in their view that presenting all sides of an issue and providing an objective appraisal of conflicting opinions is the job of the news media, not public relations. It was surprising that respondents were neutral in their level of agreement that it is the job of the news media, as the core requirement of giving adequate information to make voluntary, informed, rational, and reflective decisions is essential to the ethics of persuasion (Messina, 2007). Fitzpatrick and Gauthier (2001) concluded that "selective communication is morally suspect when it is intended to mislead or when it is used to conceal information that others need to make their own life decisions" (p. 209).

Respondents somewhat agreed that public relations professionals must avoid putting organizational obedience ahead of personal conscience and that public relations professionals should act as the consciences of the organizations for which they work and agreed that public relations professionals must work hard to insure that organizational secrecy is not used to hide organizational misconduct. Gersuny (1967) wrote that different individuals will make different appraisals of the values controlled by management, and that varying degrees of compliance may be anticipated. He concluded that there is a point in which the employee will view the effort required to obey the organization as requiring too much effort, and is no longer worth it (Gersuny). Employees tend to work for organizations that have the same set of values as themselves, so organizational obedience might not challenge personal conscience very much.

Fawkes (2007) concluded that because of reluctance to discuss propaganda and persuasion in public relations, the field has not developed a set of ethics. This conclusion was represented by respondents' in their level of agreement with a statement that the agricultural communications industry has a clear code of ethics and standards of performance. In a 1992 public personnel inventory, it was found that half of the respondents had their own code of conduct (Sanders, 1992). It should not be left up to the individual to decide what is right or wrong in business. Professional associations and public relations organizations typically have codes of ethics in place for their members and employees, but there still fails to be a general set of ethics for the public relations industry as a whole. Fitzpatrick and Guthier (2001) wrote, "Although industry associations have done a laudable job in developing codes of conduct for their members, the codes stop short of providing a theoretical basis for ethical decision making."

Respondents somewhat disagreed that it is all right for an individual to have one ethical standard in his or her private life and a different standard in business affairs. This supports Fitzpatrick and Gauthier's (2001) conclusion that in ethical situations, "the decision maker must employ his or her own values, moral intuition, and character to determine which principle is most important and most controlling in the particular context" (p. 207-208).

Conclusions Related to Career Practices

Kim and Reber (2008) did not specifically survey professionals in the agriculture industry, but the responses related to career practices that they received were very similar to the responses obtained in this study. In both studies, respondents agreed that they set strategic goals and quantifiable objectives often, and that their clients/company ask for communications programs that go beyond media relations; somewhat agreed that they considered themselves a long-time employee in their organization and that their clients/company ask the agency/communications department to get involved in their strategic planning; and were neutral that their organization has a large executive staff. Also, in both studies, respondents agreed that professional associations contribute to professionalism and have membership benefits and that academic training is important for communications professionals;

somewhat agreed that formal qualifications should be compulsory to be a communications professional; and were neutral that communications graduates' overall preparation, management skills, and strategic thinking are excellent.

Of the 17 statements related to career practices, only two statements yielded different levels of agreement across the two studies. Respondents in the Kim and Reber (2008) study agreed, while respondents in this study somewhat agreed, that they decide on communication policy often. Respondents in this study agreed that their organization is considered an industry leader, while Kim and Reber's respondents were neutral.

The similarities between the responses in both studies show that public relations serves the same roles across industries. Public Relations Society of America members and NAMA members have the same level of agreement with most career practices.

Conclusions Related to Comparisons Between Demographics and CSR Perceptions

The differences based on gender found in this study agree with Lund's (2008) study that found that female marketing professionals showed considerably higher ethics judgment than their male counterparts. It also agrees with Kim and Reber's (2008) finding that gender of respondents was significantly related to practitioners' attitudes towards CSR.

Recommendations for Practice

Professional development programs for members of professional organizations should continue to be used to ensure that members are educated about current issues, including CSR. In addition, agricultural communications academic programs should consider the perceptions of their graduates when making curriculum decisions and work toward improving the perceptions of graduates as prepared to enter the workforce, particularly in relation to management and strategic thinking skills. Also, codes of ethics for professional associations and organizations should be examined to develop a code of ethics for public relations professionals as a whole, so that there is a unified professional set of guidelines for students and professionals to follow.

Recommendations for Research

The response rate was likely low because the introductory and reminder messages were sent with other NAMA updates instead of as individual, personalized emails, as suggested by Dillman (2000). Future investigators should ensure that, regardless of distribution methods, messages are focused on research and are personalized. In addition, a clear definition of CSR should be provided to create a consistent context for all questions. This study should be replicated with other professional agricultural organizations, such as production organizations, as well as with agricultural producers.

Implications

Despite many studies of CSR and public relations, no research was found that discussed CSR and public relations in the agriculture industry. With this study, agricultural public relations practitioners may begin to consider their roles in CSR and may see the need for a clear code of ethics to better unify the industry. This study creates a foundation for additional studies of agricultural public relations professionals that may examine more deeply specific roles related to

CSR. As NAMA and its members consider the results of this study, steps can be taken to ensure proper education related to ethics and CSR is provided where deficiencies are present.

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Research

Perceptions of Global and Domestic Agricultural Issues Held by International Agricultural Journalists

Laura Kubitz, Ricky Telg, Tracy Irani and Owen Roberts

Abstract

The purpose of this study was to provide baseline knowledge of the prevalent global and domestic agricultural issues, ways to educate journalists about these issues, and sources of information used when reporting about agricultural issues, according to international agricultural journalists. The executives of the International Federation of Agricultural Journalists served as this study's population. The IFAJ is comprised of a membership of 31 countries that practice freedom of the press. A modified Delphi method with three rounds of data collection was utilized for this study. Qualitative feedback was provided by the executives in Round One. In Rounds Two and Three, quantitative feedback was used with the goal of forming consensus on the most important global issues and methods to educate journalists about these issues.A list of important domestic agricultural issues was supplied for 20 countries. The executives also generated a list of important global agricultural issues and ways to educate journalists about these issues. Important global agricultural issues included feeding a growing global population and water quality/quantity. Face-to-face methods of educating journalists were favored by the executives. The executives identified a wide variety of sources they use to report about global and domestic agricultural issues, including government agencies, farmers, universities, online sources, professional organizations, commodity group websites, and academic journals.

Keywords

issues, agriculture, global, domestic, International Federation of Agricultural Journalists, Delphi method

Introduction

Despite the importance of agriculture and the issues surrounding the industry to the economy, environment, and culture, print media have often ignored agriculture and agricultural issues (Stringer & Thomas, 1999). Whitaker and Dyer (1998) said that "journalists have a responsibility to report news both accurately and fairly. If they fail in their duties, responsible reporting and consumption of agricultural news will not occur and misinformed individuals may make important decisions affecting the food and fiber industry" (p. 445). Possessing a basic knowledge of agriculture is important when it is one of a state's major industries; a lack of knowledge and experience in agriculture can actually impede economic development of the industry (Williams & White, 1991).

Whitaker and Dyer (2000) also expressed that journalists have a responsibility to report on important issues accurately and fairly. They should use a greater variety of sources and explore all facets

of an issue. In contrast, the general public should critically evaluate articles and should exercise caution when forming opinions about issues based upon pictures that are meant to evoke an emotional response. If this is not done, "consumers and agriculturalists are likely to suffer from the commission, or omission, of practices that either positively or negatively affect environmental and food safety issues" (p. 133).

The quality of agricultural news that reaches people involved with the industry and the general public has also been questioned (Reisner & Walter, 1994). Critics have called general-interest media coverage superficial, lacking in comprehensive understanding of agricultural issues, and inclined toward flashy events and folksy feature stories (Reisner & Walter). Hall et al. (1977) stated that continued negative news coverage about agricultural issues could lessen public support for farmers and farming.

Cartmell, Dyer, and Birkenholz (2001) interviewed Arkansas daily newspaper editors to find out their attitude, knowledge, and experience with agriculture, as well as their perceptions of agricultural issues. Editors had a positive attitude toward agriculture, but were "less positive about the image of agriculture or performance in educating the public about the agricultural industry" (p. 455). They had positive attitudes regarding the "technical and scientific nature of agriculture, the ability of agriculturalists to address issues dealing with environment and research, and the belief that agriculture provides a safe and abundant food supply" (p. 455). However, the editors agreed that more education about agriculture was necessary. The study's authors indicated that it was agricultural communicators and educators' responsibility to provide a knowledge base for journalists about agriculture. Since journalists cannot receive training in all areas in which they report, the authors encouraged university faculty to keep open relationships with journalists to ensure information could be disseminated about agricultural issues.

The developing world needs reliable information and knowledge on agricultural issues (Ballantyne, 2009). As society becomes more aware of the problems and issues facing agriculture and food production, pressure will increase to create policies that benefit consumers and producers (Frick, Birkenholz, & Machtmes, 1995). Journalists who report on agricultural issues should at least possess an above average knowledge of agriculture (Rogers, 1995). However, journalists cannot be expected to receive training in all areas in which they will be reporting throughout their careers. It is up to agricultural communications professional organizations to provide journalists with the knowledge they need to cover agricultural issues (Cartmell, Dyer, & Birkenholz, 2001).

The International Federation of Agricultural Journalists is an example of an agricultural communications professional organization. The IFAJ is a "non-political, not-for-profit professional association with membership covering 31 countries that embrace freedom of the press" (IFAJ, 2011, A global organization of professional communicators, para.1). The mission of the IFAJ is to give agricultural journalists and communicators a place for professional development and international networking (IFAJ, 2011).

Purpose and Objectives

The purpose of this study was to provide baseline knowledge of the important global and domestic agricultural issues, according to agricultural communicators in an agricultural setting. The specific objectives of the study were to:

- Identify important global agricultural issues, according to IFAJ executives.

https://newprairiepress.org/jac/vol97/iss4/10
DOI: 10.4148/1051-0834.1132

- Identify important domestic agricultural issues facing each country of the IFAJ, according to the executives who represent the country.
- Identify resources the executives of the IFAJ use to report on important global and domestic agricultural issues.
- Identify the best ways to educate journalists about important global and domestic agricultural issues, according to IFAJ executives.

Theoretical/Conceptual Framework

The conceptual framework for this study was an adaptation of agenda-setting theory (See Figure 1.) Agenda setting refers to a connection between a series of events: first, news media report on specific issues; second, these reports affect the perceptions of issue importance; finally, these changes in perceptions will influence policy-making decisions (Cook et al., 1983).

Through the day-to-day selection and display of news, editors, journalists, and news directors have a substantial influence on the public attention to issues, problems, and opportunities within a community (McCombs, 1997). Over a period, when a set of issues is continually reflected in the media, the issues can become priorities of the public agenda. McCombs proclaimed that the agenda-setting role of the news media is an "awesome, ethical responsibility" (p. 433).

