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A Picture is Worth a Thousand Words: Consumer Perceptions of Agricultural Images

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Individuals interpret agricultural images differently according to the direct or cultural meanings they associate with the image, as well as the perspective through which they view the image. In addition, perceptions of agricultural images are commonly influenced by stereotypes. As agricultural communicators, it is important to understand the perceptions consumers have about agricultural images. Understanding these perceptions can allow communicators to use images in their communication that will promote favorable perceptions of the industry. To better understand consumers' perceptions of agricultural images, this study asked consumers about their perceptions using focus group methodology. Four focus groups were completed with a total of 36 participants. The results indicated that elements of semiotics and perception theory were evident in the participants' discussion. Thus, these theories combined with the results provide valuable information in regard to selecting images for communication that will create favorable responses among consumers.

Keywords: semiotics, perception theory, focus groups, qualitative research, images

Introduction

The 1930 painting, *American Gothic*, featuring a man and woman dressed in farming apparel and holding a pitchfork, could be how many Americans envision agriculture, more than 80 years after the painting's completion. While this painting may have some resemblance to the agriculture sector in the early part of the 20th century, it is now an outdated portrait that does not accurately reflect the innovative, technologically advanced industry. In fact, the American agriculture industry has seen rapid advancement from small, diversified, labor-intensive farms of the early 1900s to more innovative and specialized operations of the 21st century (Dimitri, Effland, & Conklin, 2005). However, in spite of the agriculture industry's technological advances, "the public's image of agriculture is a kaleidoscope of leftover attitudes and images of what agriculture was in the '40's, '50's and early '60's" (Coon & Cantrell, 1985, p. 22).

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The incongruence between public perception of agriculture and the reality of agricultural practices can be attributed to American society being several generations removed from the farm (American Farm Bureau Foundation for Agriculture, 2011; Coon & Cantrell, 1985; Terry & Lawver, 1995). In addition, the information communicated to the public about agriculture often includes stereotypical portrayals of the industry (Rhoades & Irani, 2008). This communication is commonly mediated in nature, including both text and visuals (Page, 2004; Rhoades & Irani, 2008). Due to a lack of consumer connection to agriculture, many organizations and researchers have examined the concept of agricultural literacy (Center for Public Issues Education in Agriculture and Natural Resources, 2012; Duncan & Broyles, 2006; Frick, Birkenholz, Gardner, & Machtmes, 1995). Agricultural literacy has been defined as an individual's knowledge and perception of agriculture (Wright, Steward, & Birkenholz, 1994). Moreover, Richard (2009) indicates that consumers can attain agricultural literacy by being educated at a minimum or basic level, and one does not need a complete understanding of the subject matter to be considered agriculturally literate. However, to make informed decisions about agriculture, consumers need to understand agricultural topics.

Understanding public perceptions of agriculture and working to create an agriculturally literate society is vital to the long-term sustainability of the industry. One of the greatest challenges agriculture faces is the residual perception of yesteryear (Richard, 2009). If the public fails to recognize accurate portrayals of agriculture within communication images, cognitive dissonance may occur, leading to consumer confusion and dissatisfaction. Elster (1983) noted that in order to decrease dissonance between what an individual thinks ought to be, and what is, they will often criticize the item that fails to meet their established expectations. There is cause for concern if consumers continue to visualize the family farming operations in the early 19th century as the ideal for current agricultural practices. Therefore, to explore this issue further, the purpose of this study was to understand the perceptions and feelings that consumers draw from agricultural images. The following objectives guided this study:

1. To determine participants' perceptions of selected agricultural images and if these perceptions are influenced by connotation or denotation.
2. To identify elements of perception theory are present in participants' discussion of selected agricultural images.

Theoretical Framework

Since the invention of words and images, communicators have not been limited to choosing one communication medium over another, but rather are able to combine media easily. In current society, one cannot escape being bombarded with visual communication messages, forcing individuals to become more visually literate (Lester, 2006).

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Perception Theory

Perception theory "acknowledges the primacy of emotions in processing all communication, and particularly targets visual communication…" (Barry, 2005, p. 45). This theory argues that emotions play an important role in the perception of images, and researchers should not assume that an individual's reaction to an image would be a logical or conscious response (Barry, 2005). Individuals are able to process and respond to visual images more quickly than they are able to process and respond to words. Perception theory posits an individual's perception can be swayed by the emotional influences in one's life (Barry, 2005). These influential elements may include family interactions, formal education, and media exposure. Through these life experiences, "emotional learning occurs that pre-frames attitudes, thinking, and behavior" (Barry, 2005, p. 60). Future perceptions are then influenced by the learned emotions. Therefore, it can be surmised that how an individual "sees" is a result of their emotional and perceptual experiences (Barry, 2005). Frewer, Howard, and Aaron (1998) suggest that oftentimes research and scientific evidence are not able to change an individual's decisions that are based upon their preconceived perceptions.

