ASSESSING THE ONLINE CONTENT ON AGRABILITY PROJECT WEBSITES

A Thesis in
Agricultural and Extension Education

by

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ABSTRACT

This research study assesses the online content presented on AgrAbility project websites. The population for this study included the National AgrAbility Project (NAP) and the State and Regional Projects (SRAPs) associated with AgrAbility. The population was further broken down into two groups: project websites and project webmasters. A webmaster is the person who maintains a particular website. The study design was a combination of quantitative content analysis and descriptive survey research. The content analysis determined the types of content presented, image categories, messaging appeals, frames and usability elements used on AgrAbility project websites. Secondary data from webmaster surveys revealed two significant correlations between website content and survey responses.

The aim of the study was to determine what makes AgrAbility project websites usable and effective. The data collected from the study was used to recommend and create a template of what a successful AgrAbility project website could look like. Findings from this research may influence creating cohesive and usable content to better serve AgrAbility clients and team members. All websites and webmaster responses were included in the study because the population was small. The small population of AgrAbility projects indicates that results are not generalizable to the public, only to AgrAbility projects and interested publics.
# TABLE OF CONTENTS

**LIST OF FIGURES** ........................................................................................................... vii  
**LIST OF TABLES** ........................................................................................................ viii  
**ACKNOWLEDGEMENTS** ............................................................................................... viii

<table>
<thead>
<tr>
<th>Chapter 1  Introduction</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Importance of Agriculture in the United States</td>
<td>1</td>
</tr>
<tr>
<td>Importance of Agricultural Communications</td>
<td>2</td>
</tr>
<tr>
<td>Formation of AgrAbility</td>
<td>3</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>5</td>
</tr>
<tr>
<td>Need for the Study</td>
<td>6</td>
</tr>
<tr>
<td>Purpose and Objectives</td>
<td>6</td>
</tr>
<tr>
<td>Conceptual/Theoretical Framework</td>
<td>7</td>
</tr>
<tr>
<td>Assumptions of Study</td>
<td>8</td>
</tr>
<tr>
<td>Limitations of Study</td>
<td>8</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 2  Review of Literature</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose of Study</td>
<td>11</td>
</tr>
<tr>
<td>Content Analysis</td>
<td>13</td>
</tr>
<tr>
<td>Framing</td>
<td>15</td>
</tr>
<tr>
<td>Messaging Appeals and Frames</td>
<td>17</td>
</tr>
<tr>
<td>Use and Usability</td>
<td>19</td>
</tr>
<tr>
<td>Internet Use Among Farmers and Rural Areas</td>
<td>22</td>
</tr>
<tr>
<td>Summary</td>
<td>25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 3  Research Methodology</th>
<th>26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose and Objectives</td>
<td>26</td>
</tr>
<tr>
<td>Population and Sample Description</td>
<td>27</td>
</tr>
<tr>
<td>Research Design</td>
<td>28</td>
</tr>
<tr>
<td>Variables</td>
<td>29</td>
</tr>
<tr>
<td>Instrumentation and Data Collection</td>
<td>29</td>
</tr>
<tr>
<td>Data Analysis and Interpretation</td>
<td>31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 4  Research Findings</th>
<th>34</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose and Objectives</td>
<td>34</td>
</tr>
<tr>
<td>Population and Sample</td>
<td>34</td>
</tr>
<tr>
<td>Media Content</td>
<td>37</td>
</tr>
<tr>
<td>Messaging Appeals and Frames</td>
<td>39</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 1: Content Analysis Design ............................................................. 8
Figure 2: Study Design ........................................................................ 28
**LIST OF TABLES**

Table 1: Scales of Measurement for Research Objectives ........................................ 32
Table 2: AgrAbility Projects Included in Content Analysis and Survey ...................... 35
Table 3: Frequency of Informative Elements ............................................................ 37
Table 4: Presence of Images .................................................................................... 38
Table 5: Image Content ........................................................................................... 39
Table 6: Messaging Appeals .................................................................................... 40
Table 7: Frames ....................................................................................................... 41
Table 8: Presence of Usability Elements .................................................................. 41
Table 9: Additional Usability Elements .................................................................... 42
Table 10: Number of Tabs and Pages ..................................................................... 42
Table 11: Identification of Tabs and Pages .............................................................. 43
Table 12: Ranking of Organizational Elements ...................................................... 44
Table 13: Webmaster Survey Response ................................................................. 45
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Importance of Agriculture in the United States