At any one time, only a small number of issues can command significant attention from the public, the press, or the government, and even the most important issues can quickly disappear from the public's agenda (McCombs, 1997). Therefore, consensus on the most prevalent issues is imperative. Limitations are in place on the amount of influence the media can have on the public agenda. Even if an issue is prominently covered in the news, it will not be on the public's agenda if the public does not resonate with the issue. The public and the news media are "joint participants" in the agenda-setting process (McCombs, p. 437). The news items and issues that the media choose to report on have been influenced by the exchanges between news reporters and the sources that give them information for stories, the day-to-day activities of news organizations, and the journalists' "norms and traditions" (Valenzuela & McCombs, 2009, p. 97), which are the strongest influence in media agenda setting. The reporters and editors are the last sources the stories filter through, so they ultimately decide how stories are told.

When journalists are given the right information and exposure to important issues within a community, they are more inclined to write about important issues that might otherwise go unreported (Thapa, 2005). For example, in 2003 a majority of the people in Nepal did not have access to clean water and sanitation facilities and were unaware of alternatives, causing people to become sick from water borne illnesses. These issues often went unreported in the news. Stories about politics, conflict, and social crimes sold more newspapers (Thapa, 2005).

In 2003, Nepal's Water, Sanitation and Hygiene for All (WASH) group was formed to find ways to improve sanitation. In order to meet the goal of halving the proportion of people without access to clean water and sanitation by 2015, WASH developed relationships with the media to spread the word about their mission and goal. They organized journalist orientation programs in three areas of Nepal that coincided with National Sanitation Week. Seventy-four journalists participated in the two-day programs, which featured science and policy briefings from experts, field trips, and discussions about the issue of clean water and sanitation. These programs "gave journalists a platform from which to figure out what stories there were to be told about sanitation, hygiene, and water" (Thapa, 2005, p. 2). The journalists were also given resource materials on sanitation, Nepalese facts, policy

documents, lists of websites, and references so they could conduct further research. "Many described how they'd not thought that a community's sanitation situation could be a news item before they'd had this experience. Having it, they said, helped them realize the role they could play in informing people about these issues" (Thapa, 2005, p. 2).

The conceptual framework for this study started with the set of global and domestic agricultural issues that the industry deals with, such as food safety, obesity, and sustainability. Once those issues are identified and ways to educate journalists about global and domestic agricultural issues are understood and adapted by the media, this knowledge can help enable the media to report about these issues more effectively. Journalists are sometimes unaware of important environmental and agricultural issues unless the issues are specifically identified, and they are given materials and information to help them to effectively cover these issues (Thapa, 2005). According to the conceptual framework, more effective reporting about global and domestic agriculture issues will result in a more knowledgeable public about the global and domestic agricultural issues that affect their food supply. More effective reporting could also create more pressure to pass laws and directives that can address the global and domestic agricultural issues affecting the industry.

When the general population is equipped with knowledge about the agricultural industry, they can help influence policy decisions that are made regarding agricultural issues. Therefore, identifying global and domestic agricultural issues, as well as ways to educate journalists about these issues, can help the public and legislative bodies have a better understanding of agriculture and the issues affecting the industry. Incomplete or inadequate information about agricultural issues can leave parts of the population out of the decision making process (Stringer & Thomson, 1999), or a misinformed public might be involved in making decisions that can harm the food and fiber industry (Whitaker & Dyer, 1998).

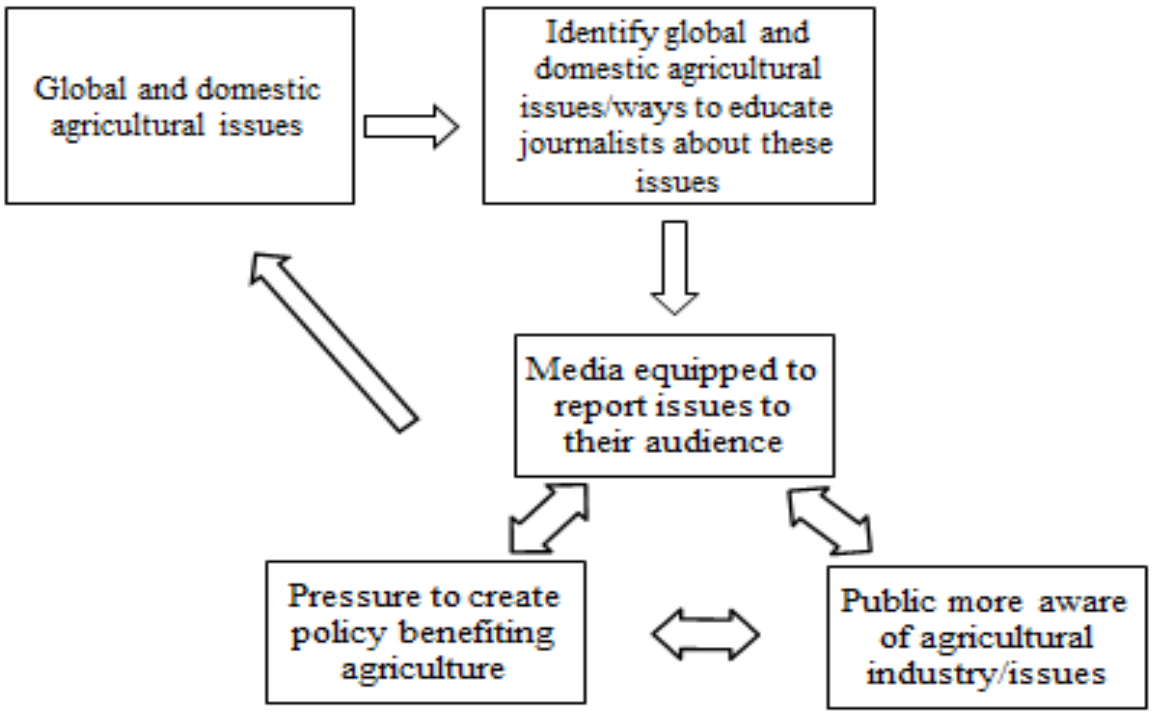

Figure 1. Conceptual framework related to agenda-setting theory based on Valenzuela and McCombs (2009)

https://newprairiepress.org/jac/vol97/iss4/10
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Methodology

This study was conducted using a modified Delphi technique. In the 1950s, the RAND Corporation in Santa Monica, California, developed the Delphi research technique. (Dalkey & Helmer, 1963) The Delphi technique is a "group facilitation technique, which is an iterative multistage process, designed to transform opinion into group consensus." (Hasson, Keeney, & McKenna, 2001, p. 1008).

For this study, the researcher identified agricultural journalists as the target population. For the sample, the researcher decided to use the executive members of the International Federation of Agricultural Journalists. The IFAJ is a "non-political, not-for-profit professional association for agricultural journalists" (IFAJ, 2010, "A global organization of professional communicators," para.1). The executive members are the elective representative governing body of the organization. Each of the 31 countries in the IFAJ elects one representative. The federation includes countries that are technologically advanced, have a democratic government, and embrace freedom of the press.

The researcher developed the instrumentation used in this study. A panel of experts, consisting of communication professionals with agriculture backgrounds, analyzed the questionnaire to ensure the questions were clear enough for an international audience and related to the objectives of the study. Three rounds of questioning were used. Data for this study was collected from September to November 2011.

Round One

The first round consisted of four open-ended questions in which the respondents were free to give as much feedback as they saw appropriate. The respondents were given 10 boxes in the survey, so they could separately list the issues. The four questions were:

1. What are the most important agricultural issues on a global scale? Please list each issue in a separate box. You are not required to fill in each box or list the issues in order of importance.
2. What are the most important domestic agricultural issues (within your country)? Please list each issue in a separate box. You are not required to fill in each box or list the issues in order of importance.
3. What are the best methods to educate journalists about important global and domestic agricultural issues? Please list each method in a separate box. You are not required to fill in each box or list the methods in order of importance.
4. What sources of information, such as governmental agencies/ministries of agriculture, professional associations, journals, magazines, newspapers, or organizations do you use when seeking information about agricultural issues? Please provide the web address or contact information for the sources as you have listed if available. You are not required to fill in every box or list the sources in order of importance.

Demographic questions were also asked in Round One. The respondents were asked their age, country of residence, and gender. They were also asked to describe their occupation. The respondents could choose from "Journalist/Reporter," "Editor," "Publisher," "Communications professional (government)," "Communication professional (industry)," or "Other." The choices for occupation were generated from input by an IFAJ officer and the list of occupation descriptions of IFAJ members on the IFAJ website. Only the researcher had access to the demographic information about the re-

spondents. Confidentiality was to be maintained to ensure the respondents were free to express their opinions and knowledge about the subject.

In Rounds Two and Three, questions two and four were eliminated because respondents from one country would not have accurate knowledge of agricultural issues in another country. In regards to question four, group members most likely use different sources of information when they report about agricultural issues and would not be capable of judging the quality of other sources used by other journalists from different countries. Therefore, these questions were dropped after Round One. A 68% response rate was achieved in Round One (*n*=21), a 66% response rate was achieved in Round Two (*n*=20), and a 45% response rate was achieved for Round Three (*n*=14).

Round Two

For Round Two, a list of global agricultural issues and ways to educate journalists about global/domestic agricultural issues was generated from responses from Round One. The list was sent to the respondents, and they were asked to rank on a Likert-type scale whether they "Strongly Disagree"=1, "Disagree"=2, "Neither Agree or Disagree"=3, "Agree"=4, or "Strongly Agree"=5, that the item was a major agricultural issue. The issues were separated into sections of 10 different items in order to make the list easier for the respondents to sort through. The global issues/methods to educate journalists were not listed in any particular order.

Round Three

The global agricultural issues/methods used to educate journalists about agricultural issues that received a consensus of 3.5 or higher in Round Two were included in the survey for Round Three. In the survey, the score the item received was listed next to the global issue or method the respondents indicated to best educate journalists about global and domestic agricultural issues. The issues were listed based on the score they received in Round Two, with the highest items listed first. The respondents were then asked whether they "Agree" or "Disagree" that the item listed in the survey was a major global agricultural issue or the best ways to educate journalists about global/domestic agricultural issues. The items that received "Agree" were carried over to a new question. Finally, the respondents were asked to select what they believed to be the top five global agricultural issues and the top five ways to educate journalists about global/domestic agricultural issues from the items that received an "Agree." They were not asked to rank the items but simply to choose their top five choices.

