

12-2012

## **Aesthetic Qualities of Websites and their Effects on Public Perceptions of Agricultural Issues and Organizations**

Chase Tyler Hundley  
*University of Arkansas, Fayetteville*

Follow this and additional works at: <https://scholarworks.uark.edu/etd>



Part of the [Advertising and Promotion Management Commons](#), and the [Agribusiness Commons](#)

---

### **Citation**

Hundley, C. T. (2012). Aesthetic Qualities of Websites and their Effects on Public Perceptions of Agricultural Issues and Organizations. *Graduate Theses and Dissertations* Retrieved from <https://scholarworks.uark.edu/etd/605>

This Thesis is brought to you for free and open access by ScholarWorks@UARK. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of ScholarWorks@UARK. For more information, please contact [scholar@uark.edu](mailto:scholar@uark.edu).

AESTHETIC QUALITIES OF WEBSITES AND THEIR EFFECTS ON PUBLIC  
PERCEPTIONS OF AGRICULTURAL ISSUES AND ORGANIZATIONS

AESTHETIC QUALITIES OF WEBSITES AND THEIR EFFECTS ON PUBLIC  
PERCEPTIONS OF AGRICULTURAL ISSUES AND ORGANIZATIONS

A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Master of Science in Agricultural and Extension Education

By

Chase Hundley  
Arkansas Tech University  
Bachelor of Arts in Art, 2009

December 2012  
University of Arkansas

## ABSTRACT

This study sought to evaluate perceptions of agricultural issues and organizations based on how information is presented visually in websites. Researchers intended the results to be used to help the agricultural industry more effectively communicate information through better website design and increased persuasiveness. The study was conducted through the use of three focus group sessions as mapped out by Krueger (1998a, 1998b, 1998c) and Morgan (1998a, 1998b). The study used non-agriculture students purposively selected from a class in the University of Arkansas School of Human Environmental Sciences as participants in the study. The subject demographics closely resembled the primary demographics of grocery store consumers (Carpenter & Moore, 2006). Four websites containing information on pink slime, or lean finely textured beef, were selected for the focus groups to review. The websites were selected based on a rubric created by the researchers and an expert panel, which incorporated selection criteria based on the Elaboration Likelihood Model (Petty and Cacioppo, 1981) and on design characteristics identified by Williams and Tollett (2007) and Robins et al. (2010). Characteristics considered in the selection of the websites were positive or negative textual content, images/video, organization, typography, and colors. The researchers selected two websites with positive information on the topic, one with low aesthetic quality and one with high aesthetic quality. The other two websites selected contained negative information on the topic with one having low aesthetic quality and one having a high aesthetic quality. The focus group discussions followed a questioning route to increase consistency (Krueger, 1998c). The study's first objective was to identify how webpage visitors' perceptions of agricultural issues and sources are affected

by visual design. The second objective was to identify the specific peripheral cues in organizations' websites that were most important in the visitors' formulation of opinions related to agricultural issues or organizations. Recurring themes were identified from the focus group sessions by examining flip-chart notes and audio recordings from the meetings. Users' perceptions of credibility were acutely affected by visual design. In websites with low aesthetic quality, participants thought the credibility of the site was very low, but for websites with high aesthetic quality, users' perceptions of credibility were much more positive, regardless of the content. Specific examples in ten categories of design characteristics were identified as important peripheral cues that could affect users' ability to be persuaded by the website, especially in situations where users were least likely to read and work to understand the meaning of the content. These conclusions led to very specific recommendations for practitioners as well as researchers regarding the design of websites presenting information about agricultural issues. For example, website designers working for agricultural organizations should work to develop cleaner, more modern designs to improve perceptions of credibility, therefore improving the likelihood that visitors will be persuaded through peripheral cues.

This is approved for recommendation  
to the Graduate Council.

Thesis Director:

---

Dr. Jefferson Miller

Thesis Committee:

---

Dr. Leslie Edgar

---

Mrs. Casandra Cox, M. S.

---

Dr. Dennis Beck

## THESIS DUPLICATION RELEASE

I hereby authorize the University of Arkansas Libraries to duplicate this thesis when needed for research and/or scholarship.

**Agreed**

\_\_\_\_\_

*Chase Hundley*

**Refused**

\_\_\_\_\_

*Chase Hundley*

## ACKNOWLEDGEMENTS

It's probably a surprise to most people that I have finally finished this thing and would like to thank everyone that helped make it possible along the way.

I would first like to thank my family for getting me to this point. Without the support of my parents, I probably wouldn't have decided to pursue my Master's or completed the journey. Their constant encouragement (and financial support) helped me achieve this goal and I couldn't ask for a better set of parents. I would also like to thank my brothers and grandparents for their constant support. I know you are all proud of my accomplishments.

I would also like to thank my friends that put up with my flakey schedules, complaints, and constant stress levels. They were always there to help me cool off when I needed to. Also, a huge thanks goes to the friends that powered through grad school with me. There were definitely times when it sounded like we wouldn't make it, but we were all pretty good at helping each other out.

This thesis and most other accomplishments while in grad school would have never happened without the support and motivation from Dr. Jeff Miller. His pep talks and (sometimes threatening) motivational speeches pushed me through classes, my graduate fellowship, and research at times when my procrastination may have gotten the best of me. I would also like to thank Dr. Leslie Edgar for her encouragement and guidance through some of the most difficult classes (which were often hers). Dr. Miller and Dr. Edgar were responsible for some my much needed professional development throughout my graduate career and I could not be more thankful. I would also like to thank Mrs. Casandra Cox and Dr. Dennis Beck for their support on this project.

## TABLE OF CONTENTS

I. INTRODUCTION	1
A. Need for Study	1
B. Overview of Literature	1
C. Statement of the Problem	3
D. Purpose of Study	4
E. Limitations	5
F. Assumptions	5
II. REVIEW OF LITERATURE	6
A. Public Perceptions of Agricultural Issues	6
B. Internet Usage	6
C. Website Evaluation	7
D. Persuasion and Visuals	10
E. Semiotics	10
F. ELM in Visual Communication and Public Perception	11
G. Summary	13
III. METHODOLOGY	15
A. Problem Statement	15
B. Purpose and Research Questions	15
C. Subjects and Subject Selection	16
D. Instrumentation	18
E. Pilot Test	21
F. Data Collection Procedures	21
G. Data Analysis Methods	23
H. Credibility, Transferability, Dependability, and Confirmability	24
IV. RESULTS/FINDINGS	26
A. Demographics	26
B. Characterization of Focus Groups	28
C. Participant Familiarity with Agriculture	29
D. Other Important Observations	29
1. Information participants commonly researched	30
2. Popularity of phone applications	30
E. Research Question One	31
1. Website #1	31
2. Website #2	32
3. Website #3	33
4. Website #4	34
F. Research Question Two	34
1. Website #1	35
2. Website #2	36
3. Website #3	37
4. Website #4	38
5. Recurring/Common Themes	39
1. Advertisements	39
2. Background color and texture	40

3. Links within content	41
4. Fonts and Typography	41
5. Blog-like appearance	42
6. Pictures and video	42
7. Amount of scrolling	43
8. Social Media	43
9. Quality of textual content	43
10. Bad link effects in banner	44
G. Key Findings	44
V. CONCLUSION AND RECOMMENDATIONS	46
A. Research Question One	46
1. Website #4	47
B. Research Question Two	48
1. Images/Video	49
1. Pictures and Video	49
2. Advertisements	49
2. Organization	50
1. Links within content	50
2. Blog-like appearance	51
3. Advertisements	51
4. Scrolling	52
5. Fonts and Typography	52
6. Quality of Textual Content	52
3. Typography	53
1. Fonts	53
2. Bad link effects in banner	53
4. Colors	54
1. Background color and texture	54
2. Fonts	54
C. Recommendations for Practice	54
1. Research Question One	54
2. Research Question Two	55
3. Other Recommendations	58
D. Recommendations for Further Research	58
VI. REFERENCES	60
VII. APPENDIX A	64
VIII. APPENDIX B	65
IX. APPENDIX C	66

## **TABLES AND FIGURES**

### **Tables**

1. Website Evaluation Rubric	19
2. Participant Demographics	27
3. Familiarity with agriculture	29
4. Groups' initial credibility ranking of websites	31
5. Groups' perception of content's stance on issue	35
6. Recurring/Common Themes	39

### **Figures**

1. Elaboration Likelihood Model	12
2. Selected websites	20

# CHAPTER I

## INTRODUCTION

### *Need for Study*

Agriculture in the United States is disappearing. It has recently been reported that less than 2% of the population of the United States farms for a living, and less than 17% still lives in rural areas (National Institute of Food and Agriculture, n.d.). As the percentage of the population directly connected agriculture continues to decline, the need for the agriculture industry to promote itself and to keep the U.S. population informed about agriculture and food-related issues increases. Meanwhile, the methods of performing such public education continue to shift. As of 2009, over 76% of the United States is reported to have use of the Internet (United States Census Bureau, 2009). A vast majority of the population now relies on the Internet for obtaining important information, since it can be received almost instantly whenever or wherever, and this has “magnified the intensity of opinions” (Greece, 2008, p. 20). The Internet has even surpassed TV in media consumption (Gardyn & Dawidowska, 2002). As Americans continue to use the Internet more and more to gain information, it is increasingly important for the agricultural industry to keep up with the trend.

Terry and Lawver (1995) noted that “some of the most controversial topics currently being considered in our society involve agriculture” (p. 64). Webpages containing agricultural information are becoming more common on the Internet with growing concern of food quality, food supply, and nutrition. These webpages include websites of companies in the agricultural industry, websites of “anti-agriculture” special interest groups, blogs, and various social networking pages. With the ease of spreading

information on the Internet, many of these pages can include misinformation since basically anyone can put information on the Internet without rules governing validity or accuracy (Oliver, Wilkinson, & Bennett, 1997).

More than 98% of the U.S. population is not directly connected to the agriculture industry (National Institute of Food and Agriculture, n.d.), and the average person is widely disconnected from the original source of the food he or she purchase at the supermarket (Brom, 2000). The general public has been shown to be uninformed about agricultural issues such as use of biotechnology (Brom, 2000) and the promotion of animal welfare in livestock production (Goodwin & Rhoades, 2010). Also, the need for agricultural groups to maintain a positive image in order to successfully operate has been expressed (Roberson, 2009). With the growing importance of the Internet as an information source and with the growing public interest of agricultural issues, it is extremely important for the agricultural industry to portray and maintain a positive image over the Internet. “The future of American agriculture rests in the hands of ninety-eight percent of the United States population who do not reside on a farm and may have little to no understanding of agriculture” (Doerfert, 2011, p. 11).

The first research priority area of the 2011-2015 National Research Agenda for the American Association of Agricultural Education calls for Public and Policy Maker Understanding of Agriculture and Natural Resources (Doerfert, 2011). The need for the agricultural industry to effectively communicate to the public, especially to policy makers, continues to increase. “When communicating with stakeholders and other target audiences, the Web can be a valuable tool; however, it also can be a critical component of effective media relations efforts” (Ruth, Bortree, Ford, Braun, & Flowers, 2005, p. 9). A

limited amount of research has been done on the effects of visuals and credibility of agricultural websites. However, a study done on credibility of health information websites revealed “visual design preferences play a significant role in peoples’ perception of credibility” (Robins, Holmes, & Stansbury, 2010, p. 25).

Visual design can be described as how the information is presented through use of elements such as colors, typography, graphics, and layout (Williams & Tollett, 2007). In the art of website design, credibility can be described as how much a viewer of a website trusts the content within the site (Robins & Holmes, 2007). In further studies on the rhetorical characteristics of websites, Robins et al. (2010) indicated that visual design could affect a person’s perception of credibility. Therefore, it could be beneficial for the agricultural industry to have a clear understanding of the importance of the impact of visuals on how people attain ideas or perceptions. Because visual images can directly affect emotions (Lester, 2006) and because emotion also plays an important role in persuasion, it is logical for organizations supporting the agricultural and food industries to create and maintain visually appealing websites that allow them to compete with opposing parties and their viewpoints.