Moreover, Lester (2006) indicated six perspectives that shape an individual's response to an image – personal, historical, technical, ethical, cultural, and critical. The personal perspective includes an individuals' immediate response to an image based upon subjective opinions (Lester, 2006). An individual who examines an image with a historical perspective typically judges the image's importance by when it was created. A technical perspective examines the composition of the work, considering factors such as light, and the work's overall presentation (Lester, 2006). Looking at the image through an ethical lens causes an individual to judge the moral and ethical responsibilities of the work and the work's producer. The cultural perspective causes an individual to examine the specific cultural symbols found within the work. Last, the critical perspective examines the larger issues surrounding the image (Lester, 2006). The researcher claims that these six perspectives allow an individual to "base conclusions about images on rational rather than emotional responses" (Lester, 2006, p. 2).

Additionally, Lester (2006) argues that visual communication creators must keep in mind two important principles when developing visual images. First, the message creator must understand the intended audience's culture, and second, the intended audience must easily understand images used in visual communication. Otherwise, Lester (2006) warns any visual communication that does not follow these important tenets will not be analyzed by receivers and will be easily forgotten. "Meaningless pictures entertain a viewer only for a brief moment and do not have the capacity to educate. But an analyzed image can affect a viewer for a lifetime" (Lester, 2006, p. 2).

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Semiotics

The study of semiotics "…helps unlock the complexities of visual interpretation" (Moriarty, 2002, p. 26). Semiotics involves the communication aspects of signs (Moriarty, 2002), whereas a sign is defined as something that stands for an object or concept other than itself (Eco, 1986). The theory then aids researchers in the study of how images construct messages (Rose, 2001), as well as interpretations. Visual signs help individuals interpret messages, while codes aid in understanding the meaning behind the message (Moriarty, 2005). Saussaure and Pierce are credited with defining and developing the field of semiotics. Saussaure contended "that a person lives in a world shaped by decoded signs found in images, actions, words, and more that he or she has encountered" (Norwood-Tolbert & Rutherford, 2006, p. 7).

Connotation and denotation are important when studying the influences of visual images in advertising and communication (Moriarty, 2005). Barthes (1977) argued that images communicate not only a denotative meaning, but also a secondary connotative meaning (Barr, 2007). Connotation refers to the meaning 'established' by the object. Connotative meanings drawn from signs are derived from history and context of the given culture and situation (Barr, 2007). Denotation is the "direct, specific, or literal meaning we get from a sign" (Moriarty, 2005, p. 231). Therefore, the meaning of a sign "results from a fusion between the cultural codes and the viewer's personal experience" (Barr, 2007, p. 2).

Methods

As defined by Denzin and Lincoln (2005), "Qualitative research is a field of inquiry" (p. 2). In addition, qualitative research has been labeled as the most effective research method to gather information on consumer understanding (Abrams, Meyers, & Irani, 2010). As this study sought to inquire about consumers' perceptions of agricultural images, qualitative methodology was appropriate. The qualitative method selected for this study was focus groups.

Focus groups consist of "a carefully planned discussion designed to obtain perceptions on a defined area of interest in a permissive, nonthreatening environment" (Krueger, 1994, p. 6). Researchers can gain an understanding of opinion and why opinions are held through a group discussion (Greenbaum, 2000; Krueger, 1994).

To recruit focus group participants, an external marketing firm was hired. The marketing firm used computer-assisted telephone interviewing (CATI) and telephone random digit dialing (RDD) to sample and qualify potential participants. Probability samples were generated using a predetermined sampling frame based on demographic variables for all focus groups. To obtain the recommended 6 to 12 participants per focus group (Ary, Jacobs, Razavieh, & Sorenson, 2006), the marketing firm was asked to recruit 10 to 12 participants per focus group.

To guide the focus groups and ensure a consistent questioning route throughout all of the focus groups, a protocol was developed according to the procedures recommended by Krueger (1998b). Included in the protocol was a series of seven agricultural images that were shown to participants. Participants were asked to reflect on their feelings and thoughts toward each image, as well as discuss the accuracy of the image and if they had seen a similar image previously.