Results

Demographics

In Round One of the study, the IFAJ executives (*n*=21) were asked to respond to demographic questions. Approximately 38% (*n*=8) of the respondents were editors, and 28% were reporters/journalists (*n*=6). Therefore, most of the IFAJ executives surveyed were editors or journalists, suggesting they have real-world experience in working in the journalism industry. Thirty-three percent (*n*=7) of the respondents were between the ages of 35-44, 24% (*n*=5) were between the ages of 45-54, and 33% (*n*=7) were between the ages of 55-64. Sixty-one percent of the respondents were male (*n*=13), and 33% of the respondents (*n*=7) were female. The countries the respondents represented were Australia, Belgium, Canada, Czech Republic, Denmark, Finland, Great Britain, Ireland, Japan, Kenya, Madagascar, New Zealand, Serbia, Slovakia, Slovenia, South Africa, Spain, Switzerland, Ukraine, and the United States.

https://newprairiepress.org/jac/vol97/iss4/10
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Domestic Agricultural Issues

The results collected for domestic agricultural issues indicated that some issues are prevalent in several countries. (See Table 1.) The price of food was indicated as an issue in Belgium, Canada, the Czech Republic, Denmark, Finland, Great Britain, Slovenia, Spain, Switzerland, and the United States. Issues concerning land, such as loss of farmland to urban sprawl or the lack of hesitation to clear new land, were cited as issues in Madagascar, New Zealand, Slovakia, South Africa, and the United States. Concern over the environment was cited as an important domestic issue in Belgium, Denmark, New Zealand, Slovenia, and the United States.

Table 1.
Domestic agricultural issues by country of International Federation of Agricultural Journalists (IFAJ) executive

Country	Issues
Australia	Biosecurity
	Free trade
	Genetically modified organisms
	Supermarket monopolies/power
	Food Miles
	Live animal export trade
	Animal activism
	Foreign ownership of farms/businesses
	Conflict with mining expansion
	Diseases like henda virus
Belgium	Sustainable production
	Food prices
	Food quality
	Agriculture and environment
	Waste of food
Canada	Farmers receiving fair prices for food they produce
	Urban crush
	Non-organic vs. organic, including Buy Local campaigns
	Water
Czech Republic	Common Agricultural Policy of the European Union (CAP)
	Subsidy for agriculture and food sector
	Food safety and food quality
	Food prices
Denmark	The new CAP (proposal from the EU commission)
	New environmental restrictions make the farmers less competitive
	Speculation hits food prices
	The economic situation for farmers as a consequence of the economic crisis
Finland	How to provide sufficient income to our farmers while producing in so far north where the productivity is not the highest
	Common Agricultural Policy of the European Union
	Animal welfare
	Organic farming
	Profitability of pig farming- it is in great trouble now
	The future of producing furs
	The legislation of genetically modified organisms
	The sugar quotas
	The milk quotas and milk price

Great Britain	Retailer domination of the market and control of prices
	Food security
	Price volatility
	High production costs and increasing prices of fuel
	Diminishing farmer numbers
	Common Agricultural Policy (CAP) reforms
Ireland	Provision of bank credit for expanding farmers
	Competitiveness
	EU support for farmers
Japan	Low profitability in farming business
	Frequent changes in agricultural policies
	Aging in the farm community
	Trade liberalizations
Kenya	Market information
	Climate change
	Rising cost of seeds
	Availability and access to seeds
	Biotechnology
	Policy
Madagascar	Lack of hesitation to clear new parcels of land
	Land as a display of wealth
	Lack of education among all social groups, including women
New Zealand	Water quality- rivers, streams, lakes polluted by stock effluent
	Methane emissions from stock
	Bio-security: pests, disease brought in by tourists and with imports
	The loss of prime productive land to urban sprawl
	Access to international markets for agricultural products
	Trade barriers
	Growing international concerns about food miles
	Environmental footprints
Serbia	Lack of money in agrarian budget (only 2.6% of total state budget)
	Subventions are aimed at number of hectares, not at the type of production or quantity of it
	Lack of education of producers. We have examples of good production, but also really unrepresentable ones
Slovakia	The European Union's CAP (Common Agricultural Policy)
	Land ownership
	Short acceptance farmers by society
Slovenia	Equal rural development in all regions
	Development of ecological farming
	Development of high quality products within or not the frame of EU geographical nomination
	Improving legislation concerning agriculture (some regulations are too strict and have nothing in common with reality)
	Working with consumers to make them understand why "short-distance food" means improvement of country's welfare, their own welfare and the environment in the whole
	Working with children- explaining the process of food production, why respect food and farmers, getting them involved in food production (back to local schoo gardens)
	Improving environmental knowledge of all farmers
	Assuring fair prices for all involved (at the moment the most is "collected" by the traders)

https://newprairiepress.org/jac/vol97/iss4/10
DOI: 10.4148/1051-0834.1132

South Africa	Land claims
	Water scarcity
	Labour costs
	Production costs
	Government's bad attitude towards commercial farmers
	Scarcity of agricultural land
	Scarcity of good labor
	Global warming
	Lack of cooperation between different agricultural unions to form a united front
Spain	Prices paid to producers
	Common Agricultural Policy (CAP) from 2013
	Bioenergy
Switzerland	Declining prices of products
	High costs for the state and the taxpayer
	Lack of solidarity between the farmers
	Consumer-consciousness
Ukraine	Corruption
	Incompetence of bureaucrats
	Lack of funding
	Governmental interference
	Lack of the state agriculture policy
United States	Price volatility
	Access to credit
	Resource degradation- soil loss and water pollution
	Pesticide resistance
	Trade barriers
	Loss of prime farmland to development, hunt clubs, and other non-agricultural uses
	Increasing regulations and the impact of farm competitiveness
	Level of risk in farming today
	Lack of young people entering production agriculture
	Environmental issues- clean water

Data indicated that some issues were specific to certain countries. The respondent representing Finland indicated there are issues in the sugar, milk, and pig industries and with helping farmers obtain high enough incomes despite living in a northern, wintery climate. The respondent representing Japan indicated the rising age of farmers as an issue. In the Ukraine, issues surrounding "corruption," "lack of funding," and "governmental interference," and "lack of state agriculture policy" affected the agriculture industry, according to the respondent. According to the respondent representing Kenya, the price and availability of seeds was an issue. "Methane emissions from stock" was only mentioned to be an issue for New Zealand, according to the respondent representing the country.

Countries that have legislative and economic ties to one another, such as countries within the European Union, also deal with similar issues. The Common Agricultural Policy was cited as an important domestic issue in the Czech Republic, Denmark, Finland, Great Britain, Slovakia, and Spain. Some issues are prevalent in countries in the same region. In Australia and New Zealand, both respondents expressed that issues involved with trade, biosecurity, and food miles, or the distance food travels from where it is grown to where it is bought and consumed (Natural Resource Defense Council, 2007), have affected the agriculture industry. In the United States and Canada, water quality and quantity were cited as important issues.

Global Agricultural Issues

In Round Three, the 57 items pertaining to global issues that received a mean score of 3.5 or higher were listed, and the issues that received a mean score of 3.49 (*n*=9) or below were removed from the questionnaire. Respondents (*n*=14) were given the mean scores from Round Two and were asked to indicate whether they "Agree" or "Disagree" that the issues were important global agricultural issues. The respondents were then asked to pick what they believed to be the top five most important global agricultural issues from the items in which respondents said they "Agree" were important global agricultural issues. "Producing enough food to feed a growing populating" received the most selections (*n*=9), followed by "water quantity" (*n*=6), "food safety" (*n*=6), "water management" (*n*=5), and "food security" (*n*=4). Table 2 lists the issues and the number of times they were selected as a "top five most important global agricultural issue."

Table 2.

Number of times each global agricultural issue was selected as a "top five" issue, according to IFAJ executives

Global Agricultural Issues	n
Producing enough food to feed a growing population	9
Water quantity	6
Food safety	6
Water management	5
Food security	4
Water quality	4
Development of new production methods	4
Sustainable land management	3
Air, water and land pollution	3
Availability of affordable food	2
Maximizing land utilization	2
Prices of agricultural products	2
Quality of food	2
Soil degregation	2
CAP: European Common Agricultural Policy	2
Land grabbing	2
Access to food and inputs in the developing world	1
The attitude and legislation toward genetically modified organisms	1
Helping young people into production agriculture- huge financial commitment bars entry for many	1
Agricultural subsidies	1
Bioenergy	1
Poverty	1
Control of terms of trade- especially the cost of farm inputs	1
Converting productive farmland from food production to biofuels	1
Level of risk in farming today-huge capital outlay, rising expenses (land prices, input costs), volatile markets	1
Supporting women in agriculture, mainly in developing nations	1
International financial markets	1
Speculation by non-agricultural casino-capitalists with agricultural commodities	1

Ways to Educate Journalists about Global and Domestic Agricultural Issues

The 30 techniques identified to educate journalists about global and domestic issues that received a 3.5 or higher mean score in Round Two were carried over to Round Three. The techniques that

https://newprairiepress.org/jac/vol97/iss4/10
DOI: 10.4148/1051-0834.1132

received a 3.49 or lower (*n*=9) were removed from the questionnaire. In Round Three, respondents (*n*=14) were given the mean score of the item and then asked whether they "Agree" or "Disagree" that the technique listed was an effective way to educate journalists about global and domestic agricultural issues. From the techniques that the executives "Agree" were the best ways to educate journalists about global and domestic agricultural issues, they were asked to select – in no particular order – what they believed to be the top five techniques to educate journalists about global and domestic agricultural issues. (See Table 3.)

"Professional bodies (like IFAJ)" was the top choice (*n*=7). "Building relationships between farmers and media- farm tours for journalists and providing opportunities- with story angles - for journalists to know farmers," "excursions, farm visits," and "explanations by key sources - scientists, policymakers, farmers – of their views on the subject" were the second most popular choices (*n*=6).

Table 3.
Number of times each technique to educate journalists about global/domestic agricultural issues was selected as a "top five" technique, according to IFAJ executives

Technique to Educate Journalists	n
Professional bodies (like IFAJ)	7
Building relationships between farmers and media- farm tours for journalists and providing opportunities- with story angles- for journalists to know farmers	6
Excursions, farm visits	6
Explanations by key sources- scientists, policymakers, farmers -- of their views on a subject	6
Exposing journalists to key players in specific areas	5
Job experience- working intensively on agricultural issues	5
Online resources- makes detailed information available online and easily found via search engine	5
Educational tours	3
Travel options for agricultural journalists	3
Visit foreign countries and visit farmers and processors, talk to key-players	3
Master classes	3
Conferences/workshops addressed by academics and practitioners	3
Increased educational emphasis on agricultural at journalism training at tertiary level	3
Grassroots journalism	3
Tutorship by experienced journalists	3
Regular press information from different agricultural actors (research, university etc.)	2
"Opening their eyes and realizing agriculture is part of a global supply chain"	2
Exchange visits	1
Journalists should be taking more interest in global agricultural news stories	1
Seminars	1

Sources of Information for Journalists

In Round One, respondents (*n*=20) were asked to list sources of information they use when reporting about global and domestic agricultural issues. They could indicate up to 10 sources. Respondents listed a wide variety of sources including farmers, ministries of agriculture, websites, Google searches, universities, and governmental agencies. Many of the sources are relevant to respondents' country of origin. Table 4 displays the sources, listed by country, provided by the IFAJ executives.