### ***Problem Statement***

It is thought that poor use of visual design may prohibit the general public from obtaining information (Robins et al., 2010) or wanting to learn about agricultural issues, topics, or policy. People are drawn to more aesthetically pleasing information, and where it seems that many special interest groups excel at this, it seems that many times agriculture fails.

According to Petty and Cacioppo's (1984) elaboration likelihood theory, people are more likely to "engage in issue-relevant thinking" when information is more appealing or they "draw inferences (from peripheral cues) about the merits of the arguments for a recommendation based upon their analyses of the data extracted from the appeal and accessed from memory" (p. 673). If this is so, a person's attitude is more likely to change when information is presented in a more aesthetically pleasing manner. The ease with which information can be disseminated via the Internet continues to improve; therefore, with so many unproven sources, the consumer of information is left to determine the credibility of the source and often relies on visual cues (Robins et al., 2010; Metzger, Flanagin, Eyal, Lemus, & McCain, 2003). A common problem within agriculture today appears to be a poor use of visual design in websites containing important information (Goodwin, Chiarelli, & Irani, 2011), thus prohibiting viewers from engaging in "issue-relevant thinking" as a result.

### ***Purpose / Research Questions***

The purpose of this study was to evaluate perceptions of agricultural issues and organizations sources based on how information is presented visually in websites. Results could be used to motivate agricultural organizations to employ better design in order to increase persuasiveness.

RQ1: How are webpage visitors' perceptions of agricultural issues and sources affected by visual design?

RQ2: What peripheral cues in websites are most important in visitors' formulation of opinions related to agricultural issues or organizations?

### *Assumptions*

1. It is assumed by the researcher that the subjects being studied are familiar with the Internet and its use.
2. It is assumed by the researcher that the groups answer questions truthfully.

### *Limitations*

1. The study is confined to only the subjects that participated in the study and the findings cannot be generalized to represent the whole population; however, readers may find similarities in other cases and are free to make their own application of this study to those cases.
2. Focus groups are “not intended to generalize. Focus group research is conducted to gain a more complete understanding of a particular topic, such as motivation, behavior, feelings, decision making strategies, or just how certain people think about an issue or topic” (Krueger, 1998a, p. 69).
3. The analysis of the focus groups is open to misinterpretation by the researchers.

## CHAPTER II

### REVIEW OF LITERATURE / THEORETICAL FRAMEWORK

#### *Public Perceptions of Agricultural Issues*

Agriculture continues to be a hot topic, and this can be seen by looking at any major news source. People want and need to be informed while they are increasingly uninformed and disconnected from the source of their food (Brom, 2000; Goodwin & Rhoades, 2010).

More than 98% of the population of the United States has moved away from the farm and less than 17% even live in a rural area (National Institute of Food and Agriculture, n.d.). Urbanization has widely disconnected the average person from the original source of the food they purchase at the supermarket (Brom, 2000), and is left uninformed, thereby often taking agriculture for granted while the population is exponentially growing and making it harder on the industry to keep up with production (Roberson, 2009). The general public has been shown to be uninformed about agricultural issues such as use of biotechnology (Brom, 2000) and animal welfare (Goodwin & Rhoades, 2010).

Terry and Lawver (1995) found that college students should be better informed “concerning controversial issues related to agriculture, particularly in the areas of animal welfare, farming and ranching practices, the use of medications on animals, and the impact of agriculture on our economy and the environment” (p. 71).

#### *Internet Usage*

Access to the Internet is increasingly more common. In 2009 over 68% of the population was reported to have access to the Internet from “some location” and over

73% of the population was reported to “live in a household with Internet access.”

Internet usage has continued to show growth since its birth. From 1997 to 2009 the percent of householders with Internet access rose over 50% (United States Census Bureau, 2009).

With Internet having surpassed even TV in media consumption (Gardyn, Dawidowska 2002), the importance of the Internet as a media and news source is more obvious every day. Since 2000, the percentage of U.S. adults who use the Internet to research products or services has increased more than 20%. Also, the percentage of people who use the Internet for a news source has increased around 20%, and the percentage of people who use the Internet to research news or information about politics or upcoming campaigns has increased more than 20% (Pew Internet & American Life Project, 2011). The Internet has been shown to be a growing source for public health information (Robins et al. 2010). The importance of the effect of Internet on public opinion was especially evident in the 2008 presidential election (Garcia-Castanon, Rank, & Barreto, 2011).

Now, it is more and more common for the population of the United States to have access to the Internet in their hands at all times from their smartphone. Around 50% of mobile phone users in the United States were reported to be using smartphones in 2012 (Smith, 2011; The Nielsen Company, 2012).

### ***Website Evaluation***

Evaluating the quality of websites containing important information is a pressing need for communicators. As valuable and useful as the Internet is as an information source, websites containing misinformation are common, since anyone, anywhere can put

information on the Internet whenever they please without proof of validity or accuracy (Oliver, Wilkinson, & Bennett, 1997). Unfortunately, most studies of website quality that are conducted have the level of entertainment as more of a concern than quality of information (Oliver et al., 1997).

Since information can be distributed on websites without proof of accuracy, users of Internet based information sources cannot rely on common methods of determining accuracy that can be used for journals or books and will rely on quality of visuals within sites (Robins et al., 2010). With the lack of “information assessment and verification – core components of source, message, and medium credibility – now often become the responsibility of the media consumer” (Metzger, Flanagin, Eyal, Lemus, & McCain, 2003, p. 294). With the abundance and ease of access to “inaccurate or biased information available online, assessing online information quality should be a core concern of all Internet users” (Metzger et al., 2003, p. 294).

Catching a viewer’s attention is extremely important in web design, because “web sites often provide the first impression of an organization” (Robins & Holmes, 2008, p. 386). The visual quality, or design, of a website is one of the factors that influence perceived credibility and if a viewer will stay on or leave a site (Robins & Holmes, 2008). Viewers of poorly designed websites can be turned off immediately, causing them to leave the site without gaining the information being presented (Robins et al, 2010). Subjects have been shown to develop perception of credibility within 3.42 seconds of first viewing a webpage (Robins & Holmes, 2008). Therefore, evaluating the visual qualities of web sites is of significant importance to companies or organizations.

Measuring the visual qualities of websites can be done by evaluating the use of typography, images, color, and aesthetic properties. Well-designed websites are created with the common goal in mind of effectively gaining the attention of the viewer so that the content is effectively presented (Robins et al, 2010). A design is considered successful if it can “(1) gain attention, (2) create a memorable visual impression, and (3) communicate a message” (Williams & Tollett, 2007, p. 65). A good design or layout should keep a viewer’s attention long enough to learn what was being communicated (Williams & Tollett, 2007).

Organization in design promotes cognitive processes promoting connections through categories and hierarchal relationships (Lohr, 2008). A well-designed website should have a clear purpose that lets users know what kind of information is being presented, and navigation within the site should be simple for the user. The content of a successful website is clear and organized with contrast, alignment, repetition, and proximity accounted for. Typography is an important element of a successful web design; typography refers to font size, letter spacing, text size, and readability (Williams & Tollett, 2007). Typography can be described as forming or communicating a message through presenting words or letters in a certain way (Lohr, 2008).

Colors can “make or break the appearance and effectiveness of a document or image,” and using color can enhance the aesthetic properties and organization of a design (Lohr, 2008, p. 264). “By facilitating the use of contrast, color can help the learner differentiate between important and less important information” (Lohr, 2008, p. 267).

### ***Persuasion and Visuals***

It is important to understand the effect of visuals and their use for persuasion. Images have been shown to directly affect emotions (Lester, 2006). “Through combinations of lines and shapes and colors on a piece of paper or a movie screen or a video monitor, pictures are able to recreate the kinds of visual information that our eyes and brains make use of when we look at the real world” (Messaris, 1997, pg. 3).

“Visual images are very powerful in their occupation of the public’s time and the shaping of how we process our surrounding environments” (Sadler-Trainor, 2005, p. 9). Visuals have been used throughout history in different forms of propaganda as a method of persuasion. A familiar instance for most people is war propaganda such as posters and movies from WWI and WWII (Supa, 2006). Visuals are used in advertising to attract the attention of the viewer (Lester, 2006). Visuals have been constantly used by politicians in various political campaigns (Schill, 2008). How people react to images or visuals plays a huge role in developing messages that have the ability to persuade people’s attitudes (Supa, 2006).

### ***Semiotics***

Semiotic analysis is a method of interpreting meanings from signs through methods of content analysis and measuring how the signs are interpreted. In most cases, semiotics has been used to interpret visual signs such as road signs, advertisements, billboards, etc. (Chandler 1994).

Semiotic analysis has been used in agricultural communications research to study the effectiveness of visuals and designs. It is typically associated with the qualitative research paradigm. It has been used to evaluate agricultural advertising (Rhodes & Irani,

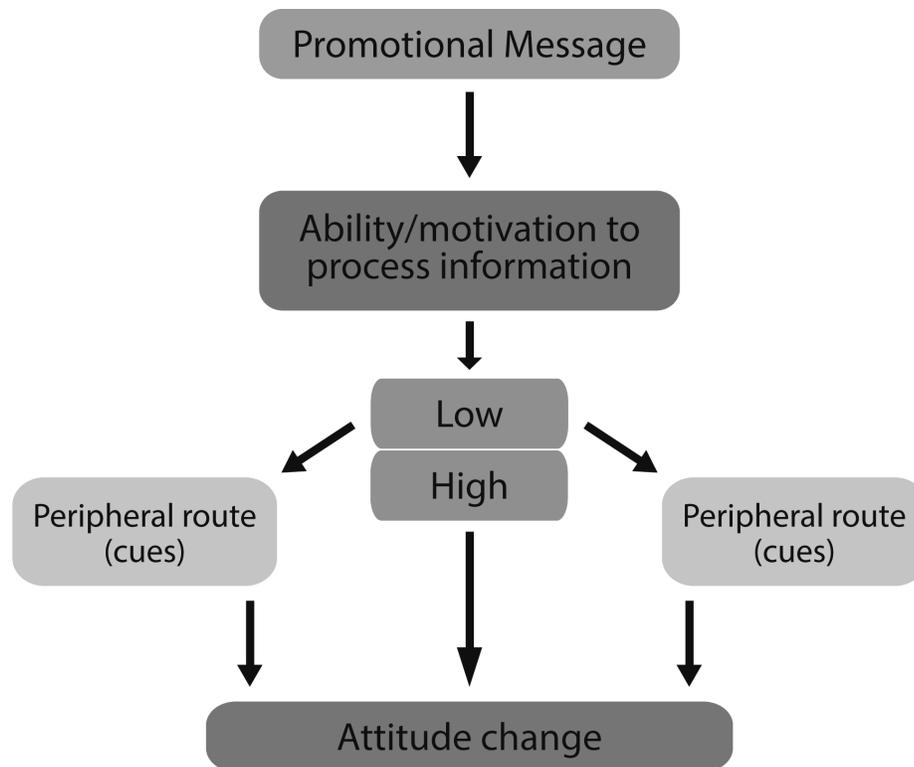
2008) and to evaluate college student perceptions of rural America through images used in newspapers (Glaze, Edgar, Rutherford, & Rhodes, 2010). Semiotic analysis was also used by Edgar and Rutherford (2012) to evaluate the Texas Cooperative Extension marketing packet.

Certain visual elements (including website design elements) act as symbolic signs that can cause users to develop an emotional response (Chandler, 1994). This emotional response, according to semiotics theory, affects the users' cognitive processes and could determine their perceptions of a website's credibility.

### ***Elaboration Likelihood Model in Visual Communication and Public Perception***

Although the Elaboration Likelihood Model (ELM) was created for other the purpose of examining marketing communications, it has made its way into various aspects of agricultural communications research. Miller, Annou, and Wailes (2003) linked the ELM to communicating the topic of biotechnology to uninformed audiences. The ELM has also been used to study genetically modified food labels (Meyers & Miller, 2006).