The images used in the study's protocol were selected by a panel of researchers and validated by a pilot test. The pilot test was administered to graduate students in the Agricultural Education and Communication Department at a land grant university. The pilot test consisted of an online survey that included numerous agricultural images. Participants were asked to indicate which images should be tested with consumers and to reason why images should or should not be included. This process allowed researchers to narrow down the image selection, while also checking for understanding and interpretation of the images. Krueger (1998a) indicates that pilot testing the focus group material for understanding increases rigor and trustworthiness (Lincoln & Guba, 1985) of the methodology. Once the images were pilot tested, a panel of researchers and industry professionals reviewed the final protocol.

Additional rigor and trustworthiness were gained by the incorporation of three strategies (Golafshani, 2003; Lincoln & Guba, 1985). The strategies used in this study included triangulation, peer debriefing, and the identification of researcher bias (Creswell, 2007). By conducting four focus groups in two different locations, a variety of individuals were encountered, and environmental triangulation was achieved (Creswell, 2007; Guion, Diehl, & McDonald, 2009). Peer debriefing was used to confirm the lead researcher's analysis interpretations. This process involved a co-researcher who assumed the role of "devil's advocate" and questioned the lead researcher's interpretations (Creswell, 2007; Darbyshire, MacDougall, & Schiller, 2005; Harder, Lamm, & Strong, 2009; Lincoln & Guba, 1985). Identifying researcher bias provides depth to the analysis and indicates possible researcher-influence on the analysis interpretations (Creswell, 2007; Harder et al., 2009; Merriam, 1988). The primary researcher was a graduate student with a background in animal science and agricultural communication. The co-researcher, who served as the peer debriefer, was a professor with a background in public relations and agricultural communications.

Four focus groups were conducted within a two-week period to reduce the potential influence of historical events (Ary et al., 2006). The focus groups were conducted in two different geographic locations of Florida, with two focus groups held at each location. A total of 36 participants participated in the focus groups. The first focus group included seven participants, while the second and fourth focus group included ten participants each, and the third focus group included nine participants. Each focus group lasted approximately one and a half hours. The same experienced and trained moderator conducted all of the focus groups. An assistant moderator and two individuals who took field notes accompanied the moderator. Each focus

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group was both audio and video recorded for transcription purposes. The focus groups included participant observation and clarification, as well as a summary verification by participants before the conclusion of each focus group. This process, in combination with the pilot test and structured protocol, increases the trustworthiness of the results (Krueger, 1998a). Following the completion of the focus groups, an external researcher transcribed data. After transcription, data were uploaded to Weft-QDA for qualitative data analysis. The constant comparative method was used to identify common themes within the data for each image (Glaser, 1965). Numerous themes were originally identified; however, after further examination, themes were collapsed together and other themes were dismissed due to lack of prevalence. Following this process, the co-researcher analyzed the interpretations and findings made by the primary researcher (Creswell, 2007; Darbyshire et al., 2005; Harder et al., 2009; Lincoln & Guba, 1985). After the identification of themes, the researcher analyzed the themes for denotation and connotation interpretations, as well as the six elements of perception theory.

In addition to the qualitative data collected, a brief demographic survey was given to participants at the end of each focus group discussion. The demographic data were analyzed using basic descriptive statistics.

Results

The participants in the research included stay-at-home moms, educators, health professionals, manufacturing personnel, administrative personnel, and business professionals. Of the 36 participants, 18 were female and 18 were male. Most participants reported an annual household income of $60,000 - $80,000. Primarily Caucasian and African American ethnicities were represented, and one-third of the participants had a Bachelor's degree.

Participants were shown seven images and asked to reflect on their feelings and thoughts toward each image, as well as discuss the accuracy of the image, and if they had seen a similar image previously. The first image showed two different pictures of cattle in a grazing environment, while the rest of the images only contained one picture. The following images were shown to participants.

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Image 1. **Cows in a grazing environment**

Image 2. **Greenhouse**

Image 3. **Dairy cows in a milking parlor**

Image 4. **Tractor spraying a field**

Image 5. **Farm family**

Image 6. **Irrigation**

Image 7. **Tomatoes in a greenhouse**

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Objective 1: To determine participants' perceptions of selected agricultural images and if these perceptions are influenced by connotation or denotation.

Several themes emerged in Objective 1 as each image was analyzed individually. With the exception of *Image 5*, each image had themes that represented both denotative and connotative interpretations. The theme that emerged from *Image 5* included only connotative interpretations. Denotative themes commonly identified the actions or events that could be directly identified from the image, such as cleanliness, mass production, and modernization. Connotative themes included reference to cultural or media influenced meanings or uncertainty, such as uncertainty regarding proper animal care, production practices, chemical application, and water use.