Table 4.
Sources of information used by IFAJ executives when reporting about global and domestic agricultural issues

Country	Sources of information
Australia	Federal and state departments of agriculture
	Federal and state ministers of agriculture
	Federal and state governments and other departments - like Environment, Trade etc.
	Australian Bureau of Agricultural and Resource Economics and Sciences
	IFAJ
	Australian Council of Agricultural Journalists
	Local newspapers
	Local magazines
	Newsletters from government departments and statuary bodies
Belgium	European institutions / http:europa.eu
	www.vilt.be
	Dailies / Agrafacts / Europe
	A lot of e-letters
Czech	Professional monitoring of media (Newton)
Republic	Information from Permanent Representation of Czech Republic in EU
	Directorate-General for Agriculture and Rural Development
	Directorate General for Health and Consumer Affairs
Denmark	Google
	The Ministry of Agriculture, Food and Fisheries: / www.fvm.dk
	The Agroeconomic Institute / www.foi.life.ku.dk
	The Danish Agriculture and Food Council / / www.lf.dk
	Food and Agriculture Organization of the United Nations / www.fao.org
Great Britain	The European Commission / www.scotland.gov.uk www.defra.gov.uk
	Farmers Weekly (farming and agriculture news site) / www.fwi.co.uk
	Farmers Guardian (farming and agriculture news site) / www.farmersguardian.com
	Reuters news feeds from agricultural commodity markets and global farm news
Ireland	Various government departments and agencies in agriculture sector of my own country
	Various publications and trade websites, often accessed through Google news search or http://www.newsnow.co.uk
	Various NGOs in agriculture sector of my own country
	Various commercial firms in different agriculture sectors
	Rural development agencies in my own country
	Academic blogs i.e., http://capreform.eu/
	Irish parliamentary debates
	Irish Agriculture and Food Authority / http://www.teagasc.ie
Japan	Subscribed news agencies
	Phone calls
	Daily conversations

https://newprairiepress.org/jac/vol97/iss4/10
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Kenya	Government ministries
	Journalists' associations
	Newspapers
	Internet
	Fellow journalists
	Farmers
	International wire services i.e., BBC, Reuters
	Professional journals
Madagascar	National Office for the Environment – in Madagascar
	Ministry of Agriculture and Farming
	Service of Estates and Lands
New Zealand	Environmental Protection Agency / www.epa.govt.nz
	Irrigation New Zealand / www.irrigationnz.co.nz
	Ministry of Agriculture and Forestry / www.maf.govt.nz
	AgResearch / www.agresearch.co.nz
	Horticulture New Zealand / www.hortnz.co.nz
	Fonterra / www.fonterra.co.nz
	Federated Farmers of NZ / www.fedfarm.org.nz
	NIWA / www.niwa.co.nz/
	Beef + Lamb New Zealand / www.beeflambnz.com
	SCION / www.scionresearch.com
Norway	The Ministry of Agriculture / www.lmd.no
	Nationen, the daily Norwegian farming newspaper / www.nationen.no
Serbia	Association of Ag Journalists / www.agropress.org.rs
	Agribusiness magazine / www.agrobiznis.biz
	Ministry of Agriculture of Serbia / www.mpt.gov.rs
	Serbian Chamber of Commerce / www.pks.rs
Slovakia	www.land.sk
	www.sppk.sk
	www.polnoinfo.sk
Slovenia	Ministry of Agriculture and Forestry / www.mkgp.gov.si
	Chamber of Agriculture and Forestry / www.kgzs.si
	Agency for Rural Development / www.arsktrp.gov.si
	State Statistical Office www.stat.si /
	Eurostat / epp.eurostat.ec.europa.eu
	European Commission / ec.europa.eu
	Press conferences, of major state and NGO organizations, direct questions to their PR services
	Journals, different paper or on-line editions
South Africa	Google
	Department of Agriculture, Forestry and Fisheries (statistics on agricultural matters)
	Landbouweekblad (the biggest agricultural magazine in South Africa)
	landbou.com (internet bases farming website)
	Breeder's societies
	University of the Free State
	University of Pretoria
	Pro-Agri Forum (association for Farmer of the Year recipients)
	Grain South Africa

Spain	Ministry www.marm.es Agencies: www.efeagro.com Organizations: ASAJA / www.asaja.net; COAG / www.coag.org; UPA / www upa.es Magazines: agricultura: www.editorialagricola.com / Eumedia: www.agronline.es
Switzerland	http://www.landwirtschaft.ch/de/aktuell/ www.blw.admin.ch The people and institutions I follow on Twitter Blogs like mine: / www.adisagroblog.wordpress.com International institutions like FAO, WFP, European Commission D-Agri etc
United States	Magazines and newspapers Farm magazine web sites Government agencies Ag trade/commodity organizations University web sites Google search on topics or names Academic journals Agribusiness web sites and farmers Science organizations such as societies of agronomy, entomology, plant pathology, etc. USDA, NRCS, ERS, EPA land-grant universities

Conclusions

Domestic Agricultural Issues

Some of the domestic agricultural issues identified by the International Federation of Agricultural Journalists executives were specific to their own country. For example, according to the Australian and Madagascar IFAJ executives, respectively, "diseases like the henda virus" is an important domestic agricultural issue in Australia and "land as a display of wealth" is an issue in Madagascar. These issues were not listed as important domestic agricultural issues in any other country. It is important that journalists report about the issues pertaining to their local area and country. These are the issues that have the most relevance to their readers. Since journalists often prefer to only cover issues that are of interest to their readers or viewers (Shoemaker & Reese, 1996), these are the issues that journalists are more likely to cover. However, if journalists only report about issues specific to their country, they are less likely to address global agricultural issues.

Some of the important domestic agricultural issues mentioned by IFAJ executives were linked to the important global agricultural issues identified in the study. For example, issues related to water were listed as important domestic agricultural issues by the IFAJ executives in New Zealand ("Water quality- rivers, streams, lakes polluted by stock effluent"), the United States ("Resource degradation-soil loss and water pollution and "Environmental issues- clean water"), Canada ("water"), and South Africa ("Water scarcity"). "Water quality" and "water quantity" were two of the top five important global agricultural issues. This is an example of a domestic agricultural issue that is related to global agricultural issues.

While it is important that journalists cover how domestic issues affect their own countries, in order to help their readers gain an understanding of global agricultural issues, journalists should explain in their reports how their domestic issues relate to similar global agricultural issues. This would help

https://newprairiepress.org/jac/vol97/iss4/10
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to address the gap that the journalists' readers have regarding knowledge about international agriculture and having a holistic understanding of how their country relates to international agriculture and global agricultural issues. It would also give their readers a way to identify with global agricultural issues and understand how these issues could affect them on a daily basis.

Respondents from countries that have legislative and economic ties to one another reported similar domestic agricultural issues. For example, the Common Agricultural Policy was reported as an important domestic agricultural issue for IFAJ member countries in the European Union. However, CAP was not cited as a top 10 global agricultural issue. Although some issues might not have as prominent of a global impact as other issues, to the countries involved and affected by the issues, they are important. Journalists should be educated about and learn to recognize the relationships between different countries and who are affected by similar agricultural issues. It is especially important to report about these relationships if countries have legislative ties to one another. If journalists do not report about these ties, their readers could be uninformed about policy decisions that affect agriculture in their countries.

IFAJ executives representing Australia and New Zealand, countries in the same geographic region, expressed important domestic agricultural issues for their countries, including trade, biosecurity, and food miles. Countries that are geographically close to one another deal with similar domestic agricultural issues, according to IFAJ executives. Journalists should make note of the domestic agricultural issues that affect their country and examine in their reports how these issues might affect countries that are in their same region. Journalists could also examine reports about agriculture coming from nearby countries to help them determine some of the issues and topics that are important in those countries. This could help them uncover domestic issues that are also important within their country and important to their readers.

Global Agricultural Issues

IFAJ executives identified 28 important global agricultural issues. Data for this study was collected from September-November 2011. Issues were ranked based on the number of times they were selected by respondents as a "top five global agricultural issue" in the final round of questioning. The list of global agricultural issues the respondents chose from was generated from previous rounds of surveys.

The top 10 most important global agricultural issues according to IFAJ executives were "producing enough food to feed a growing population," "water quantity," "food safety," "water management," "food security," "water quality," "development of new production methods," "sustainable land management," "air, water, and land pollution," and "availability of affordable food." These findings indicate the significance of these issues, further confirming the importance that journalists write and report about these issues to their publics.

Educating Journalists about Global Agricultural Issues

The overall consensus among the respondents was that face-to-face interactions were the best ways to educate journalists about global and domestic agricultural issues. This is supported by previous research that shows that face-to-face methods of teaching are usually preferred and can "build capacity, create social networks that enhance leadership, and result in positive actions that strengthen communities" (Sobrero & Craycraft, 2008, "Face-to-Face Learning", para. 1).

"Excursions, farm visits," "exposing journalists to key players in specific areas," "educational tours,"

and "building relationships between farmers and media-farm tours for journalists and providing opportunities-with story angles- for journalists to know farmers" were some of the top techniques identified to educate journalists about the issues. In order to give journalists a platform on which to write about global and domestic agricultural issues, proper steps need to be taken to facilitate opportunities for journalists to learn how to cover these issues. Journalists should not just rely on outreach and educational opportunities provided by organizations in order to learn about global and domestic agricultural issues. Editors and governing boards of newspapers should allocate funds and set aside time for travel opportunities for journalists to visit the people and farms that are directly affected by the agricultural issues they are covering. Journalists should also continuously seek opportunities to uncover new angles to issues and to better understand the issues that affect their audiences.

It is important for agricultural communicators to reach out to general interest reporters instead of only collaborating with other agricultural journalists and media professionals. If agricultural communicators offer story angles and access to credible sources and information, general interest reporters could cover agricultural issues and influence agenda-setting functions related to agricultural issues. General interest reporters have access to and can influence large audiences. By working in partnership with media outside the agricultural industry, agricultural communicators could give them the tools and influence they need to impact policy and opinions related to global and domestic agricultural issues.

In the event of a crisis in the agricultural industry, such as contamination affecting food safety, forging relationships with general interest media could be beneficial. Reporters would be more likely to contact personnel they trust when they are tasked with writing about the crisis. Agricultural communicators could provide journalists with an accurate view of what is going on with the crisis. This could help the agricultural industry maintain a positive image and reputation with the general interest media and their audiences.