In 1980-81 the Elaboration Likelihood Model (ELM) was created to outline a "framework with which to organize social psychological research on persuasion" (Cacioppo & Petty, 1984, p. 673). The ELM has also been applied various marketing techniques (Davies & Wright, 1984). If the ELM can be applied to marketing techniques, then it can also be applied to how visual qualities of websites affect viewers.



*Figure 1: Elaboration Likelihood Model (Based on Petty & Cacioppo, 1981).*

The ELM outlines two different ways that people process information. The first is a central route, where elaboration, or deep, issue-based thinking, occurs. The second is a peripheral route, where non-elaboration occurs (Littlejohn, 1992). Elaboration is the multiple levels of thought used by a person or people to “process information from persuasive messages” (Littlejohn, 1992, p. 155).

Since more elaboration occurs in the central route, more thought goes into the processing of information (Littlejohn, 1992). In the context of advertising, the central route “involves effortful cognitive activity, whereby individuals focus their attention on message relevant ad information, and draw on prior experience and knowledge to assess and elaborate on presented information. When elaboration likelihood is high, the favorability of cognitive responses generated in reaction to the ad influences the valence of attitudes” (Lein, 2001, p. 301). The central route “emphasizes the information that a

person has about the attitude object or issue under consideration.” The persuasion that occurs from the central route “is based on a thoughtful consideration of the object or issue at hand” (Petty & Cacioppo, 1981, p. 256).

The other route of persuasion is called the peripheral route. Less thought (or elaboration) is involved with the peripheral route since attitudes are changed by peripheral cues such as “rewards or punishments with which the message is associated, or the judgmental distortions that take place in perceiving the message” (Petty & Cacioppo, 1981, p. 256). Factors such as attractiveness influence how messages are accepted through the peripheral route (Petty and Cacioppo, 1981).

The Elaboration Likelihood Model can be applied to visual communication and its influence on public perception. Cacioppo and Petty (1984) explained that people are “likely to attend to appeal” and “draw inferences about the merits of the arguments for a recommendation based upon their analyses of the data extracted from the appeal and accessed from memory” (p. 673).

### ***Summary of Literature***

It is increasingly important for agricultural groups to effectively communicate with the majority of the population that is disconnected from agriculture and their source of food (Brom, 2000; Goodwin & Rhoades, 2010; Terry & Lawver, 1995; Roberson, 2009). The Internet may be the most important outlet to focus on with its continuous growth as a primary information source (Gardyn, Dawidowska 2002; Pew Internet & American Life Project, 2011; Robins, Holmes, & Stansbury, 2010).

Research shows that visual design has an impact on perceptions of certain information and how people learn about a subject (Robins & Holmes, 2008; Robins et al.,

2010). Images and graphic especially affect a person's emotions (Lester, 2006). The Elaboration Likelihood Model is an effective model to understand how people are persuaded by visual design in websites (Robins et al., 2010) and could be used along with semiotics theory, as explained by Chandler (1994), to understand how users develop emotional responses to the visual composition of websites.

## **CHAPTER III**

### **METHODOLOGY**

#### ***Problem Statement***

Poor use of visual design may prohibit the general public from obtaining information (Robins et al., 2010) or wanting to learn about agricultural issues, topics, or policy. According to Cacioppo and Petty's (1984) elaboration likelihood theory, people are more likely to want to "engage in issue-relevant thinking" when information is more appealing, or they "draw inferences (from peripheral cues) about the merits of the arguments for a recommendation based upon their analyses of the data extracted from the appeal and accessed from memory" (p. 673). This research is meant to determine a person's attitude is more likely to change when information is presented in a more aesthetically pleasing manner. Agriculture seems to make a poor use of visual design in websites containing important information, and thus prohibiting viewers from engaging in "issue-relevant thinking" as a result.

#### ***Purpose and Research Questions***

The purpose of this study will be to evaluate perceptions of agriculture based on how information is presented visually within websites.

RQ1: How are webpage visitors' perceptions of agricultural issues and sources affected by visual design?

RQ2: What peripheral cues in websites are most important in visitors' formulation of opinions related to agricultural issues or organizations?

### ***Design of the Study***

This study was a qualitative study consisting of three focus groups. Focus groups “are a research method for collecting qualitative data, they are focused efforts at data gathering, and they generate data through group discussions” (Morgan, 1998b, p. 29). The use of focus groups is an effective way to perform qualitative research since they “draw on three of the fundamental strengths that are shared by all qualitative methods: (1) exploration and discovery, (2) context and depth, and (3) interpretation” (Morgan, 1998b, p. 12).

Since the study aimed to interpret and evaluate perceptions of agricultural issues and organizations, the use of focus groups was an optimal method. Focus groups can assist in interpreting how and why people think or act (Morgan, 1998b). They also allow the researcher to evaluate what the participants say to interpret their feelings, thoughts, and observations on the subject (Krueger, 1998a).

Focus groups are “not intended to generalize. Focus group research is conducted to gain a more complete understanding of a particular topic, such as motivation, behavior, feelings, decision making strategies, or just how certain people think about an issue or topic” (Krueger, 1998a, p. 69).

### ***Subjects and Subject Selection***

Prior to contacting subjects or constructing focus groups, the Institutional Review Board at the University of Arkansas approved this study (Appendix A). Participants in the study were required to complete an informed consent form prior to participating in the focus groups. The data collected was not associated with the participants’ names and the data was stored on a secure hard-drive and destroyed at the completion of the study.

Most focus group studies use purposive sampling based on the purpose of the study (Krueger, 1998a). Since the study sought to evaluate how public perceptions of agricultural and food related issues are affected based on aesthetic quality of websites, and university students represent the next generation of policy-makers and consumers (Terry & Lawver, 1995) and rely heavily on the Internet for information (Metzger, 2003), students from the University of Arkansas were chosen as the focus group participants. The negative image of agriculture industry and the public's increased concern of food safety, animal welfare, and environmental issues creates an importance of understanding these future policy makers and consumers perceptions so that the industry can effectively communicate with them (Terry & Lawver, 1995).

With the help of faculty at the University, the researcher chose an orientation class required for all students entering a major within the School of Human Environmental Sciences (HESC) at the University. The use of an orientation class within this college helped ensure a variety of students similar to the demographic the researchers wished to study: the average grocery shopper who is unfamiliar with agricultural practices. The majority of students within HESC are female with some male students; this is very close to the demographic of the average grocery shopper, which is 73% female with 14% falling within the 20-24 age range and another 21% falling in the 25-34 range (Carpenter & Moore, 2006). Most of the students in this orientation class are entering these age groups. The class consisted of two sections with a total of 134 students. The concentration of the students enrolled was 25 males and 109 females. A goal of 50 potential participants was set to over-recruit to ensure that enough participants

were selected, over-recruiting offers an “insurance” against limited results or participants (Morgan, 1998a).

The general rule for focus group studies is to obtain three or four groups to participate in a focus group study (Krueger, 1998a). After the initial signup of volunteers, 22 attended the meetings. Two groups contained 8 participants and another included 6. The focus group sessions were held in Fayetteville, AR. The teacher of the class offered bonus points for students who participated in the study, while the researchers offered cash as an incentive for participation (Morgan, 1998a).

The researcher met with each participant after class two weeks prior to the focus group sessions to personally invite the participants to attend the sessions and to remind them of the meeting location and time. Personalized invitations were also emailed to the selected participants a week prior to the session to remind participants that had forgotten (Krueger, 1994).

### ***Instrumentation***

Websites containing information on pink slime, or lean finely textured beef (LFTB), were chosen prior to the study due to the amount of media surrounding the subject at the time. A range of websites and viewpoints was easily accessible due to the timeliness of the topic during the study.

The websites were selected based on a rubric developed by the researchers. Since the researchers wanted to look at the effects of visuals on the perception of information that was both positive and negative towards the topic, two websites supporting the use of pink slime and two websites discussing a negative view were needed. A number of websites containing either positive or negative information were originally selected and

then narrowed down to four websites based on an aesthetic quality score (AQS). The AQS was a score developed by the researchers based on the following four categories: Images/Video, Organization (readability), Typography, and Colors (Robins et al., 2010; Williams & Tollett, 2007). These categories were also identified as peripheral cues based on the Elaboration Likelihood Model (Petty & Caciappo, 1981).

Table 1

*Website Evaluation Rubric*

<b>Website</b>	<b>Information</b>	<b>Images/Video</b>	<b>Organization</b>	<b>Typography</b>	<b>Colors</b>	<b>AQS</b>
#1	Positive	1	1	1	1	<b>4</b>
#2	Positive	0	0	0	0	<b>0</b>
#3	Negative	1	1	1	1	<b>4</b>
#4	Negative	1	0	0	0	<b>1</b>

The webpages used (Figure 2) were (1) a webpage with good aesthetic quality containing positive information about “pink slime” (or lean finely textured beef), (2) a webpage with poor aesthetic quality containing positive information about “pink slime”, (3) a webpage with good aesthetic quality containing negative information about “pink slime”, (4) a webpage with poor aesthetic quality containing negative information about “pink slime”.



Figure 2. Selected websites. From left to right, top to bottom: Website 1, Website 2, Website 3, and Website 4.

The webpages with good aesthetic quality were chosen as examples of good design (Williams & Tollett, 2007) and as examples of high elaboration through the peripheral route of Petty and Cacioppo's (1984) Elaboration Likelihood Model in mind. The webpages with poor aesthetic quality were similar to ones that were observed by the expert faculty panel that were unpleasant to look at and without principles of good design.

A questioning route was developed to guide the focus groups through their discussion of the webpages that were displayed and help the participants provide feedback on perceptions of the issues and the organizations displayed (Appendix B). The questions were developed based on the research questions of the study and guidelines

provided by Krueger (1998c) with the researchers interpretations of quality website design and credibility in mind.

### ***Pilot Test***

Pilot testing is recommended in focus group research (Krueger, 1998c). A pilot focus group discussion using similar subjects from a different department at the University of Arkansas was conducted a month prior to the actual focus group study. The pilot test took place in the same room that the actual focus group studies were conducted to observe sound quality and environment.

The pilot test was also used to evaluate the effectiveness of the webpages chosen and the questions that were developed to guide the focus group discussions. The pilot test was recorded like the actual focus groups would be so that the comments could be reflected upon to gain a better understanding of what needed to be improved upon for the real study. After completion of the pilot test, minor adjustments were made to the questioning route to allow the focus group discussion to flow more easily and to promote more focused discussions.

### ***Data Collection Procedures***

Three focus groups were used in the study to determine “variability of a concept or idea” (Krueger, 1998a, p. 72). Each of the focus group meetings lasted 90 minutes and was held in a room free of distractions. The participants were seated around a round table to encourage “face-to-face contact” (Krueger, 1998b). The sessions were held mid-afternoon on three Saturdays free of holidays in March 2012.

The focus group meetings used a planned questioning route to ensure better quality analysis by “minimizing subtle differences in questions that could alter the intent”

(Krueger, 1998c). At the beginning of each meeting, the moderator began with instructions and explaining the purpose of the group. After the introduction, the moderator had participants introduce themselves by answering descriptive questions as an ice-breaker and to allow the participants to get to know each other (Krueger, 1998d).

After the introduction, the participants were each allowed to view the webpages and given time to review the information. After each webpage was presented, a series of questions was presented to engage the participants in discussion about their perceptions of the topics, their perceptions of credibility, and how their perceptions changed between the pages containing similar information. The questioning route followed allowed the moderator to remain consistent for analysis (Krueger, 1998d). Introductory questions introduced the topic and allowed participants to produce conversations related to the overall topic (Krueger, 1998d). Transition questions were used to flow into key questions and allowed the participants to understand the topic better and discuss their present perceptions of the topics presented; key questions drove the study and promoted the heaviest part of discussions (Krueger, 1998d). The key questions promoted discussion of the peripheral cues that prompted the participants' perceptions after viewing the website. Ending questions were used to encourage participants to reflect on the previous discussions and summarize their perceptions of the websites displayed (Krueger, 1998d).