Cows in a Grazing Environment, *Image 1*

The themes that emerged in the discussion of *Image 1* included grazing environment, animal welfare, and uncertainty. When participants were shown *Image 1*, the discussion focused on comparing the two grazing environments. Participants suggested that the two grazing environments represented in *Image 1* were from different states or from different seasons. A participant who discussed the possibility of the two grazing environments being from two different states said:

> *North Georgia, I could go take a picture of that and bring you a picture. That's normal looking. I'd more or less say that the one over here is more like maybe Florida [general agreement]. You got a lot of bad, hot weather here.*

Another participant who discussed the seasons said, "*It just might be that the one on the right, winter has begun and we're seeing some white snow. So maybe the different seasons, maybe that's all that's involved here.*" This discussion showed direct meaning that participants were drawing from the images, and thus, was interpreted at the denotative level.

The participants favored the picture of cows standing and grazing over the picture of the cows lying down. These interpretations were more connotative, as they incorporated influences from society and culture. Participants discussed that the picture of the cows standing up showed "*healthy*," "*natural*," and "*free*" cows. A participant who discussed these components said, "*The first one seems very, very healthy. Very fresh, very green, organic like*." Another participant discussed the natural setting and added that, "*It seems fresh air, it seems back to nature*." A participant discussed the freedom of the cows and said, "*Yeah, you don't see any fences or pens*." Despite favoring the picture of the cows standing up, participants indicated that they felt the cows they ate were not raised in this type of environment. "*Well, if I was eating my hamburger at McDonald's I'd be pretty sure that the cows probably didn't come from there*," said a participant.

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The participants perceived the picture of the cows lying down as exhibiting poor animal care. While discussing poor animal care, a participant said, "*Right, well they do seem sick and unhealthy and like they want food and water. And also, there's a fence that I see, they're fenced in*." In addition to concerns of poor animal care, the participants also discussed confusion surrounding the cows' actions. A participant said, "*I'm kind of wondering what are they doing? I really don't understand what's going on*."

Greenhouse, *Image 2*

The themes that emerged in *Image 2* included cleanliness, unnatural, industrialization, and uncertainty. Participants discussed the greenhouse image at the denotative level as being a clean environment, unnatural, and a form of industrialization/mass production. Discussion of *Image 2* began with a focus on the industrialization and mass production. A participant stated, "*It's industrial scale, it looks like vegetable farming, it looks clean, it looks [pause] I don't have a problem with it*." Another participant added, "*Produced for the masses, and live with the classes*." The participants also discussed the clean and sterile look of the environment. "*It looks very clean and neat. Something that is well cared for*," said a participant. Despite the participants' perceptions of a clean environment, as well as some participants speaking favorably toward mass production, the participants discussed that they felt the greenhouse was in an unnatural or artificial state. A participant said, "*It has that very intense and artificial feel to it*."

After the initial discussion of the greenhouse, the discussion shifted to uncertainty, likely due to cultural connotations. The participants questioned the crops that were being grown in the greenhouse, the structure and functionality of the greenhouse, and whether the crops could be organic or not. Adding input to the discussion, one participant said, "*What I was saying is it could be organic, healthy, wonderful tasting stuff that comes from organically grown food process, or it could be also poison coming out of this*."

Dairy Cows in a Milking Parlor, *Image 3*

The participants discussed several topics when shown the image of dairy cows in a milking parlor. The themes included modernization, mass production, cleanliness of the environment, animal welfare, and uncertainty. Many of the topics prompted debate within the discussion, as opposing viewpoints were prominent among the participants. Modernization, a denotative interpretation, was one of the first items discussed. Participants immediately recognized that the cows were not being milked by hand, as they would have been many years ago. One participant stated, "*There you go—modernized. Not [makes the sound and motions of hand milking]*." Additionally, the participants discussed that the image showed mass production. During the discussion, a participant said:

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> *It reminds me of industrialized farming. The farming is mass-produced for the people and they're not concerned with the animals or the freedom of the animals. You know, being able to roam around where they can on the farm, they just shove them in this building and just say knock yourselves out.*

When discussing the cleanliness of the environment, some participants indicated that the image showed a clean and sanitary environment, while others disagreed. "*It's clean, but it's sanitary and you've got to get milk to the shelves*," said one participant. A participant with an opposing viewpoint added:

> *I said unclean. I just think it's too many, too close quarters. I can see it's clean, you know, from the surface, but I'm thinking those animals are in too close of quarters. To where, if they had like, if their poop would be in too close of quarters to the other cows, that type of thing.*

Animal welfare was discussed at a connotative level for this image. It was observed from the conversation that some of the participants might have had different cultural and societal influences in regard to animal welfare. A participant said:

> *To me it's inhumane and there's something to be said for milking a cow by hand as opposed to mechanically in that we have the human touch. And if it were me, I wouldn't want to drink the milk from a cow that was mechanically milked.*

Another participant added, "*And I think that [Name] had made the statement that they are in pain because they're being artificially set up to produce milk. It's a sad state of our farming industry*."