Sources of Information

The range of sources of information (n=107) provided by IFAJ executives to report about global and domestic agricultural issues was extensive. Each executive who responded to that question in the survey (n=20) provided a variety of sources, including government agencies, farmers, universities, online sources, professional organizations, commodity group websites, magazines, and academic journals. This extensive list shows that IFAJ executives use a wide variety of sources when reporting about global and domestic agricultural issues. They do not depend on just one medium of information. Therefore, credible sources of information for reporters should publish their information in a variety of ways to make it as accessible as possible to reporters. If quality information about agricultural issues is widespread and easier to access, then reporters will more likely report information that is correct and unbiased, providing their readers with an accurate view of the agricultural industry.

Limitations of the Study

One of the limitations to this study was that it was conducted with only one respondent representing an entire country. Further research should be conducted where multiple journalists from countries are questioned on their perceptions of global and domestic agricultural issues. This would give a more reliable scope of what journalists perceive to be important domestic agricultural issues within their country. Also, the scope of countries was limited to the 31 countries that represent the IFAJ. The requirements to be admitted into the IFAJ limited the ability of countries to join and

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have a chance to be a part of the study. In order to make the study more generalizable, the scope of the study should be expanded to the largest sample of countries possible and with more than one respondent from each of those countries.

Another limitation to the study was that the survey material was only distributed in English. This may not have been the native language of the majority of IFAJ participants. Therefore, in order to ensure that the respondents understand the survey material to the fullest extent, it should be provided in their native language.

The majority of countries that participated in this study were from the European Union. Therefore, the list of global issues may be skewed to reflect the European Union's opinion of what they believe to be the most important global agricultural issues. However, the Common Agricultural Policy of the European Union was listed as an important domestic issue by all the countries in the EU, but it was not a top global issue. This could show that the opinions of other countries in the study balanced out large representation of EU countries.

A final limitation of this study was the inability to use demographic information to examine differences in perceptions of issue importance or the best ways to educate agricultural journalists about important agricultural issues. The respondents were asked to give demographic information in only the first round of questioning in order to keep responses in rounds two and three anonymous. It was important for respondents to be reassured of anonymity in their responses so they could be free to express their opinion on the questions addressed in the survey. Also, demographic questions were used only in round one to keep the round two and three survey questionnaires of manageable length in order to mitigate respondent attrition.

Suggestions for Further Research

This study only identified important global and domestic agricultural issues at the time of the survey. Research should be done to identify important global and domestic agricultural issues at different times over the year, as well as longitudinal studies to identify the most important issues during specific time periods.

Furthermore, a comprehensive analysis of stories covered by news media outlets should be done to determine if the issues identified by the IFAJ executives are being covered in the news. This would help to determine if the most important global and domestic agricultural issues are being reported in the media. By identifying gaps in reporting about global and domestic agricultural issues, it would help guide reporters to cover certain issues that are not being addressed as often as others.

Further research should be conducted in order to identify the relationships that develop between different countries that share similar domestic agricultural issues. Journalists should be surveyed that reside in groups of countries that share financial ties and/or regional ties in order to identify which agricultural issues affect their countries.

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Research

Agriculture at Eleven: Visual Rhetoric and News Media Portrayals of Agriculture

Annie R. Specht and Tracy Rutherford

Abstract

Modern agricultural practices have become increasingly popular topics for news media outlets; thus, the growing scrutiny placed on production agriculture warrants a study of the images incorporated into television news stories of industry-related topics. Using a visual-rhetoric framework, the researchers conducted a survey of college students who were shown still images taken from a *CBS Evening News* broadcast about drug-resistant pathogens and their connection to antibiotic use in livestock. Participants were asked to identify the topic of the news story based on the images, to describe their affective response to that topic, and to identify the visual cues that led them to choose that topic. Content analysis revealed that no respondents correctly identified the topic of the story and that a majority aligned the images with animal mistreatment, slaughter, or welfare. Most respondents reported indifference or negative feelings about the images and topics. Based on the study, the researchers recommend further analysis of media imagery related to livestock production and increased surveillance of industry-focused stories.

Keywords

Imagery, livestock, news, television, visual rhetoric

Introduction

Although America's agriculture industry has been credited with providing a safe, abundant food supply for its constituents, the volume and efficiency of its production methods have raised ethical questions related to the care of livestock. Animal-rights and -welfare organizations, armed with footage of animal mistreatment filmed on industrial "factory farms," have launched an attack on the American agriculture industry, airing what they deem the dark side of modern agriculture. Images of practices including confinement housing for laying hens and pregnant sows, and the slaughter of calves for veal, picked up and distributed by major news networks, have had a notable influence on the way in which Americans view the industry and producers providing their food and fiber (Nocera, 2008; Cima, 2009).

These videos, at their core, are textbook examples of visual rhetoric: images that prompt such strong emotional reactions that they are capable of overriding rational thought (Hill, 2004). With the amount of negative coverage of agricultural issues increasing (Laestadius, Lagasse, Smith, & Neff, 2012; Tonsor & Olynk, 2010), visual rhetoric provides agricultural communicators with a framework to study portrayals of the industry by respected mass media news outlets. To accomplish the development of a research agenda integrating visual rhetoric into agricultural communications scholarship, a thorough review of the existing literature is necessary.

A poster based on this research was presented at the 2012 American Association for Agricultural Education Conference in Asheville, North Carolina.

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Literature Review

Definitions of and Research in Visual Rhetoric

Visual rhetoric, or the persuasive use of symbols, expands upon a field traditionally associated with verbal communication: the creation of meaning and construction of arguments (Bulmer & Buchanan-Oliver, 2006). Rhetoric, once linked almost exclusively to words, now encompasses visual artifacts, the symbols that constitute a pervasive, non-discursive language that borrows from traditional methods and is used to persuade (Bulmer & Buchanan-Oliver, 2006; Foss, 2004; Hocks, 2003; Scott, 1994). ("Visual rhetoric" may also refer to the image or object generated by the use of visual symbols to communicate [Foss, 2004].) Students and practitioners may be taught to "read" this language and make critical assumptions about identity categories such as gender, age, and nationality (Hocks, 2003).

Foss (2004) identified three areas upon which researchers commonly focus: nature, function, and evaluation. Studying the "substantive and stylistic" nature of visual artifacts involves describing presented and suggested elements: Presented elements include an artifact's major physical attributes, including space, medium, and color; suggested elements are concepts, ideas, themes, and allusions viewers may infer from presented elements (Foss, 2004, p. 307). Visual artifacts also have specific functions, or actions they communicate, which are independent of—and not to be confused with—their intended purpose. Images may serve to memorialize an individual—like iconic images of John F. Kennedy—or encourage audiences to explore limitations (Foss, 2004). Finally, visual artifacts must be evaluated or assessed for their ability to accomplish their intended functions and the legitimacy or soundness of those functions (Foss, 2004).

Historically, the meanings behind visual representations have been affected by a number of factors, including the selection, emphasis, and framing of specific images (Allen, 1996). Radical and marginalized political factions have long utilized principles of visual rhetoric in their imagery, especially in times of political, social, and economic upheaval (Lumsden, 2010; Olson, 2007). Juxtaposition was a particular favorite among anti-unionist organizations, whose cartoons often featured a "David and Goliath" theme with monstrous union workers and comparatively weak-looking factory owners (Lumsden, 2010). The advent of photography, film, television, and the Internet in the past three centuries has inspired new scholarly examinations of "pictorial records, visual components of messages, and the culturally-shaped practices of viewing them" (Olson, 2007, p. 2).

Contemporary study of visual rhetoric focuses on the effects of advertising on audiences (Scott, 1994). Such rhetorical theory posits that "visual elements must be capable of representing concepts, abstractions, actions, metaphors, and modifiers, such that they can be used in the invention of a complex argument" through their arrangement and manner of delivery (Scott, 1994, p. 253).

Visual Rhetoric and the Depictive Rhetoric of News

Although audiences are constantly inundated with visual messages that attempt to persuade, they "hold different expectations and standards…for news and visuals intended to report information" (Allen, 1996, p. 88). "News" is differentiated from created "art," though news outlets are not above using visual elements, either altered or intact, to "disclose broad patterns of partisan engagement…and contemporaries' underlying ideologies" (Olson, 2007, p. 10). The impact of television news outlets' visual rhetoric is amplified by the credibility lent to reporters by symbols of authority (Blair, 2004; Abdulla, Garrison, Salwen, Driscoll, & Casey, 2002): Backdrops showing institutions of political power (the White House, Capitol Hill) "are visual rhetorical devices that render the

message conveyed more believable or persuasive" (Blair, 2004, p. 58).

"Image events," or staged opportunities for gathering powerful visual material (Edwards, 2004), are part of Osborn's (1986) concept of "depictive rhetoric…strategic pictures, verbal or nonverbal visualizations that linger in the collective memory of audiences as representative of their subjects" (p. 79). Anecdotal evidence has suggested that news sources have used depictive rhetoric since the advent of color photography: During FDR's presidency, *LOOK* magazine published photographs of Southern sharecroppers living in deplorable conditions, in spite of the farmer-friendly policies of Roosevelt's Farm Security Administration. The editor's call for photographs asked for "a fairly large number of pictures which show the worst conditions in the south," and the resulting photographs were clearly intended to shock audiences (Finnegan, 2004, p. 203).

Agriculture on Primetime Television News

In the past five years, primetime television news shows have received criticism for their coverage of issues facing production agriculture, including livestock husbandry and food processing. In 2012, meat company BPI sued ABC News for defamation over the program's use of the phrase "pink slime" as a reference for lean finely textured beef, a meat additive (Sanborn, 2013; ABC News, 2012). ABC's Diane Sawyer, a highly regarded news anchor, and reporter Jim Avila were named in the $1.2 billion lawsuit (ABC News, 2012).

Nightline takes on the dairy industry.

A January 2010 episode of Nightline, ABC's evening news program, prominently featured video of workers abusing cattle on a New York dairy farm. The video was shot by a member of Mercy for Animals, an animal-rights group known for such undercover stings of agricultural operations. Farm employees are shown dehorning older cattle and docking tails with gardening shears. Nightline reporter Brian Ross's narration stated that the aforementioned methods are standard in the dairy industry, and in an interview conducted by ABC, farm owner Lyndon Odell "[explained] that tail-docking and burning off horns are common in the industry and are not abusive of the animals" (Nightline, 2010). Ross did not say whether Odell was shown the video shot on his farm. Dairy industry proponents were quick to point out that although the practices shown—dehorning and tail-docking—are common on dairy farms, the methods and tools used are not.

Katie Couric and farm-raised super-bugs.

In February 2010, CBS Evening News aired a special report on nontherapeutic antibiotic use in livestock that was anchored by Katie Couric, a news journalist well-known from her tenure on NBC's The Today Show. During the seven-minute segment, Couric interviews several Pilgrim's Pride employees who were treated for drug-resistant bacterial infections, allegedly caused by the poultry company's use of antibiotics. Couric tours a hog operation she repeatedly describes as a "factory farm" and questions the farm's owner, a local health official, a veterinarian for the National Pork Board, and a Pew researcher about the possible effects of antibiotic use, at one point citing the results of a study that found methicillin-resistant *Staphylococcus aureus* (MRSA) in 70 percent of tested hogs.