An assistant was present to take notes related to group consensus on a flip chart. At the end of each session, the notes and flip charts were reviewed to help gain summary of the group and provide final feedback on the group's opinions (Krueger, 1998a).

### ***Data Analysis Methods***

A digital audio recording was obtained from each meeting for the purpose of reviewing and interpreting after the sessions had ended. After the completion of each focus group, the researcher loaded the recorded audio onto a computer for later reviewing. Notes taken by the researchers and those of the participants were entered onto the computer as well. The recordings and notes were labeled to keep organized with each group. At the end of each session, the researchers discussed the points of the session and effectiveness of the questions to help guide the following session (Krueger, 1998a). A brief analysis of the recordings and notes from each group were analyzed afterwards to capture a “sense of the group and the mood of discussion” (Krueger, 1998a, p. 12)

Notes from flip charts were transcribed into Microsoft Word documents and imported into Nvivo 9 qualitative data analysis software to allow the researchers to code for emergent themes using constant comparative methods (Glaser & Strauss, 1967). The recordings of the discussions were then imported into Nvivo 9 to allow the researcher to code excerpts that further support emergent recurring themes and attitudes from key segments using thematic analysis with open and axial coding using Nvivo 9. The researchers were then able to identify key points in the discussions that were common throughout each website, as well as across each website.

After all three focus group sessions were completed; data from the three sessions was compared with each other. Opinions were used to compare design characteristics to perceptions. Concepts and themes that arose during the focus groups were used to identify key concepts (Lindlof & Taylor, 2002). This helped organize data and link the concepts to existing theory of design and persuasion.

### ***Credibility, Transferability, Dependability, and Confirmability***

In order to ensure that research was high in trustworthiness, the researcher took steps to include four criteria mapped out by Lincoln and Guba (1985). Consumers of research are naturally concerned with the trustworthiness of research and “credibility, transferability, dependability, and confirmability must be met to generate that confidence” (Lincoln & Guba, 1985, p. 328).

Validity is a term common in quantitative research, where instruments or tests are used as a “proxy for what was really measured” (Krueger, 1998a, p. 68). Focus group research is lacking in these types of proxies; therefore, discussions are measured to gain a deeper knowledge of feelings and thoughts (Krueger, 1998a). In qualitative research, such as focus groups, credibility is a more common measure. Credibility can be determined by ensuring that the analysis includes prolonged engagement, persistent observation, and triangulation (Lincoln & Guba, 1985). In the case of this study, all three techniques were included.

Prolonged engagement was achieved through the process of three focus groups lasting around an hour each. During these meetings, the researchers were able to engage with the participants through thoughtful discussion that was later evaluated. The study also used persistent observation through a process of recording key points on flip charts during the meetings and gathering thoughts after each meeting. Observation was continued after the completion of each meeting by transcribing flip chart data into Microsoft Word and coding for recurring themes in Nvivo 9 qualitative analysis software. Focus group recordings were also listened to for further coding and transcribing key

excerpts for further observation. The use of three focus groups and coding for emergent themes ensured triangulation of the findings.

Transferability is parallel to generalizability, which is more common in quantitative research, except that in qualitative research – it is the consumer of the research that determines if the research may be generalized to their situation.

“Transferability inferences cannot be made by an investigator who knows only the sending context” (Lincoln & Guba, 1985, p. 297). Qualitative researchers must provide detailed descriptions of methods and data to help future consumers of the research make generalizability judgments (Lincoln & Guba, 1985). To help ensure transferability, the researchers used methods of thorough description of methods and findings.

Dependability, similar to reliability, is important in qualitative research to ensure stability of the data for future use (Lincoln & Guba, 1985). Obtaining audio recordings of the focus group sessions and transcribing flip chart data helped promote dependability. This data was saved during the study and direct quotations were used in the results of the study. At the end of each focus group session, participants were also encouraged to review and confirm the flip chart notes relating to their discussions through a series of ending questions.

Confirmability can be related to objectivity, in that it helps ensure the truthfulness of the data, interpretations, and outcomes (Lincoln & Guba, 1989). This was achieved by recording group responses on flip charts and creating audio recordings of the sessions, which were later transcribed for safekeeping and analysis. The data and conclusions were also presented to a faculty research committee for review.

## CHAPTER IV

### RESULTS/FINDINGS

This chapter presents the findings from focus group sessions held during the study. The findings relate to both research questions:

RQ1: How are webpage visitors' perceptions of agricultural issues and sources affected by visual design?

RQ2: What peripheral cues in websites are most important in visitors' formulation of opinions related to agricultural issues or organizations?

The findings in this section are presented in order with the research questions. Emergent themes that occurred throughout the groups are organized with the research question they helped answer and are further described with excerpts from the group recordings.

A questioning route was developed by the researchers to guide the groups through discussion that would answer both research questions. Four websites were chosen containing information about pink slime, or lean finely textured beef, to be discussed in the focus group sessions. The sites were chosen based on a rubric developed by the researchers, and focus group participants discussed and ranked them based on the quality of visual design and information presented with the Elaboration Likelihood Model in mind (Petty & Cacioppo, 1981).

#### *Demographics*

Each meeting began with questions that asked the participants about themselves as an "ice-breaker" (Krueger, 1998d) and to help the researchers describe the demographics of each group to effectively understand the findings.

The groups were recruited from an orientation class in the School of Human Environmental Sciences at the University of Arkansas because of accessibility and to obtain participants from non-agriculture backgrounds that fit the demographic of grocery buyers since the majority of students within HESC are female with some male students. The common demographics for grocery buyers tends to be 73% female with 14 % falling within the 20-24 age range and another 21% falling in the 25-34 range (Carpenter & Moore, 2006). Females outnumber males within the School of Human Environmental Sciences nearly four to one. Most of the participants in the study were female, with 20 females participating in the study and two males (Table 1).

The participants were all closely related in age. Most of the participants were freshmen (12) and sophomores (7), with one junior and two seniors participating (Table 1), due to the subjects being recruited from a lower-level orientation class required for all students in the school.

Table 2

*Participant Demographics*

	<b>Participant #</b>	<b>Gender</b>	<b>Age</b>	<b>Classification</b>
Group 1	1	F	20	Sophomore
	2	F	19	Freshman
	3	F	19	Freshman
	4	F	20	Sophomore
	5	F	18	Freshman
	6	F	19	Freshman
	7	F	24	Junior
	8	M	19	Freshman

(table continues)

Table 2 (Continued)

*Participant Demographics*

	<b>Participant #</b>	<b>Gender</b>	<b>Age</b>	<b>Classification</b>
Group 2*	1	F	ND	Freshman
	2	F	ND	Sophomore
	3	F	ND	Sophomore
	4	F	ND	Freshman
	5	F	ND	Freshman
	6	F	ND	Freshman
Group 3	1	F	20	Sophomore
	2	F	30	Senior
	3	M	22	Senior
	4	F	19	Freshman
	5	F	19	Sophomore
	6	F	19	Sophomore
	7	F	19	Freshman
	8	F	19	Freshman

\*Group 2 did not provide ages.

***Characterization of Focus Groups***

Groups 1 and 3 had similar demographic characteristics, and the group dynamics were similar between these two groups. Each of the groups contained eight participants. There was one male in each of the groups and the rest were female. The participants interacted easily, struggling early in the discussions but opening up after the icebreaker.

Group 2 appeared to be different from the other groups in terms of demographics and dynamics. This group only consisted of six females. The interaction from this group was not as robust as in the other meetings. This could be due to the session being held late on a Friday afternoon and the lower amount of participants present. Interaction was stilted throughout the discussion, and some participants seemed preoccupied at times.

### ***Participant Familiarity with Agriculture***

After questions regarding age and classification, participants were asked how familiar they were with the agriculture industry. Overall, 69% of the participants were unfamiliar with the industry and only 31% were familiar. In Group 1, half the group claimed to have been from a farm family or have had family that was involved with farming. Only one person in Group 2 claimed to be familiar with agriculture and in Group 3, only two claimed to be familiar.

Table 3

#### ***Familiarity with agriculture***

<b>Group 1</b>	<b>%</b>	<b><i>f</i></b>
Familiar	50%	4
Unfamiliar	50%	4
<b>Group 2</b>		
Familiar	17%	1
Unfamiliar	83%	5
<b>Group 3</b>		
Familiar	25%	2
Unfamiliar	75%	6

### ***Other Important Observations***

To promote a transitional conversation before viewing the selected websites, as Krueger (1998c) suggests, participants were asked if they ever read about food or nutritional information on the web, what kinds of information they read about, and how they go about finding this information.

### *Information participants commonly researched*

Multiple participants in each of the focus groups shared two common agriculture-related topics that they seek information about on the Internet. All three groups agreed that they frequently seek out fitness and nutritional information on the Internet, as well as information about food safety issues. Group 1 and Group 2 both expressed that they also frequently consumed information about recipes via the Internet.

### *Popularity of phone applications*

The use of phone applications (apps) to research food and nutritional information was a common theme across the three groups. In fact, focus group discussions about use of Internet to find information focused on apps more than on websites. Participants in the groups expressed their preference for the ease of obtaining this information on phone apps.

Participant – Group 1: *A lot of people have iPhones or smartphones now and apps are really important, and I use a lot of apps that tell you what is healthy and what you should and shouldn't eat.*

Participant – Group 1: *Apps are accessible and at your hands.*

Participant – Group 3: *If you don't really have the time to sit down and look at a website, there are all types of apps you can download on your phone to keep up with information.*

The most common application mentioned by participants was *My Fitness Pal*. Participants in all three groups used *My Fitness Pal*, a popular app for tracking exercise and calorie intake (Duffy, 2011). When a participant mentioned *My Fitness Pal* in Group 1, multiple other participants interjected with “I love that app!” In Group 2, all the participants expressed agreement when the app was mentioned.

***RQ1: How are webpage visitors’ perceptions of agricultural issues and sources affected by visual design?***

The groups were then allowed to view each of the four websites. After viewing each website, the participants were asked questions that led to discussion that ultimately led to answers to each of the research questions. The main points of the groups’ discussions were recorded on flipcharts and then transcribed into text documents that could be analyzed for themes. The flipchart records became the basis for the following findings.

After viewing each website, the groups were asked to rank their initial perception of the site’s credibility on a scale of one to 10, most credible being a 10. After agreeing on a score for each site, the groups were asked to identify what specific elements affected this perception and then were asked to discuss which ones were most important.

Table 4  
*Group’s initial credibility ranking of websites*

Site	Ranking (1-10)		
	Group 1	Group 2	Group 3
#1	5	6	7
#2	4	3	4
#3	No Consensus (2-7)	5/6 (one said 0)	6
#4	0	2	8*

\*Site #4 was unexpectedly redesigned prior to Group 3’s session –this could contribute to the higher ranking.

*Website #1*

The first website viewed by the groups was a site that the researchers thought to contain a high quality of visual design and information favorable to the agriculture industry. The website observed was a blog belonging to a state-level special interest

group supportive of agriculture containing an entry as a response to the negative media coverage of pink slime.

Group 1's initial ranking of the site was a five; later in the discussion the group revised its ranking, increasing it to a seven after viewing the other three websites. While trying to rank the website, favorable qualities mentioned were the banner and layout, pictures, social media interaction on the site, tags, and links in the content.

Group 2's initial ranking of website #1 was a six. Visual elements that the group felt affected their decision were the author's byline at the end of the post, use of references/links within content, cleanliness/simplicity, search, and social media interaction.

Group 3 ranked website #1 as a seven, with two participants not agreeing and staying with a six and an eight. Participants expressed early on that the "blog-like look hurt [information] credibility." Other elements directly affecting their ranking were links in content, pictures, author byline, and frequent updating on the website.

### *Website #2*

The second website observed by the groups was identified by the researchers as a website with a low quality of visual design and containing content that was favorable to the agriculture industry. This website belonged to a state's stock growers association.