Despite the poor animal welfare discussed by some participants, other participants did not feel the cows in the picture were being mistreated. One participant stated:

> *It looks like a pretty efficient way to deal with it. It doesn't look dirty. If you think at the end of the day, what you get from cows, I imagine it could be a lot less efficient and a lot worse for them.*

Another participant exhibited comfort with the welfare of the cows by telling a story of a personal experience on a dairy farm. The participant reminisced and said:

> *I saw this kind of thing right here in Florida in a farm tour. It's the round table. It's a dairy, I think it's the last dairy in Sarasota County. My friends are appalled, but I*

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> *thought the cows looked fine to me. They're eating and being fed while they're being milked and they go around and it didn't bother me. I was really interested in it.*

In addition to some disagreement on viewpoints, the participants also asked many questions about the dairy cow picture. Most of the questions focused on the milking process, the equipment, and how long the cows stay in the parlor. "*Do they stay there 24 hours a day or do they go outside when they get through milking?*" asked one participant. While another asked, "*How many more of them [cows] are there? How big is that circle?*"

Tractor Spraying a Field, *Image 4*

The themes that emerged from the discussion of *Image 4* included chemical application, modernization, and uncertainty. The participants discussed the image of the tractor spraying a field as the application of pesticides or chemicals and also as a practice of modern reality. A participant simply stated, "*Putting more chemicals in our food*." A concerned participant said, "*Like it's pesticides or something, it's going to kill us*." Many of the participants discussed that the image gave them a glimpse of modern reality. "*A modern, modern farm*," said one participant, while another said, "*Unfortunately, if we want to have an abundance of food and we want quality then we have to do this*." The participants' discussion about the application of chemicals included elements of connotation, while the discussion of modern reality included elements of denotation.

After initial discussion about the tractor spraying the field, the discussion turned toward uncertainty. The participants indicated that they were unsure of what crops were growing and what liquid was being sprayed on the crops. Depending on the answers to these questions, the participants suggested that their perceptions might change. A participant said, "*That's part of the problem, we don't know. It could be fertilizer, it could be something else.*" Another participant added to the discussion, "*That looks more like grass. That doesn't look like nothing you're going to eat. It looks like sod or something*."

Farm Family, *Image 5*

They only theme to emerge from the discussion of *Image 5* was the theme of family farm. The farm family image was favored by the participants and was primarily interpreted at the connotative level. The participants indicated that the image was of a nice and happy farm family. "*That's your typical American family there with a dog*," said one participant. Another participant added, "*I agree, it looks like a family, a farm family*." Other participants indicated that image was "*happy*" and "*warm and fuzzy*."

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Irrigation, *Image 6*

The themes that emerged from the discussion of *Image 6* included aesthetically pleasing, water conservation, and neutrality. When viewing the irrigation image, the participants perceived the image as positive and aesthetically pleasing. The topic of water conservation was also included in the participants' discussion of *Image 6*. When discussing the positive nature of the image, one participant said, "*I think it's good and in some places it's needed. And probably that would be a different picture if you didn't have irrigation, probably kind of like the cows without grass [referring to Image 1]*." Other participants discussed the beauty of the image at the denotative level and indicated that, "*It's a beautiful picture in many ways*" and "*It's a pretty picture you know and it's green*."

Water conservation was also included in the discussion of this image. Many participants voiced concern over depleting water as a natural resource, the time of day the watering was taking place, and the impact of the watering on the water table and aquifers. This part of the discussion highlighted connotations that participants drew from the image. One participant's input summarized this discussion well:

> *The water table is so low throughout the whole country from 15,000 years ago to now it has dropped two foot. That's a lot of water and I think a lot of people use up a lot and I agree with him about farmers who take advantage of these exemptions. In this past winter proved a lot of that. It hurt a lot of other families because their wells went dry because they [farmers] sucked all the water out of the aquifer to save the berries. Now, I like the picture, but the watering part throws me off a bit.*

As demonstrated in the quotes above, the beauty of the image and concerns of water conservation left many participants with a feeling of neutrality. Several participants, who could not decide if the image was positive or negative, demonstrated neutrality. One participant said, "*I think it's positive and negative. It's more or less, yes, it's not negative and there's no positive in it, so I don't know*."