The United States agriculture sector has grown tremendously over the years, and extends well beyond the farm. In 2014, agriculture and agriculture-related industries contributed a 5.7 percent share to the U.S. gross domestic product (GDP), which translates into a sum of $985 billion. The total output of American farms contributed $177.2 billion of this sum, which is about 1 percent of GDP (USDA Economic Research Service-ERS, 2016). Although farming as a career or main source of income has decreased for many, U.S. agricultural productivity has increased over time. Advancements in technology and mechanization contribute to this productivity (USDA-ERS, 2016). Agriculture and related industries provide employment to about 10 percent of people in the United States. In 2014, 17.3 million full and part-time jobs were agriculture-related. Of the 17.3 million jobs, 2.3 million were direct on-farm jobs (USDA-ERS, 2016).

In the early 20th century, agriculture was labor intensive. It took place on many small, diversified farms in rural areas where more than half of the U.S. population lived (USDA-ERS, 2016). These farms employed close to half of the U.S. workforce, along with 22 million work animals, and produced an average of five different commodities (Dimitri, Effland, Conklin, & USDA-ERS, 2005). Since then, farms in the United States have grown larger and become more mechanized and specialized. Agricultural production in the 21st century concentrates on a small number of large, specialized farms
in rural areas where less than a fourth of the U.S. population lives (USDA-ERS, 2016). These extremely productive and mechanized farms employ a small share of U.S. workers and use 5 million tractors in place of the horses and mules of the past (USDA-ERS, 2005). Despite the growth of large scale industrial farming, family farms are still prevalent. According to the USDA Economic Research Service, “Family farms of various types together accounted for nearly 99 percent of U.S. farms. Small family farms account for 90 percent of all U.S. farms. Large-scale family farms account for about 3 percent of farms but 55 percent of the value of production.”

**Importance of Agricultural Communications**

Throughout the evolution of agriculture, the need to communicate agricultural related issues has and remains vital. Agricultural communications is a branch of the communications field that many people within the general public are unaware of. Agricultural communications is defined as “the exchange of information about the agricultural and natural resources industries through effective and efficient media, such as newspapers, magazines, television, radio, and the Web, to reach appropriate audiences,” (Telg & Irani, 2012, p. 4). Agricultural communications as a profession in the United States began in the 1800s to meet the need of sharing practical information about farming and home economics. Tucker, Whaley, and Cano (2003) state that in the beginning, agricultural communicators needed an in-depth knowledge of journalism, communication, and farming. A major contribution that helped develop the field occurred in the 1920s, with the incorporation of radio and movies as sources of information and entertainment (Tucker, Whaley & Cano, 2003). As the role of agricultural communicators
grew, so did the need for proper education. Agricultural communication has roots in agriculture and science, home economics (i.e. family and consumer sciences), and communications (Telg & Irani, 2012).

According to Echaore-McDavid and McDavid (2011), agricultural communicators can be identified as agricultural journalists and agricultural communications specialists. An agricultural journalist’s duties consist of providing objective and unbiased news reports about agricultural events, issues, and other topics. This includes producing news for print, online, and broadcast media. Alternate names for agricultural journalists are titles typically found in journalistic organizations, such as newspaper reporter, TV reporter, staff writer, editor, or photographer (Echaore-McDavid & McDavid, 2011).

Agricultural communications is making the shift toward new delivery methods such as, Web pages, online videos, and social media. Communicators are learning that these new delivery methods and techniques are becoming more important in reaching audiences, and are now learning how to integrate these technologies into their delivery methods (Telg & Irani 2012). As the world and audiences change, professionals need to keep up and provide publics with information via the appropriate delivery methods.