The initial ranking of website #2 by Group 1 was a four. During the time the group was given to decide on a ranking, the conversation included "it seems outdated," "the info is good," and ".org helps." The group listed the following as elements that negatively affected their perception: lack of photos, fonts (small text), colors (grey/brown background), and a blog-like look.

Website #2 was ranked as a three by Group 2. After deciding on their ranking of the website, the group listed the blog-like look, plain design, background, small type (fonts), and a views counter as negatively affecting their perception.

Group 3 ranked website #2 as a four. The group agreed that amateur design (color of layout), endless scrolling, lack of organization, lack of a search option, and a member's tab had negative effects on their perception of the website.

### *Website #3*

Website #3 was classified by the researchers as a website containing a high quality of visual design and content that was unfavorable towards the agricultural industry. This website was a news article from a popular online news source on the subject of pink slime.

Group 1 ranked could not reach a consensus on their ranking of the third website with their rankings ranging from two to seven. Visuals mentioned by the group that affected their perception were the amount of advertisements and a “never-ending sidebar” full of advertisements.

Group 2's ranking of website #3 was also disputed in the group with a final decision of a five or six and a participant feeling very strongly that the website was completely un-credible. Elements that the group felt affected their ranking were advertisements, pictures, links in the content, social media interaction (Facebook likes), and the author's name listed as “Reporter.”

The ranking of website #3 was a six for the majority of Group 3. Elements that affected the group's perception were business of the site and the amount of advertisements.

#### *Website #4*

The final website viewed by the participants was a chosen by the researchers as a website displaying poor use of visual design and containing information that was unfavorable towards the agriculture industry. This website was a blog consisting mainly of political commentary.

Group 1 ranked their perception of credibility of website #4 as a zero. Elements that the group listed as affecting their perception were random links within content, no banner image, poor punctuation, link treatments within the banner.

Group 2 ranked their perception of website #4 as a two. The group listed colors, fonts, advertisements, videos, and zero Facebook likes as elements that affected their perception.

Group 3 ranked website #4 much higher than the other two groups as an eight. Elements that affected the group's ranking were exclamation points, videos, organization, and a boiler plate.

***RQ2: What peripheral cues in websites are most important in visitors' formulation of opinions related to agricultural issues or organizations?***

After the participants were given time to reach a consensus on their ranking of the websites, the researchers asked questions to help identify which visual elements were most important in the ranking of their perceptions to help identify which peripheral cues are most important in the formulation of opinions. The participants were then asked to identify if the textual content of the site portrayed a positive or negative image of the topic. This question was followed by asking what visual elements would have helped

improve their perception to gain an idea of peripheral cues that might help them perceive the website as having higher credibility.

Table 5

*Group’s perception of content’s stance on the issue*

Site	Ranking		
	Group 1	Group 2	Group 3
#1	Positive	Positive	Positive
#2	Positive	Negative	Positive
#3	Negative	Negative	Negative
#4	Negative	Negative	Negative

*Website #1*

Group 1 agreed that the most important elements that affected their ranking of perception were the website’s banner and displayed social media interaction. The content of the website was identified as “positive” by the group. Visual elements that the group expressed to have negative effects on their ranking were the website’s blog-like look and categories listed at the bottom, the group also felt that the sides of the website “needed something.”

Group 2 expressed that the use of references and the author’s byline were the most important elements that affected their ranking. The group identified the content of the site to be “positive” about the subject of pink slime. Elements that the group felt negatively affected their perception of the website were a picture of ground beef and the use of “posted by” at the end of the article. The group would like to have seen actual pictures of pink slime in the website.

Group 3 expressed that pictures, byline, and links in the content were the most important in their ranking of the website's credibility. The website's content was identified as "positive" towards pink slime by the group. The group listed pictures of pink slime, pictures of production, links to original research (referenced in the article), and videos as elements they would wish to see.

#### *Website #2*

Group 1 agreed that lack of photos, fonts (small text), and colors (grey/brown background) were the most important elements affecting their decision. The group felt that the content of the site was "positive" towards the topic and that the content was "informative and neutral," which positively affected their ranking. Elements the group would have liked to see were pictures and better organization.

Group 2 ranked the elements that negatively affected their perception in order of importance as blog-like look, background, plain design, views counter, and small type (font). Participants expressed that they "hated" the background color and texture of the website. The group felt that the content of the website was "negative" towards the topic of pink slime. Visuals that would have improved the group's perception were pictures.

Group 3 agreed that the element that most negatively affected their perception of credibility were the amateur design (color of layout). In equal importance under the use of amateur design were endless scrolling, lack of organization, and lack of search option. The group felt that the content of the site was "positive" towards the use of pink slime, as well as informative. Elements that the group would have liked to have seen were pictures, research links, and data/fact links.

### *Website #3*

Group 1 spoke mainly of the amount of advertisements in website #3 as the elements effecting their perception of credibility. For most of the participants in the group, this was a negative effect. The group agreed that the content on the website was “negative” towards the topic of pink slime. Elements that Group 1 felt they would like to see on the website were a “video that actually played,” while speaking of a screenshot from a YouTube video used as a picture in the article. They also felt that a video supporting the view would have been helpful, as well as a “less biased view.”

When listed in order of importance, the elements that Group 2 felt were most important in their ranking of perception of credibility for website #3 were advertisements, pictures, links in content, and social media interaction (Facebook likes). The group agreed that the content of the website was “negative” toward the topic of pink slime, but felt that it was “well written.” The group listed links, logo, and a search bar as elements that they liked in the website. Advertisements, “news-like look,” and cluttered layout were listed by the group as elements they disliked. The group felt that nothing could help their perception of the website.

Group 3 felt that advertisements were the most important element that affected their perception of website #3, with business following. Some felt that the website was very “distracting” due to the amount of advertisements. The group agreed that the content in the website was “negative” toward the topic of pink slime. The group felt that better organization, pictures of production, a conclusion, and an author byline would help their perception.

#### *Website #4*

Group 1's ranking of website #4 was based on random links in content, lack of a banner image, poor punctuation (excessive use of exclamation points), and awkward link treatments in a navigation menu. The group felt that with the excessive use of exclamation points in the content, the information "looked like an organized rant". Participants in the group felt that the link treatments in a menu at the top of the page "looked like a mistake." The group agreed that the content in the website posed a "negative" view of pink slime. When participants were asked what could help their perception of the site, they replied with "delete the site."

When Group 2 ranked the elements that affected their perception they were placed in the following order: advertisements, videos, fonts, and colors. Videos in the content of the website were the only element that positively affected their perception. The group agreed that the content within the website presented a "negative" view of pink slime. Participants in Group 2 disliked the use of boxes, excessive exclamation points, link effects, poor spelling, and described the website as "ugly." Visuals that would have improved the group's ranking were creativity, more formal content, better fonts, better visuals, and a .org address.

Website #4 was unexpectedly redesigned with a WordPress blog layout prior to focus Group 3's session. This redesign gave the website a much higher quality of visual design. The textual content and amount of visual elements within the article stayed the same. Group 3 claimed that their ranking was affected most importantly by videos and organization. The group agreed that the content was "negative" toward pink slime. Removing a donation tab on the website would have improved Group 3's perception.

### *Recurring/Common Themes*

The following themes were identified as the most important peripheral cues due to the frequencies with which they were discussed (Table 6). The themes are presented in order of most frequent first and least frequent last. Excerpts from the transcripts of focus group audio recordings are provided along with each theme to exemplify the groups' sentiments.

Table 6

#### *Recurring/Common Themes*

<b>Theme</b>	<b>Group 1</b>	<b>Group 2</b>	<b>Group 3</b>
Advertisements	X	X	X
Background color and texture	X	X	X
Links within content	X	X	X
Fonts and typography	X	X	X
Blog-like appearance	X	X	
Pictures and videos	X	X	X
Amount of scrolling	X		X
Social media	X	X	
Quality of textual content	X		X
Bad link effects in banner	X	X	

#### *Advertisements*

Advertisements were a prominent visual feature of website #3. The website featured a sidebar full of advertisements that extended well beyond the main content of the site, as well as video ads and another bar of ads on the opposite side of the website.

The amount of advertisements in the website was discussed in all three groups. Group 1 listed “ads” and the “never ending sidebar” as the only visuals that negatively affected their perception of the site.

Participant – Group 1: *Too many ads, and pictures just distract you. I found myself looking over ads way too many times.*

Group 2 felt that the amount of advertisements was the most important factor in their ranking of website #3.

Participant – Group 2: *[the ads] make it seem like a tabloid website.*

Participant(s) – Group 3: *[the ads] are distracting.*

Group 2 also mentioned advertisements as a negative aspect of website #4.

#### *Background color and texture*

The background was a very unpopular feature of website #2. The website featured a greyish background with a texture. This was a feature of the website that affected the researcher’s ranking of the site, and all the groups also found this feature to be displeasing.

Each group listed the background in their top three negative elements of website #2.

Participant – Group 1: *What we first see is the grey, slashy background and small fonts and we don’t think it’s credible.*

Participant – Group 1: *If this website came up when I was looking for information, I would immediately look for another website – it looks old and outdated.*

Participant – Group 2: *[the background] looks like an old Power Point background.*

### *Links within content*

Website #1 was thought to be the best-organized site by the researchers due to its visually appealing layout. Each focus group, however, listed the use of links in the website's content as their favorite visual elements of the site.

Participant – Group 1: *You would hope it would be credible with these successful links, such as the American Farm Bureau.*

Participant – Group 3: *... the links make the site look well put together.*

### *Fonts and typography*

Font usage was an important element that the researchers considered in their ranking of visual quality in the websites. Group 1 and Group 2 both listed fonts, more specifically the extremely small text used in website #2 as an important element in their perception of the site.

Participant – Group 2: *I really don't like the font, and there are definitely too many words on the page.*

Participant – Group 2: *I don't really like the text, there is nothing bold or eye catching.*

In website #4, the content contained an excessive use of exclamation marks. Each group clearly emphasized their dislike of this usage. In Group 1, participants listed the excessive usage of capital letters and exclamation points as unprofessional and very important in their perception. Participants in Group 2 felt that the over use of exclamation points was “bad grammar.”

Participant – Group 1: *The font looks unprofessional.*

Participant – Group 1: *It looks like they wrote it in notepad and just inserted it into the site.*

Participant – Group 2: *I dislike their use of red and black type.*

### *Blog-like appearance*

The websites chosen for the groups to review were all similar to blog layouts except website #2, which the groups still felt looked like a blog due to how each article was posted in chronological order on the page. Groups 1 and 2 listed the blog-like look of website #1 as their most important element effecting their perception of the site.

Participant – Group 1: *This site looks like a blog once you get past the banner, and that brought down the credibility for me.*

Participant – Group 2: *It looks like a blog, and you really can't go off of what a blog says (referring to website #2).*

Although blog-like appearance seemed to hurt Groups 1 and 2's perceptions of website #1, the overall perception of website #4 was improved during Group 3's meeting when the layout was changed by the site's administrators to a cleaner blog-like layout. Group 3 did not mention blog-like appearance affecting their opinions of the other websites. The researchers thought this to be an important observation to note.

### *Pictures and videos*

The groups felt that photos and videos would help most of the websites seem more credible. For website #1, participants in Group 1 felt that the use of one picture in the content of the website helped their perception, but still would have liked to have seen more. Groups 2 and 3 also felt that the use of videos in the 4<sup>th</sup> website positively affected their perception.

Website #1 contained a photo of ground beef. Group 3 also felt that pictures of the production might help them better understand the topic.

Participant – Group 3: *I've seen pictures of pink slime on the Internet, and it gives you an idea of what you are eating. Isn't that just a picture of ground beef.*

Videos helped Group 2 and 3's perception of website #4.

Participant – Group 3: *It has three videos in a row, and one is from a news report. That's interesting, I would really want to stop and watch the videos. We haven't seen any videos on the other websites.*

#### *Amount of scrolling*

Groups 1 and 3 felt that scrolling was a negative element. This also contributed to Group 1's negative opinion of the blog-like look of website #2. Group 1 felt that the amount of scrolling was "annoying" and listed "endless scrolling" as negatively affecting their perception of the site.