Tomatoes in a Greenhouse, *Image 7*

The themes that emerged from the discussion of *Image 7* included appetite, uncertainty, and skepticism. The last image that the participants were shown prompted a denotative discussion of appetite, as well as a connotative discussion of uncertainty. Appetite was discussed in both a positive and negative manner. One participant said, "*I like the green and the red. Just seeing something tasty right there*." From the opposing viewpoint, another participant stated, "*Well, the first thing I think about hydroponic tomatoes is that they taste terrible*."

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The focus group participants were uncertain about many aspects of this image, including if the tomatoes could really grow as pictured, the structure of the greenhouse, and if the image was real. When discussing if the tomatoes could really grow as shown in the image some participants questioned the growing method. One participant said, "*I've never seen tomatoes grow like that*." Other participants questioned the growing method because they had tried to grow tomatoes upside down and had failed. One participant who told of the failure said:

> *So, obviously I did something wrong, although I followed the directions I was given. So when I look at that, therefore that's why I would, in my warped mind, say that can't be. It's impossible to have tomatoes like that.*

Other participants questioned the structure of the greenhouse and were particularly confused with the "train track" going in between the rows of tomatoes. *"Is that a railroad track in the middle?*" agreed one participant. Another participant added, "*This is a railroad tracks going down there. This is a factory*."

Last, the participants discussed that this was the most unbelievable image of all the ones they had been shown during the focus group. A participant stated, "*It looks unreal [general agreement]*." Another participant added:

> *So, my initial reaction is this is some weird Photoshop picture, but I also know that if you think about, just to put tomatoes on all the hamburgers that are sold in America every day, you've got to have some super high efficient system to grow them and to make them easy to harvest.*

Objective 2: To identify elements of perception theory are present in participants' discussion of selected agricultural images.

The six perspectives of perception theory discussed by Lester (2006) were evident in the discussion of the seven images presented in these focus groups. The personal perspective, subjective opinions present in initial responses (Lester, 2006), was observed in the discussion of all seven images. The historical perspective was present in *Image 3* and *Image 4* as participants discussed the modernization of the practices displayed in these images. Participants were aware of the timeline represented in these pictures and recognized that they were more modern than previous agricultural practices. For example, the historical perspective was apparent in the response "*There you go—modernized. Not [makes the sound and motions of hand milking]*." *Image 7* was discussed from a technical perspective, which includes the composition and presentation of the image (Lester, 2006). Some participants questioned the possibility of the image being altered in Photoshop. The ethical perspective was evident in the discussion of *Image 3*, as many participants discussed the ethical and moral nature of mass production.

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Several of the images included some cultural perspective, yet it was very evident in the discussion of *Image 5*. The participants drew on their cultural ideas about what a farm family should look like. Examining the larger issue surrounding the image, or the critical perspective was observed in *Image 2, Image 4,* and *Image 6.* In the discussion of *Image 2*, participants indicated that perhaps the larger issue surrounding their perceptions of the image was that they did not know what was being grown in the field or what was being sprayed on the field. The issue of uncertainty was also brought up in the discussion of *Image 4*, when the participants indicated that they did not know what was being grown in the greenhouse. In addition, when looking at *Image 4*, the participants discussed that the issue of food abundance may have been more important than what they thought about the image. In the discussion of *Image 6*, the participants recognized that water conservation was the larger issue at hand rather than the beauty of the image.

Discussion and Conclusions

All of the images presented to the participants were perceived at the connotative and denotative level, with the exception of *Image 5,* which was only perceived at the connotative level. In addition, the six elements of perception theory did appear throughout the discussion of the images. Some images prompted a bipolar discussion among the participants, while other images caused uncertainty, skepticism, or favorability.

The discussion of each of image commonly began with direct interpretations at the denotative level (Moriarty, 2005). However, as the discussion of each image progressed, more connotative, or culturally based, interpretations were incorporated into the discussion (Barr, 2007). This finding is important for communicators to consider, because the length of exposure to an image could impact an individual's overall perceptions. As the length of exposure increases, it may be assumed that more connotative influences will shape perceptions.

As Elster (1983) indicated, individuals will criticize what does not meet their expectations. Participants provided criticism when their expectations were not met in the discussion of *Image 1, Image 3, and Image 7.* The criticisms of *Image* 1 and *Image* 3 were made in regard to animal care, while the criticism of *Image 7* was due to the believability of the image. Being aware of common criticisms of agricultural images can help agricultural communicators select images that will be viewed favorably by consumers.