**Formation of AgrAbility**

According to the U.S. Census Bureau’s 2011-2015 American Community Survey 5-Year Estimates, more than 8.8 million people in the U.S. rural, civilian noninstitutionalized population have disabilities (Rural Health Information Hub, 2015). For farmers living and working with a disability, it is often a struggle to find and obtain
the correct modifications needed to improve their condition and make working less painful. Awareness of these health disparities and solutions to help alleviate them are crucial to minimize additional health-related problems (Hunter, et. al., 2011). Due to this need, AgrAbility was created through the 1990 Farm Bill (The Food, Agriculture, Conservation, and Trade (FACT) Act of 1990). In 1991, the first eight State and Regional AgrAbility Projects (SRAPs) were funded. The mission or goal of AgrAbility is to enhance the quality of life for farmers, ranchers, and other agricultural workers with a disability. The National AgrAbility Project (NAP) and SRAPs each maintain partnerships between land grant universities and at least one non-profit disability organization. Today there are 26 SRAPs. All AgrAbility Projects report to the USDA Cooperative State Research, Education, and Extension Service in Washington, D.C. (National AgrAbility Project Website, 2016).

The AgrAbility Program involves extension educators, disability experts, rural professionals and volunteers in offering a selection of services. According to Therese Wilkomm from the Agricultural Safety and Health Network, “These services include on-site farm assessments and technical assistance to determine appropriate modifications that will help to accommodate disability, education to prevent further injury and disability, training for extension educators and rural professionals to upgrade their skills in assisting farmers with disabilities, and development and coordination of peer support networks” (Willkomm, 2001, p. 2).

AgrAbility Projects’ main outreach efforts are paper based and in-person presentations or displays. To reach out to a larger audience, SRAPs created websites with information about their projects. Many of the websites are linked through the university’s
Cooperative Extension. Social media use by SRAPs has grown, in hopes of reaching a broader audience. Due to the decline of farming as a profession in the United States, it is crucial for AgrAbility to maintain its outreach efforts to help farmers stay in farming, and encourage military veterans and young farmers to establish a career in the agricultural industry.

**Statement of the Problem**

The population of farmers is growing in age, and as people age they encounter disabilities. Because of this, the need for new and young farmers is even greater. Additionally, with a growing veteran population coming back home, it is important for them to find jobs that will enable them to transition back into civilian life. Many veterans find that working in the agricultural industry is a great transition (A. Spackman, personal communication, October 2015). In order to help both the aging and new population of farmers with a disability, AgrAbility Projects across the United States have websites as a form of outreach that display information about AgrAbility and how it can help this population. Many people look to the internet as the easiest and most convenient way to receive information, but many farmers have limited access to the internet (USDA-NASS, 2015). Additionally, AgrAbility Projects are located in only 26 states and each website differs in content. The use of the internet can help improve partnerships among existing projects and expand to states that do not have a project. Although a large proportion of information about AgrAbility Projects is located on their websites, there is no evidence on the effectiveness and use of this information for the target audience.
Need for the Study

Studies have been completed on various aspects of AgrAbility. However, minimal information is available regarding the content provided by AgrAbility Projects on their program websites, how current and prospective clients can use that information, and if the information is consistent across all projects. This research study is the first attempt to examine the online information efforts of AgrAbility Project websites. In order to better serve the target audience, assessment of the online content must be conducted. The content analysis will determine the content, image categories, messaging appeals, and frames used. Additionally, the information obtained from the content analysis and email-administered surveys with each AgrAbility project webmaster can help explain issues of use and usability of the online content. The goal of this study is to create a template that all SRAP websites can follow to ensure a successful web experience for current and prospective AgrAbility clients. The recommendation for a template will also facilitate uniformity across all AgrAbility websites, resulting in easier access and cohesive information.

Purpose and Objectives

The purpose of this study was to assess the online content on AgrAbility project websites and discover content, image categories, messaging appeals, and frames that emerge through how the content is presented. Additional information regarding online content for each AgrAbility project website was obtained through email-administered surveys with each project’s webmaster. The following research objectives were developed:
1. Determine the types of media content on AgrAbility project websites,
2. Determine the messaging appeals and frames on AgrAbility project websites,
3. Identify the use and usability elements of the information presented on the
   AgrAbility project websites, and
4. Determine if correlations exist between content analysis and Webmaster
   survey results.