Participant – Group 3: *There are just so many articles on the website, you just have to scroll and scroll and scroll.*

Participant – Group 3: *[the website] is just not very organized.*

#### *Social media*

Groups 1 and 2 felt that the evidence of social media on website #1 was an important element. The website featured a sidebar with links to the organization's Facebook, Twitter, and YouTube accounts and also gave viewers the option to easily share the article at the end of the content.

Participant – Group 1: *I like that social media is available for people to share.*

Participant – Group 1: *It shows they want to get it out there and see what people think.*

Group 2 felt that the website's social media evidence negatively affected their opinion.

Participant – Group 2: *Anyone can make a Facebook page and lie about what is on it – you have to decide if Facebook is credible or not.*

#### *Quality of textual content*

Groups 1 and 3 felt that the content of website #2 was the highest quality content in any of the websites they looked at.

Participant – Group 1: *I feel like if you put this information the layout of the last article, I would give it a 10. (The layout) is clean and organized and then what is being said makes since. She states her opinion, but she has more facts to back it up and seems more knowledgeable about the subject.*

Participant – Group 3: *What you see at the very beginning dictates whether you're going to read it or not.*

#### *Bad link effects in banner*

Groups 1 and 2 were bothered by a link effect in the banner of website #4. The effect made the links in the banner nearly impossible to read and group 1 felt that it looked like a mistake in the design.

Participant – Group 1: *The links cut the words off, and I wouldn't know if that was supposed to happen or not.*

Both groups viewed this site prior to the redesign in which the overall design and layout was changed.

#### **Key Findings**

- Participants' most common researched topics related to agriculture were fitness and nutritional information on the Internet and food safety issues.
- Phone apps were the most popular portal for agricultural related information researched by the participants.
- Websites chosen by the researchers that were considered to have a low quality of visual design were ranked much lower in their perception of credibility by the participants.
- Advertisements were found to have a negative effect on participants' perception of credibility.
- A grey/brown textured background immediately dropped participants' perception of credibility.

- Links within textual content to original sources were found to positively effect credibility.
- Poor font choices and small type very negatively affected participants' perceptions of credibility.
- Overuse of exclamation points and poor grammar negatively affected perceptions
- Blog-like layouts negatively affected participants' perceptions of credibility
- The use of pictures and videos were found to be the most common elements participants wanted to see more of.
- Websites that forced the participants to scroll to view information received negative perceptions.
- Evidence of social media interaction was found to be both a positive and negative factor in participants' perceptions of credibility.
- Quality of textual content helped improve participant perceptions after initial review.
- Poor link effects in a banner caused negative perceptions.
- A redesigned website with the same content placed into a cleaner WordPress theme improved the perceived credibility for a site during the last focus group.

## CHAPTER V

### CONCLUSIONS AND RECOMMENDATIONS

#### **Conclusions, Implications, and Recommendations**

The purpose of this study was to evaluate perceptions of agriculture based on how information is presented visually within websites. The research was intended to promote better usage of design in the agriculture industry. This section will present the conclusions reached as a result of the findings and recommendations for practice and future research.

#### **RQ1: How are webpage visitors' perceptions of agricultural issues and sources affected by visual design?**

Understanding how a person will perceive a website is extremely important. It is in the first few seconds that a person will form their perception of credibility for the source and for many organizations or issues; this first perception of credibility determines the viewer's first impression of the issue or organization (Robins & Holmes, 2008). The time of this initial perception development is also when the user's elaboration likelihood – or the likelihood that the person will look deeper into the subject – will be established (Petty & Cacioppo, 1981).

Quality of visual design is attributed to many elements in a website, for the case of this study – the factors observed and listed as important by the researchers were images/video, organization (readability), typography, and colors. These characteristics are in line with the important characteristics of quality websites as described by Robins et al. (2010) and Williams and Tollett (2007). These factors and other visual elements mentioned in the first discussions of the participants' perceived credibility fit into these

categories and can be described as peripheral cues, as defined by the Elaboration Likelihood Model (Petty & Cacioppo, 1981).

In the focus group sessions, participants were asked to work together to reach a group consensus of their perception of credibility ranked on a scale of 1 (least credible) to 10 (most credible). In all cases, except for one, the participants' rankings (Table 4) followed the rankings that were preconceived by the researchers (Table 1). That is, the focus group participants found the sites that were high in visual quality according to expert opinion and theory to be more credible than those with low visual quality. These rankings of initial perceptions of credibility were in line with previous research findings of Robins and Holmes (2007) and Robins et al. (2010), which showed that websites with higher visual quality were viewed by users as being more credible.

#### *Website #4*

The single outlying ranking, which occurred during focus Group 3 for website #4, is believed to have occurred due to an unpredicted redesign of the website prior to the Group 3 focus group session. The website was ranked as a zero by Group 1 and as a two by Group 2 (Table 4). Group 3, however, ranked the website as an eight.

The redesign of website #4 involved changes to the layout, but the content stayed the same. The new design of the website was a simple WordPress theme, which gave the site a much cleaner look. This is believed to be the cause of Group 3's much higher ranking of the website's credibility. The content, however, received the same negative comments from focus group discussants. There appears to be enough evidence to conclude that Group 3's higher ranking of website #4 was brought on by a higher quality

of visual design (Williams & Tollett, 2007), which in turn portrayed more positive peripheral cues (Petty & Cacioppo, 1981).

**RQ2: What peripheral cues in websites are most important in visitors' formulation of opinions related to agricultural issues or organizations?**

Participants were asked to identify specific visual elements, or peripheral cues, which were most important in their formulation of their perception of credibility when looking at the websites that were displayed. Peripheral cues, which influence the peripheral route of the Elaboration Likelihood Model, require less thought (or elaboration) when formulating an opinion (Petty & Cacioppo, 1981).

Attractiveness can influence how messages are accepted through the peripheral route (Petty & Cacioppo, 1981), and in the case of the study – attractiveness was measured by visual elements. Visual elements have been shown to have monumental effects on how people view a topic, issue, or organization (Lester, 2006; Messaris, 1997; Supa, 2006; Schill, 2008; Sadler-Trainor, 2005; Meyers & Miller, 2006; Glaze et al., 2010).

The most important peripheral cues in the case of this study were identified by how often they were became topics of conversation during focus group discussions and by how common they were across the groups. The most important cues, or themes, that occurred during the focus group sessions were (1) advertisements, (2) background color and texture, (3) links within content, (4) fonts, (5) blog-like appearance, (6) pictures and video, (7) scrolling, (8) social media presence, (9) quality of textual content, (10) bad link effects in a banner. For the most part, these themes represented conceptual characteristics (Table 1) from Robins et al. (2010) and Williams and Tollett (2007) that

were initially used by the researchers to choose the sites to be reviewed. These characteristics are listed below as parent categories. They include images/video, organization, typography, and colors.

### ***Images/Video***

Images and video were an important conceptual characteristic in determining which websites would be used in the focus group sessions. Images and videos are strictly visual elements, therefore clearly affecting the visual design of a website. Images were mentioned to be important in the formulation of opinions by previous research (Robins et al., 2010; Williams & Tollett, 2007). These findings add more weight to previous research showing that images affect emotions (Lester, 2006; Messaris, 1997; Chandler, 1994). The following elements fall into the category of images and video.

#### *Pictures and video*

As stated by Robins et al. (2010), images were one of the main visual qualities in measuring an effective website. Images, as well as video were qualities that improved participant perceptions on website #1 and #4. The participants also expressed that images and videos would improve their perceptions of the websites lacking images or containing very few, on the websites that images and videos helped their perceptions, they felt that more images or videos would still improve their rankings. Multiple participants felt that seeing pictures of production would further help improve their perception of the topic after reading the content.

#### *Advertisements*

The advertisements encountered by the participants in their reviewing of websites were typical web advertising including stationary ads as well as video advertisements.

Advertisements had a large effect on participant perceptions, particularly in website #3. This website was a high-traffic news source that was heavily populated with advertisements for products and services. It also included a sidebar containing images and headlines linking to popular stories within the website. Participants in all three groups felt negatively about the amount of advertisements on this website.

### ***Organization***

As stated by Williams and Tollett (2007), the content of a successful website should be clear and organized. Five elements arose that relate to the organization of the websites that were observed; these elements were links within content, blog-like appearance, advertisements, scrolling, and fonts and typography.

#### *Links within content*

Participants were particularly influenced by the usage of links in website #1, these links allowed them to view the original sources of information that the article referenced. Group 3 felt that the links made the website look “well put together.” The use of links throughout a site is a useful form of navigation throughout a website and can help people find out more useful information about a topic being talked about. Allowing people to see the source of information related to a topic or affecting a view expressed on a site improves credibility, just as in research. This extremely helpful when most times the credibility of a website is left to the consumer of the information to decide due to the lack of traditional methods of measuring accuracy found in journals or books (Metzger et al., 2003; Oliver et al., 1997; Robins et al. 2010).

### *Blog-like appearance*

Blogs and blog layouts are increasingly common for personal blogs and organizations, as well as for major news sources. In website #1, Group 1 and Group 2 felt that the blog-like appearance of the website hurt their perception of credibility.

It is important to note that Group 1 and Group 2 ranked website #4 very poorly and it was redesigned with a WordPress blog theme prior to the meeting of Group 3. The content stayed exactly the same, but when the layout was changed to a blog theme, Group 3 ranked the website much higher in credibility. Although Group 3 was unaware of the design change and did not mention blog-like look affecting their opinions of the other sites, the new blog design of website #4 apparently made the website much more visually appealing to the group, which also had a positive effect on the group's perception of the site's credibility.

Group 1 and 2's negative views on the blog-like appearance of website #1 could be due to their preconceptions that a blog should not be a credible information source. It was determined by the researchers that even though the use of a blog template hurts credibility; it is better than no template at all and a poorly designed and organized website, as seen in website #2.

### *Advertisements*

The researchers felt that the amount of advertisements in website #3 negatively affected the organization and layout of the website. A sidebar on the website extended well beyond the content of the article and was felt to be unappealing visually. Participants in all three groups felt negatively about the amount of advertisements in the website. Participants particularly felt that the advertisements were distracting.

### *Scrolling*

The amount of scrolling was an important issue affecting the organization of website #3 for Group 1 and Group 3. Participants felt that it was annoying and made the website not look organized. Website #3 was judged to be very poor in organization by the researchers. All articles in the website were posted in a single page, and there was no way to quickly jump to topics or articles. This poor organization made finding information within the website very difficult, according to the focus group participants.

### *Fonts and typography*

Fonts and typography affect a site's organization and make information much more readable by taking font size, letter spacing, and text size into account (Williams & Tollett, 2007). These elements were an issue of organization for Group 1 and Group 2 when viewing website #2. Group 2 felt that there were too many words on the page, making it difficult to read; another participant also noted that there was nothing bold or eye-catching about the page. The website and its endless listing of articles was very difficult to navigate already, and this was made worse by there being few differences in font size among text and various heading levels.

### *Quality of textual content*

Groups 1 and 3 felt that the content of website #2 was the highest quality of any of the websites. Group 1 noted that if the content of the website were to be placed in the layout of #1 that the credibility of website #2 would improve. Group 3 also noted that the initial view of the website (the layout) immediately negatively affected their opinion of the website.

Group 2 agreed that the content of website #2 posed a negative view of the topic. In reality, as judged by the researchers, the site actually provided reasons why pink slime wasn't bad for consumers. The researchers felt that this was due to their low perception of the website's design. This was determined by the researchers to be an example of the low attractiveness of the website prohibiting the group from elaborating on the subject through the peripheral route as Petty and Cacioppo (1981) noted.

### ***Typography***

Typography is an important aspect of web design (Robins et al., 2010; Williams & Tollett, 2007), as well as with other types of design. Typography includes font size, letter spacing, text size, and readability as listed by Williams and Tollett (2007). The following elements fall into the category of Typography.