Throughout the focus groups, the participants displayed several emotions while looking at and discussing the images. This finding is consistent with perception theory, which indicates that emotions play an important role in the perception of images (Barry, 2005). For example, *Image 3* of the dairy cows and dairy parlor caused some participants to display emotions of empathy and sorrow, while *Image 4* of the tractor spraying the field initially provoked emotions of fear or

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concern. In addition to emotion, the six elements of perception theory are helpful in understanding why consumers develop certain responses to images (Lester, 2006). Gaining this understanding can lead to the development and use of images that evoke favorable responses.

As explained by Lester (2006), images that are not easily understood are easily forgotten. Making conclusions about whether participants remember the images that they were confused by or had questions about (*Image 3* for example) is outside the scope of this research. However, further research should explore how long consumers remember or recall images that are easily understood compared to images that are more difficult to understand.

By understanding how consumers perceive images, agricultural communicators and educators can work toward improving agricultural literacy and create a more modern perception of agriculture. Because of the confusion and lack of understanding in regard to some of the images, it is recommended that communicators use images with easily recognizable actions when communicating with the public. An image should capture a complete story and not leave consumers asking, "How many more cows are outside the barn?" for example. In addition, it is recommended that agricultural communicators consider selecting images that incorporate people and have aesthetic elements. The participants in these focus groups had more favorable perceptions toward the image of the farm family and the images that were pretty, such as *Image 6.* Further research should examine consumer perceptions of agricultural images. This research should include quantitative methodology, testing with different populations, as well as testing with different assortments of images. The transparency of images and the effect of transparency on perceptions should also be explored. The findings of this research are limited by the images shown to the participants, as well as the interpretation of participant discussion by the researchers, both of which are common limitations in qualitative research (Pauly, 1991).

References

Abrams, K. M., Meyers, C. A., & Irani, T. A. (2010). Naturally confused: Consumers' perceptions of all-natural and organic pork products. *Agriculture and Human Values, 27*(3), 365–374. doi:10.1007/s10460-009-9234-5

American Farm Bureau Foundation for Agriculture. (2011). *Securing our future.* Retrieved from http://www.agfoundation.org/aboutus/docs/afbfaBrochure.pdf

Ary, D., Jacobs, L. C., Razavieh, A., & Sorensen, C. (2006). *Introduction to research in education* (7th ed.). Belmont, CA: Thomson Wadsworth.

Barr, A. (2007). *Semiotics images in the fields of journalism and politics: An ethical paradox.* Paper for Comm 3210: Human Communication Theory at the University of Colorado at Boulder.

Barry, A. M. (2005). Perception theory. In K. Smith, S. Moriarty, G. Barbatsis, & K. Kenney (Eds.), *Handbook of visual communication theory, methods, and media* (pp. 45–62). Mahwah, NJ: Erlbaum.

Barthes, R. (1977). The photographic message (S. Heath, Trans.). In S. Heath (Ed.), *Image, music, text* (pp. 15–31). New York, NY: Hill and Wang.

Center for Public Issues Education in Agriculture and Natural Resources. (2012). *About.* Retrieved from http://www.centerpie.com/about-2/

Coon, T. K., & Cantrell, M. J. (1985). Agriculture in black and white. *The Agriculture Education Magazine, 58*(4), 22–23.

Creswell, J. W. (2007). *Qualitative inquiry & research design: Choosing among five approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Darbyshire, P., MacDougall, C., & Schiller, W. (2005). Multiple methods in qualitative research with children: More insight or just more? *Qualitative Research, 5*(4), 417–436. doi:10.1177/1468794105056921

Denzin, N. K., & Lincoln, Y. S. (2005). Introduction: The discipline and practice of qualitative research. In N. K. Dezin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (3rd ed., pp. 1–33). Thousand Oaks, CA: Sage Publications.

Dimitri, C., Effland, A., & Conklin, N. (2005). *The 20th century transformation of U.S. agriculture and farm policy.* (United States Department of Agriculture Economic Information Bulletin No. EIB-3). Retrieved from http://www.ers.usda.gov/publications/eib-economic-information-bulletin/eib3.aspx#.U5DiASggstd

Duncan, D. W., & Broyles, T. W. (2006). A comparison of student knowledge and perceptions toward agriculture before and after attending a Governor's School for Agriculture. *NACTA Journal, 50*(1), 16–21. Retrieved from http://www.nactateachers.org/vol-50-num-1-march-2006.html

Eco, U. (1986). *Semiotics and the philosophy of language.* Bloomington, IN: Indiana University Press.