Couric's report raised eyebrows—and the ire of livestock producers across the country. The Animal Agriculture Alliance, a coalition of livestock commodity groups, issued a statement directed at Couric and Sean McManus, the president of CBS News and Sports, criticizing the story's "lack of

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balance" (Animal Agriculture Alliance, 2010). Dr. H. Scott Hurd, a former deputy undersecretary at the United States Department of Agriculture and current professor at the Iowa State University College of Veterinary Medicine, released a step-by-step refutation of the claims made in the CBS presentation (Hurd & Raef, 2010). CBS did not directly respond to or acknowledge Hurd's report and additional outreach from the U.S. pork industry.

Purpose and Research Questions

Industry opponents and sympathizers alike have disputed the facts of these and other news stories concerning agriculture, but analysis of the accompanying imagery is scant. *Nightline's* and *CBS Evening News's* segments on animal agriculture provide a wealth of emotionally charged visual material: undercover video of animal mistreatment, interviews with involved parties, footage spliced in by producers. Using a framework built upon visual rhetoric studies, the researchers analyzed the impact of "image bites" in the context of a television news package.

In an effort to address the 2011-2015 National Research Agenda Priority 1: Public and Policy Maker Understanding of Agriculture and Natural Resources, the purpose of this study was to describe the impact of televised images on students' affective responses to a broadcast news story about agriculture. Based on the literature, the researchers posed three primary research questions:

RQ1: Would young people be able to identify the topic of an agriculture-related broadcast news story solely based on images of livestock production?
RQ2: What types of affective responses would young people describe in response to the perceived story topic?
RQ3: What visual cues would young people use to identify the topic of the story?

Methods

To answer those research questions, 122 students enrolled in two agricultural communications courses at a large southwestern public university were shown a series of full-color screen captures, or still images, taken from a broadcast news story (Couric, 2010) about antibiotic-resistant bacteria and their possible link to nontherapeutic antibiotic use in livestock as part of a class exercise on visual communication and rhetoric (see Figure 1). The 15 images were selected from a larger series of screen captures taken from the broadcast because they presented imagery related to livestock production and contained no direct textual or visual evidence (i.e., captions, headlines, or pictures of bacteria) that directly revealed the topic of the story to the survey participants.

An electronic questionnaire was developed using Qualtrics online survey software. The questionnaire gathered demographic data and information pertaining to students' agricultural knowledge, awareness, and experience ([Author], 2010). To ensure that every student was able to complete the questionnaire, students enrolled in a class held in a large lecture hall received a printed paper version, while those enrolled in a computer-lab-based course received the original electronic version. In the questionnaire, each image was followed by a 5-point attitude rating scale that participants used to indicate their affective response to the photo, with 1 indicating a "very negative" and 5 a "very positive" response. After viewing the series of images, the participants were asked to identify the subject of the news story based on what they had seen and to describe the visual cues that led them to choose those particular topics. Participants also explained their affective response to the topic they had chosen.

Figure 1. Images taken from broadcast news story on antibiotic use in livestock in the order shown to survey participants (Couric, 2010).

The open-ended responses were content-analyzed by the researchers. Fraenkel and Wallen (2009) define content analysis as "a technique that enables researchers to study human behavior in an indirect way through analysis of their communications" (p. 472). "Content analysis…involves identifying, coding, categorizing, classifying, and labeling the primary patterns in the data" (Patton, 2002, p. 463). Two methods of content analysis identified by Fraenkel and Wallen (2009) were used to describe the data: frequencies and the percentage and proportion of particular occurrences to total occurrences and the use of themes to organize and explicate findings.

The data were coded and grouped into thematic families of possible topics for the news feature and affective responses to the images. Open-ended responses to the question of visual cues were inserted in Wordle™, an online word-cloud generator. Word clouds are graphic representations of word frequency in a body of text: the size of a term indicates how often it is used, with the largest being the most common. Word clouds, popularized by market researchers, are useful tools for preliminary textual analysis, highlighting points of interest and possible interpretations of textual data (McNaught & Lam, 2010).

Findings

RQ1: Would young people be able to identify the topic of an agriculture-related broadcast news story solely based on images of livestock production?

The survey yielded 91 usable questionnaires, 86 in paper form and five in electronic form, for a 74.6% response rate; the paper questionnaires were entered in Qualtrics to facilitate data analysis. Eighty-nine respondents answered the open-ended question "After viewing the images, what do you believe is the topic of this broadcast feature?"

Six categories emerged from the content analysis: animal cruelty, animal housing, slaughter, factory farming, animal care and/or welfare, and the swine industry. (See Table 1 for examples of each category.) Of the 89 responses, 34.8% (n=31) related to animal cruelty or mistreatment; 20.2% (n=18) related to animal housing; 19.1% (n=17) related to livestock slaughter; 14.6% (n=13) related to animal care and welfare; and 5.6% (n=5) related to factory farming and the swine industry, respectively.

https://newprairiepress.org/jac/vol97/iss4/10
DOI: 10.4148/1051-0834.1132

RQ2: What types of affective responses would young people describe in response to those same images?

Eighty-eight participants described their affective response to the topic they discerned from viewing the broadcast screen captures. Six categories were identified following the content analysis of the responses (see Table 2 for examples of each category).

Table 1

Potential Story Topics as Perceived by Student Participants

Theme	Frequency ($N = 89$)	Example
Animal cruelty	31	"Mistreatment of animals/neglect" "Unjust treatment and practice of pig and chicken farming"
Animal housing	18	"The conditions that farming animals live in and the methods used to feed/house them" "The treatment of animals in animal housing facilities before slaughter"
Livestock slaughter	17	"How pigs are slaughtered for food" "Pigs about to get slaughtered"
Animal care/welfare	13	"The care of pigs and their well-being" "The overall treatment of farm animals, particularly swine"
Factory farming	5	"Mass production of pork" "Factory' farming or large scale commercial farming"
Swine industry, pork	5	"Pig farms" "Swine industry"

Table 2

Typology of Participants' Affective Responses to Perceived Story Topic

Response to Images	Frequency ($N = 88$)	Example
Indifference	20	"It's the circle of life. We have to eat. I am neutral"
Negative response	18	"I am very against animal abuse"
Sadness, depression	15	"I feel sad for the pigs"
Necessity	15	"Proper care needs to be enforced immediately
Bias	12	"I feel like that the media has a very biased viewpoint towards the slaughter industry
Desire to learn	8	"I am interested in the real treatment of animals in the food industry and I'd like to know more"

Twenty respondents (22.7%) indicated that they were indifferent about the images. Eighteen respondents (20.5%) described their reactions as negative. Fifteen respondents (17.0%) indicated that the images made them sad or depressed, and the same number said the images were necessary to uncovering abuse and improving animal treatment. Twelve respondents (13.6%) reported the images were biased, while 8 respondents (9.0%) wanted to learn more about the subject based on the images.

RQ3: What visual cues would young people use to identify the topic of the story?

The 86 responses, which consisted primarily of short phrases, to the open-ended query "What visual cues led you to choose this topic?" were entered into Wordle™, an online word-cloud generator to create a graphical representation of visual cues identified by survey participants (see Figure 2).

Figure 2. Word cloud of visual cues used by participants to identify story topics. Word frequency is indicated by size.

Terms related to housing conditions were prevalent: small, cramped, crammed, overcrowded, confined, confinement, cage. The images of dead hogs also had a profound impact on the respondents' perceptions of the story topic with dead and death appearing some 18 times. Some respondents used very humanistic terms to describe the visual cues they identified: Piglets were described as baby pigs and sows as momma pigs. Several references were made to the hogs' sad faces, and one respondent compared the conditions to Auschwitz, a Nazi concentration camp during World War II.

Conclusions

Based solely on images taken from the broadcast, no respondents were able to correctly determine that the story's topic was antibiotic use in animal agriculture. To the respondents, the images best corresponded to the subjects of animal abuse or mistreatment, animal housing, slaughter, and factory farming, indicating that the images used in the segment had little connection to the actual topic of the story. Those who selected "animal housing" and "factory farming" came closest to discerning the correct story topic, as the use of antibiotics was tangentially connected to confinement housing in the pork industry. However, the imagery used in the broadcast focused heavily on

https://newprairiepress.org/jac/vol97/iss4/10
DOI: 10.4148/1051-0834.1132

the lives of hogs, cattle, and poultry rather than on antibiotics' association with MRSA and other dangerous, treatment-resistant pathogens.

More than one-third of respondents reported negative or unhappy feelings toward the agriculture industry after viewing the images. The participants felt outraged at the animals' treatment and believed that confinement housing qualified as "abuse." Confinement housing has become a hot-button issue for producers, food companies, and consumers: In the last two years, major food distributors, including Smithfield Foods, Hormel Foods, and Kroger, have banned the use of gestation crates and other forms of large-scale housing or promised to discontinue such practices among their producers within the next decade (Carman, 2012). These companies have since been joined by McDonald's, Burger King, and Wendy's — the trifecta of fast-food sales (Carman, 2012). Such public scrutiny of confinement housing may have impacted participants' responses to the images, especially those showing animals in crowded or cramped conditions.

The respondents also expressed empathy toward the animals, with one respondent stating that he or she "felt sorry for" the hogs in the images. Given the proliferation of anthropomorphized animals in entertainment media and advertising — sentient livestock are used to sell everything from fried chicken (the dissident Holsteins that encourage consumers to "eat mor chikin" [sic] from Chik-Fil-A®) and cheese (California Milk Producers' "Happy Cows") to car insurance (Geico's "little piggy") and beer (the famous Budweiser Clydesdales) (Hartlaub, 2010) — such emotional reactions to nonhuman creatures are neither unusual nor unexpected. These responses do, on the other hand, demonstrate the difficulty some consumers have reconciling images of live animals to the meat on their dinner plates.

A number of survey participants believed the images were one-sided or necessitated further inquiry. These respondents indicated a belief that news media present a biased picture of the agriculture industry, one discordant with the realities of food production. Others felt they needed more information to determine their opinions of the images presented and the topic that they assumed the story covered. The survey respondents were university students enrolled in agricultural communications and journalism courses; thus, their interest in further investigation and understanding may be a product of their educational endeavors. The students also represented a wide range of agricultural knowledge and experience, which may have impacted their tendency to identify bias in the images.

The topics selected by the participants reflected the visual cues they identified, many of them dealing with the "lifestyles" of hogs and chickens in production agriculture. The survey participants used adjectives like "overcrowded," "cramped," and "small" to describe housing conditions; the cages used to transport chickens were a strong signifier of animal cruelty. The respondents clearly felt that the housing conditions represented in the news broadcast violated their expectations of quality animal care. Thus, the television "image bites" provided to the students elicited a rhetorical response similar to that expected from animal - rights or – welfare propaganda.