#### *Fonts*

The researchers initially ranked websites #2 and #4 as having poor font choices and typography. Group 1 and Group 2 agreed with this. Participants felt that poor fonts in website #2 made the website difficult to read and felt that it contained nothing "bold or eye catching. Fonts also arose as an issue in website #4 just as an overuse of capital letters and exclamation points, this was felt to look unprofessional. Participants in Group 2 also listed the usage of black and red in the text as a negative aspect.

#### *Bad link effects in banner*

Website #4 displayed a visually displeasing link effect during Group 1 and Group 2 that made the words in the banner difficult to read. Group 1 felt that it was a mistake in the design of the website.

## ***Colors***

Colors and contrast in are important factors in the success of a website (Williams & Tollett, 2007; Robins et al., 2010; Lohr, 2008). The following elements fell into this category as the researchers predicted.

### *Background color and texture*

Participants in all three groups listed the background color and texture of website #2 as one of the most important elements to negatively affect their ranking. The website's greyish brown background and texture was felt to look old and outdated.

### *Fonts*

Group 2 disliked the use of black and red fonts in the content of website #4.

## **Recommendations for Practice**

The conclusions provide clear answers to both of the research questions. Based on the conclusions made, the agriculture industry could do better in a number of areas at presenting agricultural and food and nutritional information to the public on organizational websites. The following are recommendations for areas that could use improvement based on the conclusions.

### *Research Question One*

The findings and conclusions for research question one lead to some obvious recommendations for improvement in practice. Organizations could particularly do better at using cleaner, more modern layouts to present information. Groups were turned off by website #2 immediately due to its dated layout; however, after reading the content, they felt much better about the credibility of the source. This is supported by the findings of Robins and Holmes (2008), who found that users develop a perception of credibility in

the first 3.42 seconds of viewing a website. The elements affecting overall visual design are critical and must be improved in order to attract and hold users' attention by providing peripheral cues that affect users' initial perceptions, as described by Petty and Cacioppo (1981). Further specific recommendations related to these visual cues are provided below.

### *Research Question Two*

The conclusions for research question two led to several recommendations for improvements that could be made by agricultural communicators who design organizational websites. Focus group participants identified specific peripheral cues that they felt affected their perceptions. Analysis showed that the specific peripheral cues fell into the broader categories of good website design characteristics set forth by Williams and Tollett (2007) and Robins and Holmes (2010). Identifying these specific characteristics and where they fell in the broader categories allowed the researchers to more clearly explain important design flaws and make recommendations for avoiding them.

Specific peripheral cues (Cacioppo & Petty, 1984) pointed out by the participants fell into four parent categories: (1) images/video, (2) organization, (3) typography, and (4) color. Specifically, participants identified ten characteristics that affected their perceptions of credibility: (1) advertisements, (2) background color and texture, (3) links within content, (4) Fonts, (5) blog-like appearance, (6) pictures and video, (7) scrolling, (8) social media presence, (9) quality of textual content, (10) bad link effects in a banner.

As a result of these findings, the following recommendations can be made for agricultural communicators who develop websites that may attempt to communicate

important, sometimes controversial information about issues, policies, products, or services.

1. Be careful when using advertisements. Users felt that advertisements had a negative effect on the credibility of the source.
2. Using less busy and less dated backgrounds will improve the credibility of a website. Users were turned off by a website that had visually unappealing background color and texture but that had accurate information. As said by Lohr (2008), color can “make or break” a design (p. 265).
3. Users like to see links within content. The links allow users to navigate throughout the site or to other sources of information that serve as references. This usage helps improve credibility by letting users see the original source of information. Links improve credibility by helping the user in their own information assessment (Metzger, 2003).
4. The usage of fonts in a web design should be carefully planned. Fonts can help organize a site by adding weight to headers, adding emphasis to important points, and making the site more readable (Williams & Tollett, 2007). This can also improve the organization of the content (Lohr, 2008).
5. A blog-like appearance hurt participants’ perceptions of website #1; however, it improved Group 3’s perception of website #4. The researchers concluded that websites with poor organization could benefit from the cleanliness of a blog theme; but when a website is too blog-like in appearance, it actually hurts the credibility of a would-be credible source. Blog layouts are useful in creating a simple website; however, steps should be taken to remove the

common blog feel of the website, such as creating a visually appealing banner and removing common blog clutter from sidebars and footers of the website.

6. Users want to see pictures and video. Images and video positively affected participant perceptions in all cases in which they were encountered. Also, in all cases, participants still wanted to see more images and video.
7. Participants felt negatively about scrolling; particularly in website #2, which had no sort of organization to the page, just an endless listing of articles. Organizations should limit the amount of scrolling done by users and rather provide simpler methods of navigation.
8. Social media presence could improve the credibility of a website. In particular, users should be given the ability to share content. Researchers concluded that links to social media gave a sense of transparency to the organization in the eyes of the users.
9. Quality of content should never be ignored. Even in website #2, which was ranked the worst out of any of the websites in terms of credibility, the well-written content improved participant perceptions after users took the time to read it.
10. Website #4 possessed a poor linking effect in the banner of the website during the focus group sessions of Group 1 and 2. This effect seemed to be done purposefully as a design characteristic; but made the links difficult to read for the users, resulting in negative perceptions.

### *Other recommendations*

Fitness and nutritional information and food safety issues were common topics researched by participants. These topics provide direction for what types of agricultural information that organizations should spend time presenting. These topics are important to consumers, so the industry should move towards this trend and keep it in mind when popular topics arise.

The fact that students in each of the three group sessions expressed use of phone apps to consume food and nutritional information should also give direction to where focus should be placed. Organizations should either promote phone applications created by them or join forces with popular applications that users are using to gain the information already.

### **Recommendations for Future Research**

The findings and conclusions from this study shed light on areas where more research could be beneficial to the industry. Focus group research does not allow the findings to be generalized to outside populations due to the purposive sampling (Krueger, 1998a), but rather looks deeper into how and why people think or act (Morgan, 1998b). The generalizability therefore is left up to the consumer of the researcher to decide (Lincoln & Guba, 1985).

Further research should be conducted in the form of a survey or test that could include more random sampling of grocery shoppers in a certain area. This would allow the findings to be generalized to outside populations.

The researchers also felt that a larger focus group study could also be interesting. Particularly one that contained more focus groups and allowed researchers to evaluate the

effects of changing the design of a website, but including the same content, to recreate what happened when the design of website #4 was changed in the midst of this study.

Studying the ethnography of website development could also be useful. This would allow researchers to better understand why certain visual elements are used and how they could be used better to communicate the desired message. Ethnographic research would allow researchers to evaluate the production of websites and the decisions made through the process.

## REFERENCES

- Brom, F. W. A. (2000). Food, consumer concerns, and trust: Food ethics for a globalizing market. *Journal of Agricultural and Environmental Ethics*, 12(2), 127.
- Cacioppo, J. T., & Petty, R. E. (1984). The Elaboration Likelihood Model of Persuasion. *Advances in Consumer Research*, 11, 673-675.
- Carpenter, J. M., & Moore, M. (2006) Consumer demographics, store attributes, and retail format choice in the US grocery market. *Journal of Retail & Distribution Management*, 34(6), 434-452.
- Chandler, D. (1994). *Semiotics for beginners*. Retrieved from <http://www.polkfolk.com/docs/Ref-Library/Chandler/Daniel%20Chandler%20-%20Semiotics.pdf>
- Doerfert, D. L. (Ed.) (2011). *National research agenda: American Association for Agricultural Education's research priority areas for 2011-2015*. Lubbock, TX: Texas Tech University, Department of Agricultural Education and Communications.
- Duffy, J. (2011, September 21). My fitness pal (for iPhone). *PC Magazine*, Retrieved June 15, 2012 from <http://www.pcmag.com/article2/0,2817,2393270,00.asp>
- Garcia-Castanon, M., Rank, A. D., & Barreto, M. A. (2011). Plugged in or tuned out? Youth, Race, and Internet Usage in the 2008 Election. *Journal of Political Marketing*, 10(1/2), 115-138.
- Gardyn, R., & Dawidowska, K. (2002). SURFING 9-TO-5. *American Demographics*, 24(5).. Retrieved from EBSCOhost.
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: strategies for qualitative research*. Chicago: Aldine.
- Goodwin, J. N., Chiarelli, C., & Irani, T. (2011). Is perception reality? Improving agricultural messages by discovering how consumers perceive messages. *Journal of Applied Communication*, 95(3).
- Goodwin, J., & Rhoades, E. (2010). Animal rights vs. animal welfare: Is society able to distinguish the difference and make informed decisions on animal care legislation? . *Proceedings of the Southern Association of Agricultural Scientists 107th Annual Meeting*. Orlando, Florida: <http://agnews.tamu.edu/saas/2010/rhoades.pdf>.
- Greece, M. (2008). Tempering public opinion in the Internet age: When everyone is an expert. *Public Relations Strategist*, 14(1), 18-21
- Guba, E. G., & Lincoln, Y.S. (1989). *Fourth generation evaluation*. Newbury Park, CA: Sage.

- Krueger, R. A. (1994). *Focus groups: A practical guide for applied research*. Thousand Oaks, CA: SAGE Publications, Inc.
- Krueger, R. A. (1998a). *Analyzing & reporting focus group results*. Thousand Oaks, CA: SAGE Publications, Inc.
- Krueger, R. A. (1998b). *Planning focus groups*. Thousand Oaks, CA: SAGE Publications, Inc.
- Krueger, R. A. (1998c). *Developing questions for focus groups*. Thousand Oaks, CA: SAGE Publications, Inc.
- Lester, P. M. (2006). *Visual Communication images with messages* (4th ed.). Belmont, CA: Thomson Wadsworth.
- Lien, N. (2001). Elaboration likelihood model in consumer research: A review. *Proceedings of the National Science Council*, 11(4), 301-310.
- Lincoln, Y. S. & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage Publications, Inc.
- Lindlof, T. R., & Taylor, B.C. (2002). *Qualitative communication research methods*. Thousand Oaks, CA: Sage Publications, Inc.
- Littlejohn, S. (1992). *Theories of human communication*. Belmont, CA: Wadsworth Publishing Company.
- Lohr, L. (2008) *Creating graphics for learning and performance: lessons in visual literacy*. Upper Saddle River, NJ: Pearson Education, Inc.
- Messaris, P. (1997). *Visual persuasion: the role of images in advertising*. Thousand Oaks, CA: SAGE Publications Inc.
- Metzger, M. J., Flanagin, A. J., Eyal, K., Lemus, D. R., & McCain, R. M. (2003). Credibility for the 21st century: Integrating perspectives on source, message, and media credibility in the contemporary media environment. In P. Kalbfleisch (Ed.), *Communication Yearbook 27* (pp. 293-327). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.
- Meyers, C., & Miller, J. D. (2006). Evaluating genetically modified food labels: A Focus group study. *Proceedings of the 2006 Southern Association of Agricultural Scientists Annual Meeting, Agricultural Communications Section*. Orlando, Fla.
- Miller, J. D., Annou, M., & Wailes, E. J. (2003) Biotechnology: What's in a name? *Proceedings of the 2003 Southern Association of Agricultural Scientists Annual Meeting, Agricultural Communications Section*. Mobile, Alabama: Available at <http://bit.ly/wXTI4d>