Elster, J. (1983) *Sour grapes: Studies in the subversion of rationality*. New York, NY: Cambridge University Press.

Frewer, L. J., Howard, C., & Aaron, J. I. (1998). Consumer acceptance of transgenic crops. *Pesticide Science, 52*, 388–393. doi:10.1002/(SICI)1096-9063(199804)52:4<388::AID-PS740>3.0.CO;2-F

Frick, M. J., Birkenholz, R. J., Gardner, H., & Machtmes, K. (1995). Rural and urban inner-city high school student knowledge and perception of agriculture. *Journal of Agriculture Education, 36*(4), 1–9. doi:10.5032/jae.1995.04001

Glaser, B. G. (1965). The constant comparative method of qualitative analysis. *Social Problems, 12*(4), 436–445. doi:10.2307/798843

Golafshani, N. (2003). Understanding reliability and validity in qualitative research. *The Qualitative Report, 8*(4), 597–607. Retrieved from http://www.nova.edu/ssss/QR/QR8-4/golafshani.pdf

Greenbaum, T. L. (2000). *Moderating focus groups: A practical guide for group facilitation.* Thousand Oaks, CA: Sage Publications.

Guion, L. A., Diehl, D. C., & McDonald, D. (2009). *Triangulation: Establishing the validity of qualitative studies*. Retrieved from http://edis.ifas.ufl.edu/fy394

Harder, A., Lamm, A., & Strong, R. (2009). An analysis of the priority needs of Cooperative Extension at the county level. *Journal of Agricultural Education, 50*(3), 11–21. doi:10.5032/jae.2009.03011

Krueger, R. A. (1994). *Focus groups: A practical guide for applied research* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Krueger, R. A. (1998a). *Analyzing & reporting focus group results.*Thousand Oaks, CA: Sage Publications.

Krueger, R. A. (1998b). *Developing questions for focus groups.* Thousand Oaks, CA: Sage Publications.

Lester, P. M. (2006). *Visual communication: Images with messages.* Belmont, CA: Thomson Higher Education.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage Publications.

Merriam, S. (1988). *Case study research in education: A qualitative approach.* San Francisco, CA: Jossey-Bass.

Moriarty, S. (2002). The symbiotics of semiotics and visual communication. *Journal of Visual Literacy*, *22*(1), 19–28.

Moriarty, S. (2005). Visual semiotics theory. In K. Smith, S. Moriarty, G. Barbatsis, & K. Kenney (Eds.), *Handbook of visual communication theory, methods, and media* (pp. 227–242). Mahwah, NJ: Erlbaum.

Norwood-Tolbert, J. L., & Rutherford, T. A. (2006). A semiotics analysis of biotechnology and food safety photographs in Time, Newsweek, and U.S. News and World Report. *2006 Southern Association of Agricultural Scientists Agricultural Communications Section*. Retrieved from https://sites.google.com/a/extension.org/saasagcomm/proceedings/2006-proceedings

Page, J. T. (2004, August). A semiotic analysis of magazine advertisements. Paper presented at the meeting of the *Association for Education in Journalism in Mass Communications*, Toronto, Canada.

Pauly, J. J. (1991). A beginner's guide to doing qualitative research in mass communication. *Journalism Monographs*,125.

Rhoades, E. B., & Irani, T. (2008). "The stuff you need out here": A semiotic case study analysis of an agricultural company's advertisements. *Journal of Applied Communications, 92*(3–4), 28–42. Retrieved from http://journalofappliedcommunications.org/2008/1-volume-92-nos-3-4.html

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Richard, J. B. (2009). *The agricultural industry as perceived by members of the general public of Louisiana.* (Doctoral dissertation, Louisiana State University). Retrieved from http://etd.lsu.edu/docs/available/etd-07012009-150925/unrestricted/richarddiss.pdf

Rose, G. (2001). *Visual methodologies*. Thousand Oaks, CA: Sage Publications.

Terry, R., Jr., & Lawver, D. E. (1995). University students' perceptions of issues related to agriculture. *Journal of Agricultural Education, 36*(4), 64–71. doi:10.5032/jae.1995.04064

Wright, D., Stewart, B. R., & Birkenholz, R. J. (1994). Agricultural awareness of eleventh grade students in rural schools. *Journal of Agricultural Education, 35*(4), 55–60. doi:10.5032/jae.1994.04055

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