Implications and Recommendations

Based on the results of this analysis, CBS News utilized highly emotional imagery only tangentially connected to the topic in their broadcast story about antibiotic-resistant bacteria and nontherapeutic antibiotic use in livestock. Because of the growing knowledge gap between agriculturalists and those not involved in the food and fiber industry, attention must be paid to visual representations of agriculture in mass media. Broadcast news outlets often use images that will garner

maximum attention, even when those images do not pertain to the subject at hand, and audiences with little agricultural knowledge may have difficulty determining the credibility or appropriateness of those visuals. Additional research should be conducted on the impact of demographics and agricultural literacy levels on perceptions of media content related to agriculture.

The deployment of controversial visual material is a common practice among broadcast news outlets, which compete for viewers and subsequent advertising revenue, and "if it bleeds, it leads" mantra serves two primary purposes: first, to gain the viewer's attention using scare tactics; second, to persuade the viewer that a solution will appear in the body of the news story (Serani, 2008). These two goals are clearly met by the visual content analyzed in the study. The casual viewer may be led to believe that animals are mistreated, even killed, in confinement housing, and the implied solution is to end the practice altogether. Commodity groups, agricultural advocates, and producers must be prepared to respond to these messages. These individuals would benefit from media training, and they should also increase efforts to build relationships with journalists and editors to provide those media professionals with information and imagery from the perspective of the food and fiber industry.

Finally, the survey respondents humanized the livestock depicted in the images despite their enrollment in a college course related to agriculture. As described above, anthropomorphized animals are popular tropes in entertainment media, and continued exposure to such characterizations may make separating food animals from their talking, wisecracking televised counterparts difficult, especially among young people several generations removed from the farm. Attention should be paid to agriculture-related entertainment media content—particularly material aimed at children and young adults, who represent the next generation of consumers—to help agricultural communicators better understand the development of attitudes toward and beliefs about the industry and how those attitudes and beliefs may be countered.

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Research

Planning and Evaluating Science Video Programs Using Communication Science

Joseph Cone and Kirsten Winters

Abstract

Science-based videos could be of greater benefit to viewers if video producers understand what decisions and actions these audiences may be considering that can be affected by the videos. Such understanding may be developed through interviews, focus groups, and surveys, which should provide guidance for elements of both the style and content of the video production. The success of the videos in assisting viewers' understanding and decision making should then be evaluated, for example through surveys, as described here. Following such a process may increase the effectiveness of such videos, thereby also improving the return on the producer's investment in personnel, time, and other resources. For example, the results of climate change video evaluations presented here do indicate that members of the populations for whom the videos were intended rated them highly, obtained information they considered useful from the videos and were influenced to act on the concerns they had relating to the science topic (climate change risks).

Keywords

video, evaluation, decision-making, communication, climate change

Introduction

For nearly a century, video has proven a useful medium for informational purposes, although perhaps not as much as Thomas Edison enthused in 1922: "I believe that the motion picture is destined to revolutionize our educational system and that in a few years it will supplant largely, if not entirely, the use of textbooks" (Cuban, 1986, p. 9). Certainly, video is widely deployed today as a vehicle for sharing knowledge and experiences (YouTube, for example), while so-called "educational" videos for public audiences have long been used by "boundary organizations" (Guston, 2001) such as Cooperative Extension (Tribbia & Moser, 2008).

A research study is presented here of the development and evaluation of two viewer-centered video projects addressing a pervasive environmental issue in which learning and other outcomes were measured relatively inexpensively. The videos we produced were developed with university Sea Grant and Extension colleagues in Oregon (Cone, 2010) and Maine (Cone, 2009), explicitly for use with coastal populations considering and planning for the effects of climate change. To be sure, climate change may turn out to be the defining issue of the 21st century, affecting all aspects of life on Earth, as U.N. Secretary General Ban Ki-moon and others have argued (U.N. Dept. of Public Information, 2011). Many communities will feel the effects of a changing climate. Those effects have already begun, and despite much-publicized disputes over global warming (Leiserowitz, Maibach, Roser-Renouf, Smith, & Dawson, 2010) our experience (Borberg, Cone, Jodice, Harte,

& Corcoran, 2009) is that people confronting risks are less likely to care about debates than about getting help with pressing, local decisions.

In this way, climate change is a leading, current example of a common consideration in much university outreach and engagement: the need to help citizens in their understanding of and decision-making about often complex, controversial issues in which science knowledge can play a valuable role. Over the last decade, the paradigm of Extension has been gradually shifting from the historic model of transmission of information to a model of two-way interaction and engagement with an affected community (Kellogg Commission, 2001; National Sea Grant Extension Review Panel, 2000), through which a jointly developed understanding and plan for assistance can arise (Conway, 2006), and decisions can be made by community members. The video project presented here shows how other boundary and outreach organizations can embrace this same collaborative shift. The principal research question of this project was, if communication materials (videos) were grounded in research on what target audiences would like to know for their purposes, and who they would like to hear from, would audience members evaluate the resulting video favorably?

Literature Review

It is useful to distinguish between types of "educational" videos, based on whose knowledge is privileged by the video and what notion of learning they manifest. At one end of a continuum are "instructional" videos that privilege a subject-matter expert who presents information that the producers believe the viewer needs and will absorb. This traditional "transmission-absorption" model of education has been critiqued by a range of scholars of public science communication in recent years, including those from science education (Falk, 2005), decision research (Fischhoff, 2007) and communication research (Nisbet & Scheufele, 2009). Summarizing, Falk (2005) argues that contemporary understanding finds learning not as a "linear and predictable accumulation of knowledge . . . a process of filling-up identically empty minds as they moved past on the educational assembly line" but instead an "always highly idiosyncratic" process "determined first and foremost by the individual's prior knowledge, interests and motivations" (p. 269).

In contrast to "instructional" approaches that privilege the producers and seek to transmit their information are viewer-centered approaches, where understanding the "prior knowledge, interests and motivations" of these intended viewers drives the video content. The shift from a top-down, producer-driven model of communication to one that takes participants into fuller account has happened over the past two decades in several fields of science communication, including risk communication, health communication and science education (Trench & Bucchi, 2010). One type of educational video program that may result from this shift in perspective is participant-centered documentary, in which a number of speakers are seen to have pieces of knowledge about the subject, and learning, as well as other effects, arise from the viewer assembling these pieces into a meaningful whole.

The instructional adequacy of video programs is the frequent purpose of evaluation (for example, Beaudin & Quick, 1996; Krink & Gustafson, 1986), although some scholarship also addresses viewers' learning (for example, Fortner, 1985) or decision-making (Downs et al., 2004). Larger studies increasingly appear to be of videos designed to affect personal health choices in clinical settings (Aronson, Plass, & Bania, 2012; Wang et al., 2008; Wilkins et al., 2006).

Our videos were a product of a risk communication framework (M. G. Morgan, Fischhoff, Bostrom, & Atman, 2002), and its strategy, which has four critical steps: 1) gather information

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about risks from subject experts and focus on facts critical to intended audiences; 2) elicit the audience's beliefs and understanding about the risks and their values relating to communicating about them; 3) develop communications that address these audience concerns and aid in their decision making ; 4) evaluate the communication. An overview of these steps develops over three sections: a formative phase to identify critical issues; a production phase that involved members of the intended user communities in the video productions; and an evaluation phase that relied on a post-test of viewers—focusing mostly on the evaluation and culminating phase of the project. Findings for the first two sections are included in the methods overview in order to provide background into the development of the project and the evaluation.

Finally, whereas traditional educational videos about science place top priority on accuracy, and thus often showcase scientists regardless of whether they are engaging to the audience (Olson, 2009), a substantial body of research (glossed in Cialdini, 2006) underscores the potential value of "likeable" messengers on camera. In general, likeable people draw attention to a topic when the viewer is not yet motivated to attend or when the topic represents a cognitive challenge (Petty, Cacioppo, & Schumann, 1983; Reinhard & Messner, 2009).

Methods

Formative Phase

Prior to video planning and production, front-end research was conducted, beginning with drafting a preliminary "expert model" of the coastal climate change risks, based on scientific and technical reports. Then, following Morgan et al. (2002), this model was tested against lay perceptions of the risks associated with coastal climate change through a combination of interviews, focus groups, and online surveys with our coastal populations of interest. It should be noted that these inquiries were intended to not only serve the development of video programs but also were designed, as part of a larger project, to facilitate direct contact with coastal populations through climate planning workshops.

Members of the target audiences (mainly coastal management professionals and property owners) were surveyed in Oregon (N=300) and Maine (N=548) in 2008. Findings from this survey research revealed that coastal populations in Oregon and Maine 1) were indeed concerned about the risks and local effects of climate change, 2) believed they would be personally affected, and 3) were looking for specific information about how they would be affected and 4) what they could do about it (Borberg et al., 2009; Center for Research and Evaluation, 2008). Specifically, Oregon survey participants were asked an open-ended question to identify coastal climate risks , and the most common risk-theme among 833 responses was effects of climate change on coastal processes, including sea level rise and shoreline erosion (32% of all responses). Maine survey respondents were similar, identifying coastal erosion (35.9% of responses) or sea level rise (25.7%) as significant or very significant problems.

In addition, some information sources were valued more highly than others (Oregon) or trusted more than others (Maine). In Oregon, Oregon State University (N=190) and Oregon Sea Grant (N=187) were valued first and fourth, respectively, out of 13 information sources (Borberg et al, 2009). In Maine, "colleges and universities" were trusted most (N=242) as a source of climate information, while Maine Sea Grant/Cooperative Extension was third of seven listed (N=135) (Center for Research and Evaluation, 2008).

Production Phase

Videos were designed to address these risk concerns and communication-source preferences. The Oregon and Maine DVDs were divided into five segments each that highlighted specific interests of the intended viewers, such as "shoreline effects of climate change" (Oregon) and "what individuals and communities can do to protect themselves" (Maine). Next, in producing both state videos, individuals from academic institutions were selected for on-camera roles based on whether they might be considered valuable or trusted by viewers, according to earlier surveys. Carefully selected were on-camera "hosts" who would be likeable and unbiased in narrating and guiding the viewer through the topic under discussion and the interviews of climate experts. In addition, reasoning from classic research on salesmen-prospect relationships which shows that the more "alike" the salesman is perceived to be, the more likely is the sale (Evans, 1963), in Maine, the video production team was at particular pains to select a host that would be perceived as similar in age, education, and sensitivity to local concerns as were the key viewers, namely shoreline property owners. (A well-known, informal, but knowledgeable coastal Extension agent was selected as host.) An added reason for wanting to not erect unnecessary barriers to information acceptance was that in the Maine survey nearly one-third of coastal property owners said they were not "well-informed" about the effects of climate change (Center for Research and Evaluation, 2008), while in the Oregon survey respondents had on average only one-fourth of the information they considered necessary on a list of 14 climate topics (Borberg et al., 2009).