- Morgan, D. L. (1998a). *Planning focus groups*. Thousand Oaks, CA: SAGE Publications, Inc
- Morgan, D. L. (1998b). *The focus group guidebook*. Thousand Oaks, CA: SAGE Publications, Inc
- The Nielsen Company (2012). Smartphones account for half of all mobile phones, dominate new phone purchases in the US. Retrieved from [http://blog.nielsen.com/nielsenwire/online\\_mobile/smartphones-account-for-half-of-all-mobile-phones-dominate-new-phone-purchases-in-the-us](http://blog.nielsen.com/nielsenwire/online_mobile/smartphones-account-for-half-of-all-mobile-phones-dominate-new-phone-purchases-in-the-us)
- Oliver, K. M., Wilkinson, G. L., & Bennett, L. T. (1997). *Evaluating the quality of internet information sources*. Retrieved from EBSCOhost.
- Petty, R. E., & Cacioppo, J. T. (1981). *Attitudes and persuasion: classic and contemporary approaches*. Dubuque, IA: Wm. C. Brown Company Publishers.
- Pew Internet & American Life Project. (2011). Online Activities 2000-2009. Retrieved from [http://www.pewInternet.org/Trend-Data-\(Adults\)/Online-Activities-20002009.aspx](http://www.pewInternet.org/Trend-Data-(Adults)/Online-Activities-20002009.aspx)
- Rhoades, E.B., & Irani, T. 2008. "The stuff you need out here." A Semiotic analysis of an agricultural company's advertisements. *Journal of Applied Communications*, 92(3&4). Retrieved from [http://journalofappliedcommunications.org/images/stories/issues/2008/JACv92n3-4\\_analysis.pdf](http://journalofappliedcommunications.org/images/stories/issues/2008/JACv92n3-4_analysis.pdf).
- Roberson, R. (2009, December). Future farming challenges. *Delta Farm Press*, Retrieved from <http://www.deltafarmpress.com/management/future-farming-challenges>
- Robins, D., & Holmes, J. (2007). Aesthetics and credibility in web site design. *Information Processing and Management*, 44(1), 386-389.
- Robins, D., Holmes, J., & Stansbury, M. (2010). Consumer health information on the Web: The relationship of visual design and perceptions of credibility. *Journal of the American Society for Information Science & Technology*, 61(1), 13-29.
- Ruth, A., Bortree, D., Ford, R., Braun, S., & Flowers, K. (2005). Web site media relations: A new direction for agricultural public relations professionals. *Journal of Applied Communications*, 89(1), 9-23.
- Schill, D. (2008). The visual image and the political image: finding a place for visual communication in the study of political communication. *Conference Papers -- International Communication Association*, 1-46. Retrieved from EBSCOhost.
- Smith, A. (2012). Nearly half of American adults are smartphone owners. *Pew Internet & American Life Project*. Retrieved from <http://pewinternet.org/Reports/2012/Smartphone-Update-2012/Findings.aspx>

- Supa, D. (2006). Understanding the role visuals play in cognitive and affective persuasion processes: review and implications. *Conference Papers - International Communication Association, 1-20*. Retrieved from EBSCOhost.
- Terry Jr., R. & Lawver, D. E. (1995). University students' perceptions of issues related to agriculture. *Journal of Agricultural Education, 36*(4), 64-71.
- United States Department of Agriculture (USDA), National Institute of Food and Agriculture (NIFA): *About us*. (2010, March 22). Retrieved from <http://www.csrees.usda.gov/qlinks/extension.html>
- U.S. Census Bureau. (2011). *Internet use in the United States*. October 2009. Washington, DC. Retrieved from <http://www.census.gov/population/www/socdemo/computer/2009.html>
- U.S. Census Bureau. (2011). *Statistical abstract of the United States*. Washington, DC: Government Printing Office
- Williams, R., & Tollett, J. (2007). *Robin Williams design workshop*. Berkeley, Ca.: Peachpit Press.

**APPENDIX A**  
**IRB APPROVAL LETTER**



*Office of Research Compliance  
Institutional Review Board*

April 9, 2012

MEMORANDUM

TO: Chase Hundley  
Jeff Miller

FROM: Ro Windwalker  
IRB Coordinator

RE: New Protocol Approval

IRB Protocol #: 12-03-625

Protocol Title: *Aesthetic Quality of Agricultural Websites and its Effect on Public Perceptions of Agricultural Topics, Issues, and Organizations*

Review Type:  EXEMPT  EXPEDITED  FULL IRB

Approved Project Period: Start Date: 04/06/2012 Expiration Date: 04/05/2013

Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. This form is available from the IRB Coordinator or on the Research Compliance website (<http://vpred.uark.edu/210.php>). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval. Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

**This protocol has been approved for 36 participants.** If you wish to make *any* modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 210 Administration Building, 5-2208, or [irb@uark.edu](mailto:irb@uark.edu).

210 Administration Building • 1 University of Arkansas • Fayetteville, AR 72701  
Voice (479) 575-2208 • Fax (479) 575-3846 • Email [irb@uark.edu](mailto:irb@uark.edu)

The University of Arkansas is an equal opportunity/affirmative action institution.

## APPENDIX B

### PARTICIPANT CONSENT FORM



Department of  
Agricultural and Extension Education



205 Agriculture Building, University of Arkansas, Fayetteville, AR 72701-1201  
479-575-2035 • Fax: 479-575-2610 • [aeed.uark.edu](http://aeed.uark.edu)

#### Statement of Informed Consent

I, \_\_\_\_\_, agree to participate in this focus group project on “Aesthetic quality of agricultural websites and its effect on public perceptions of agricultural topics, issues, and organizations” that is being conducted by Chase Hundley from the University of Arkansas.

I understand that the purpose of this study is to hold a group interview to evaluate perceptions of agriculture based on how information is presented visually within websites.

I understand that the study involves an audio-recorded focus group interview that lasts up to two hours.

I understand that my participation in this study is entirely voluntary, and that if I wish to withdraw from the study or to leave, I may do so at any time without any reasons or explanations for doing so. If I do withdraw from the study, I understand that this will have no effect on my relationship with the University.

I understand that data collected during the interviews will be private and kept completely secure. To prevent violations of my own or others’ privacy, I have been asked not to talk about any of my own or others’ private experiences that I would consider too personal or revealing.

I also understand that I have an obligation to respect the privacy of the other members of the group by not disclosing any personal information that they share during our discussion.

I understand that all the information I give will be kept confidential and names of others and myself within the study will not be associated with the data.

I understand that the researchers will answer any questions I have about the study or my expectations.

I have fully read and understand this information and agree to take part in this study.

Today’s Date \_\_\_\_\_ Signature \_\_\_\_\_

If you have questions or concerns about this study, please contact one of the researchers listed below. For questions or concerns about your rights as a research participant, please contact the University’s IRB Coordinator below.

**Researchers:**  
Chase Hundley  
205 Agriculture Building  
University of Arkansas  
[chundle@uark.edu](mailto:chundle@uark.edu)  
479-575-4352

Dr. Jeff Miller  
205 Agriculture Building  
University of Arkansas  
[jdmiller@uark.edu](mailto:jdmiller@uark.edu)  
479-575-5650

**IRB Coordinator:**  
Ro Windwalker  
210 Administration Building  
University of Arkansas  
[irb@uark.edu](mailto:irb@uark.edu)  
479-575-2208

*The University of Arkansas is an equal opportunity/affirmative action institution.*

## APPENDIX C

### QUESTIONING ROUTE

**Moderator reads:**

Hello, thank you for agreeing to participate in this study. My name is Jeff Miller and I represent the University of Arkansas Agricultural and Extension Education Department. Assisting me is Chase Hundley, also from the U of A Agricultural and Extension Education Department. The purpose of this meeting is to find out more about how consumers are affected by the visual elements of websites presenting agricultural, food, and nutritional information.

Today we will be looking at 4 websites containing agricultural, food, and nutritional information and discussing certain aspects of the sites. You were chosen to participate because we feel that you meet the demographic we would like to observe. We feel that you will be the consumers who will be important for the agricultural industry to communicate this information to in the near future. Your views are important because they could be close to others your age.

Before we start our discussion, I would like to let you know that there are no right or wrong answers. Everyone is encouraged to share their point of view, even if it is different from others. Please make sure to voice your opinion, and only one person should speak at a time. We are audio recording the discussion and will be gathering group consensus opinions on a flipchart to allow us to later transcribe data that you are providing. Your names will not be associated with the opinions collected.

My role is only to moderate discussion and will not be participating in conversation, but please feel free to talk to one another. I'll be asking a number of questions and helping move the discussion between questions. It is important for us to hear everyone's opinion, so if a person is sharing a lot, I may ask you to let others speak. If you are not saying very much, I may ask you for your opinion.

This session should last no more than an hour. If you must have your cell phone on, please leave to answer and return as soon as possible. We have placed name cards on the table to help us remember each other's names.

I will be reading from a script to ensure consistency among groups. Let's begin.

**Introductory:**

Let's start with introducing yourselves. What is your name? Where are you from? How old are you? What year are you in school? We'll just go around the table.

**Moderator reads:** Now, I have some questions for the group. Anyone can answer, and anyone can comment in any order.

**Transition:**

How familiar are you with the agricultural industry? Did you grow up around farming?

Do you ever read information about food or nutrition on the web?

What types of information do you read about food? How do you go about finding this information?

Are there any websites you rely on heavily for this information? What are they?

**Moderator Reads:**

We have selected 4 websites containing information about “lean finely textured beef” or “Pink Slime.” We will now give you each a chance to view the first website. Examine all parts of the site, including titles, content and visuals. Stay on the page, but make a mental note of links you would have clicked on. You have 3 minutes.

**Key:**

How credible do you view this source – including the website and the organization that sponsors it? Work together to rank this on a scale of 1 (not credible) to 10 (most credible).

What visual elements of the website have helped form your opinion of credibility? As a group, please work together to rank these in order of importance.

Now as we look at the textual information itself, does the article present a negative or positive view of “pink slime” or LFTB as a marketable product?

What do you like or dislike about the design of this site?

Are there any visual elements you would like to see that might help you better understand the topic? As a group, please work to rank these in order of importance.

Are you familiar with the website this information is presented on? If so, what do you know about the organization?

**Moderator reads:**

We will now look at website number two.

**Key:**

How credible do you view this source – including the website and the organization that sponsors it? Work together to rank this on a scale of 1 (not credible) to 10 (most credible).

What visual elements of the website have helped form your opinion of credibility? As a group, please work together to rank these in order of importance.

Now as we look at the textual information itself, does the article present a negative or positive view of the topic?

What do you like or dislike about the design of this site?

Are there any visual elements you would like to see that might help you better understand the topic? As a group, please work to rank these in order of importance.

Are you familiar with the website this information is presented on? If so, what do you know about the organization?

**Moderator reads:**

We will now give you time to view website number three.

**Key:**

How credible do you view this source – including the website and the organization that sponsors it? Work together to rank this on a scale of 1 (not credible) to 10 (most credible).

What visual elements of the website have helped form your opinion of credibility? As a group, please work together to rank these in order of importance.

Now as we look at the textual information itself, does the article present a negative or positive view of the topic?

What do you like or dislike about the design of this site?

Are there any visual elements you would like to see that might help you better understand the topic? As a group, please work to rank these in order of importance.

Are you familiar with the website this information is presented on? If so, what do you know about the organization?

**Moderator reads:**

We will now give you a chance to view website number four.

**Key:**

How credible do you view this source – including the website and the organization that sponsors it? Work together to rank this on a scale of 1 (not credible) to 10 (most credible).

What visual elements of the website have helped form your opinion of credibility? As a group, please work together to rank these in order of importance.

Now as we look at the textual information itself, does the article present a negative or positive view of the topic?

What do you like or dislike about the design of this site?

Are there any visual elements you would like to see that might help you better understand the topic? As a group, please work to rank these in order of importance.

Are you familiar with the website this information is presented on? If so, what do you know about the organization?

**Moderator reads:**

As I explained at the beginning of the discussion, the purpose of this meeting was to discuss how consumers are affected by the visual elements of websites presenting agricultural, food, and nutritional information. Your comments and opinions are assisting us in a research project that aims to aid the agricultural industry in communicating important information to consumers who are unfamiliar with the topics. Your examinations of these websites have helped us understand what visual elements on webpages containing agricultural information affect your perceptions of the topics. We will now look at the conclusions we gathered in notes from group consensus.

(Show notes)

**Concluding:**

Is there anything you feel that we have missed or any other comments you would like to add?

**Moderator reads:**

Thank you for taking time out of your day to assist us with this project. Your participation has been helpful. As you leave, you will receive your incentive for participation. We will be informing Dr. Warnock of your participation to ensure that you receive your promised bonus points in her class. Thank you, once again.