Evaluation Phase

Consistent with the Morgan et al. risk communication framework, we planned post-viewing evaluations of the videos to determine their effectiveness, conducting three separate surveys of known viewers of the videos: two online with Oregon viewers, and one in the context of a Maine workshop. Since the Maine workshop sample was modest though it involved everyone at the event (N=22), this report concentrates on the results of the Oregon surveys (N=95).

Questions in the Oregon surveys measured the relationship between respondents' reactions (dependent variable) to the presented information and the presenter of the information (independent variables). They also measured the value of the information to the respondent with regards to climate change-related decision making. Decision making commonly is divided into three broad stages: 1) defining the problem by assembling information and addressing values; 2) evaluating potential solutions; and 3) making the decision (Wilson & Arvai, 2011). Thus, one question asked whether the video

- Presented topics that interest me [stage1]
- Provided information that is valuable to me [stage 1]
- Addressed concerns that I have [stage 1]
- Made me aware of new concerns [stage 1]
- Helped me understand decisions I might make [stage 2]
- Made me likely to act on my concerns [stage 3]

Using Surveymonkey.com, we conducted first an online survey of recipients of the DVD, *Preparing for Coastal Climate Change: What Oregonians are Asking* (Cone, 2009) during five weeks in April-May 2010. Recognizing that the response rate for online surveys can vary due to several

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causes, including lack of topic salience for respondents or a lack of familiarity with the surveying organization (Fan & Yan, 2010), we attempted to limit those factors by the convenience sample we chose. It was composed of two groups that had previously involved in the earlier phase of the research project: coastal decision-makers who had responded to the 2008 survey on climate change (Borberg et al., 2009) and customers for Oregon Sea Grant outreach materials who had responded to a 2009 survey (combined N=332). This sample population was invited to view one or more of the video segments online and then take an online survey containing 15 questions, seven of which focused on the videos; the remaining questions were demographic. Educators who had received a copy of the DVD version of the video in the context of a Sea Grant workshop or other event were also surveyed. In addition to the 15 questions referred to earlier, five more questions on climate change views were included in the survey. This survey was conducted during eight weeks in April-June 2011, which was three or more months after the potential respondents had obtained the DVD. The Oregon video program contained five video segments that viewers may watch individually, in any combination, or in order: "Introduction to Oregon coast climate change"; "Predicting the climate", "Shoreline effects of climate change"; "Broader coastal and ocean effects"; and "What is the government doing?" We evaluated these five individually and together, as an overall rating for the entire program (whether online or on DVD).

Findings

While not all respondents answered all questions, most (n=64) scored the video segments they watched, rating them highly for presenting "topics that interest" them (97% agreed or strongly agreed) and providing "information that is valuable" to them (83% agreement). As mentioned earlier, we were interested in how the overall rating of the videos related to these variables of interest and value. Only respondents who watched two or more of the five segments were counted in this "overall" rating label. The mean rating (n=57) for the videos was 3.5 (scale: 1=poor, 2=fair, 3=good, 4=very good, and 5=excellent). We also were interested in (1) whether use of the risk communication method would produce a more valuable communication product; (2) whether the choice of video host was perceived as 'likeable' to the viewer; and (3) whether videos might influence behavioral intentions, as theory lays them out.

First, was our use of the risk communication method effective? The recommended front-end research indicated shoreline effects was very likely a topic of importance to viewers. Indeed, respondents to the video survey question (n=54) rated shoreline erosion as the potential climate risk of greatest concern (87% of respondents). Consistent with this perception, all or part of the shoreline segment was watched by 82% of respondents (57 of 69). And of these, most rated the segment as very good or excellent (61%). Also, in response to general questions about the entire video program, those watching the shoreline segment agreed that the program provided valuable information (80%), and that it addressed their concerns (75%). In contrast, viewers rated "climate effects on community infrastructure such as roads and buildings" as least concerning of those topics addressed in the videos, and fewer viewers watched the related segment (75%: 52 of 69), giving it a lower overall rating (only 48% very good or excellent).

Did the viewers perceive the choice of video hosts as likeable? The general-audience respondents (n=69) indicated very high agreement across all video segments to "the host in this video seemed likeable"; 85% agreed or strongly agreed. Also, overall ratings of the segments were positively correlated with the host's likability (r=.595, p<.01), though the correlation was even stronger with viewer assessment of the host's knowledge (r=.729, p<.01).

But did the videos have any influence on behavioral intentions? Well-established psychological models, such as the integrative model of behavioral prediction (Fishbein & Yzer, 2003), posit that a behavior change will not happen without first an intention to change, and that while communication can influence intention (Fishbein, Hennessy, Yzer, & Douglas, 2003) any single communication is unlikely to cause behavior change on its own. So, it was not surprising that respondents only slightly agreed that the videos they watched "made [them] likely to act on [their] concerns" (mean=3.5; scale 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree).

A very similar pattern was found in the survey responses to the DVD produced for Maine coastal residents. As part of a workshop there in 2009, property owners were shown a video segment in which a homeowner presented research-based construction methods for coastal properties. Again, respondents (n=22) agreed that "this section provided useful information for" them (4.3 on scale of 1 (low)¬–5 (high)); that "this section changed [their] attitudes positively about coastal building approaches to withstand climate change effects" (4.0), and that the video "made [them] likely to act on [their] concerns" (4.2).

Educators in the 2011 Oregon survey rated the DVD they received similarly to other survey respondents. Overall videos ratings for the aggregated responses was 3.6 or very good-to-good (scale:1=poor, 2=fair, 3=good, 4=v. good, and 5=excellent). Additionally, these Oregon educators reported that the DVD was of interest and value (89% agreed or strongly agreed in both cases), and that the video addressed their concerns. As with the other Oregon survey, educator-respondents were slightly moved to "act on concerns" after watching the video (identically 3.5 on the 1-5 scale (low-high). Also, 84% of Oregon teacher respondents agreed with the idea of sharing information with others, and 68% of these educators had in fact shared video information with students.

Limitations

There are limitations with the data. A higher response rate, as well as knowing how non-respondents differed from respondents, would have increased the richness and general applicability of the results. Also, the sample population was chosen based on convenience. And while it can be argued that the method was not a classic pretest-posttest design (see Shadish, Cook & Campbell, 2002), the overall project was not designed to conduct an experiment about video results, but rather to use the video as a component of a broader risk communication strategy. Additionally, some elements of the survey instrument merit further consideration. For example, more development of the Likert scale questions measuring phase of decision making was needed in order to increase the reliability and validity of the questions. That 84% of Oregon teacher respondents agreed with the idea of sharing information with others and that 68% of these educators had in fact shared video information with students are compelling findings related to phase of decision making, but a closer look is needed at the reliability of the measurement as well as at other factors beyond viewing the video that would influence such behavior.

Currently, much video content addressing scientific subjects focuses on explaining the science (e.g., "NOVA" on PBS) or on generating mere audience "awareness" of an issue (e.g., "Frontline" programming on PBS), so, in this project, a more purposeful tack was directed toward specific users by conducting pre-production research with them. It should be noted, however, that the time needed to conduct our surveys and analyze data was, indeed, a limiting factor. In the context of the Sea Grant organization and its communication needs, conducting evaluations takes time from producing materials, which usually is considered a priority. Such will be a common constraint in institutional communication offices like those of Sea Grant and Extension.

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In spite of these limitations, what was accomplished and learned are worth sharing, because evaluating the effects of communication products, particularly "educational" videos, is not routine and can contribute to higher quality media content.

Discussion

This project was grounded in a key tenet of communication science, that "empirical study is absolutely essential to the development of effective communication" (M. G. Morgan, et al., 2008, p. 28). We wanted to know whether videos with science content would be rated highly if we identified the topic-related risks and concerns of our target audiences and presented information addressing those risks in a way they would find congenial to their values (Kahan, 2010). And, since ultimately we would want to inform their decisions and actions, would they indicate such? As the results of post-viewing surveys indicate, the answer to all these questions was in the affirmative, to differing degrees. This finding shows that our front-end research, which directed the content of the shoreline segment, may have led to increased viewership of that particular segment but also increased the value to viewers of the program simply because the audience considered the topic important. Finally, an observation: While the correlation between video ratings and host likeability supported the "likeable host" tactic, the stronger correlation between ratings and host knowledge might be anticipated from viewers who were engaged in the information content and thereby actively processing it (Petty et al., 1983).

Would this method be recommended for video evaluation to other organizations? From the standpoint of capital, both financial and human, needed for a similar study: yes, this practice of evaluation would be recommended. In this largely grant-funded project, Sea Grant had the time, money, and people (although not the requirement) to conduct both front-end research and summative evaluation of the videos (Diamond, 1999), a comparative luxury that, regrettably, not all similar video projects can afford. Even so, overall budgets for the entire productions were comparatively very modest: less than $50,000 for Oregon and less than $100,000 for Maine, both costing less than $2,500 per minute of final production (an amount within an appropriate range, considering the production quality of the videos—both of which won peer awards). All costs for the summative evaluations—the three post-viewing surveys—accounted for about $2,000 each in Oregon and Maine. One advantage of online surveys is the elimination of implementation costs associated with mail or telephone surveys.

For those wanting to use this method for video production and evaluation, it is important to note a few lessons learned. For example, motivating participants through email to respond to an online survey is somewhat difficult. Despite convenience samples composed of individuals with some degree of likely interest in the materials and topics under discussion, a 25% combined response rate for our two Oregon surveys (the general population and the educators) is disappointing, even though such a rate is consistent with the widespread experience that Internet surveys often have lower response rates than traditional methods such as postal mail (Lesser, Yang, & Newton, 2011). In that context, a 25% response is not unusual. Incentives were offered to prospective respondents in the form of both cash discounts and free offers on educational products available from us. There is evidence that "free" incentives may matter to respondents more than discounts, as our response count in the 2010 survey jumped from six respondents to more than 60 once the option of a free DVD was added to the follow-up invitation two weeks after the first.

Another challenge with online surveys is conducting interviews with non-respondents to

determine their reasons. One would want to know whether those motivated to respond are unique in some way that somehow affects their responses to the survey questions. However, if potential respondents have, effectively, ignored three e-mailed requests to participate in a survey, it's tricky to get an answer via email why that is so.

Still, 95 total respondents (between the two surveys) dwarf the handful of responses we typically obtain from voluntary postpaid response cards contained in our DVD packaging. Our surveys provide vastly more data than we otherwise usually obtain about video products, making this summative evaluation process, in our minds, distinctly valuable.

Endnotes

Communications were not to be limited to the video products, even though we planned 1) targeted distribution of hundreds of DVDs, 2) television (Maine), and 3) online broadcast of the video content. In addition, we planned Extension workshops with local communities, which, in some instances were to be shown portions of a video.

This question was placed before others that named risks so as to avoid priming the participants.

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