**Conceptual/Theoretical Framework**

The conceptual framework for this study is shown in Figure 1. As shown, Figure
1 represents the simplest content analysis design (Krippendorff, 2013), with the addition
of data collected from the Webmaster survey. Content analyses involve four phases:
variable construction, sampling, observation, and analysis. The variable constructions are
the characteristics or themes of the texts that will be analyzed and how they will be
observed. Sampling involves selecting the texts that will be analyzed. Observation is the
code or measure or each text for the characteristics or themes. Analysis is the collection
of measurements and making numerical descriptions of the text. Numerical descriptions
refer to the assignment of numbers to text in order to analyze it statistically.

This study involved constructing characteristics or themes for how the AgrAbility
websites were analyzed, selecting the text as AgrAbility project websites, coding the
websites based on selected characteristics or themes, and the final analysis of the
collection of data. The data collected from the content analysis was compared to the data
collected from the Webmaster surveys to discover any correlations.
Assumptions of Study

The main assumptions of the study are that all AgrAbility Projects have a website and the person who completes the email survey is the webmaster of each particular project’s website.

Limitations of Study

The main limitations of the study are the small population size, initial email response rate, and survey response rate. Additionally, the small population of AgrAbility Projects indicates that results are not generalizable to the public, only to AgrAbility Projects and interested publics.
Definition of Terms

To ensure the reader’s understanding of terms used in this study, the following definitions are provided.

AgrAbility: Grant funded projects by the United States Department of Agriculture that provides direct services for farmers, ranchers, and other agricultural workers with a disability or long-term health condition that is impacting their ability to complete farming tasks/chores.

Assistive Technology: Any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities (Assistive Technology Act of 1998).

AgrAbility Client: A farmer, rancher, or agricultural worker with a disability that has contacted AgrAbility staff and has received an on-farm assessment.

AgrAbility Contact: A farmer, rancher, or agricultural worker with a disability that has contacted AgrAbility staff, but has only received information through email, phone, or mail. They have not received an on-farm assessment.

On-farm assessment: An on-site evaluation conducted by an AgrAbility staff member to help assess the client’s assistive technology needs to complete farming tasks/chores.

Disability: For AgrAbility, a disability is defined as a permanent or long-term health condition that impacts the farmer, rancher, or agricultural worker’s ability to complete necessary tasks/chores on the farm.

National AgrAbility Project (NAP): The NAP is a partnership between Breaking New Ground, Purdue University, Goodwill Industries, the Arthritis Foundation, University of Illinois (at Urbana-Champaign), and Colorado State University that provides support to the state and regional AgrAbility Projects. The partnership aims to enhance services and educational activities provided to AgrAbility clients.

State and Regional Projects (SRAPs): There are 26 SRAPs. These projects are specific to states and regions to help AgrAbility clients in those areas.

Webmaster: The person who maintains a particular website.

Content Analysis: A research technique used to make inferences by interpreting and coding textual material. The textual material coded in this research study derives from AgrAbility websites (texts, graphics, etc.).
Coding: The process of assigning a code or identifier to something for the purpose of classification or identification.

Framing: A theory that focuses on the essence of issues, not a particular topic. The basis of framing theory is that the media focuses attention on certain events and then places them within a field of meaning.

Frames: Refers to the categories of frames developed by the researcher based on the type of information the website provides.

Message Appeal: The approach used to get a message across. Additionally, refers to the categories of message appeals developed by the researcher to identify the approaches of how messages on the websites are presented.

Media Content: Refers to the use of logos and social media plug-ins observed on the project websites. It also encompasses informative and image content.

Informative Content: Refers to the textual information that helps identify what the website viewer is looking for.

Image Content: The images identified on the websites. These include photos of people, farming, assistive technology, etc.

Use and Usability: An approach to the design of technological interfaces which attempts to make them intuitive and easy to use (Dictionary of Media and Communication, 2016).

Organizational Elements: Refers to the ranking of how organized the use of color, text, photos and graphics, and tabs/menus are on the websites.
Chapter 2

Review of Literature

Purpose of Study

AgrAbility is a program designed to help farmers, ranchers, and agricultural workers with a disability or long-term health condition remain in farming or production agriculture. AgrAbility was created through the 1990 Farm Bill (The Food, Agriculture, Conservation, and Trade (FACT) Act of 1990) to address the growing needs of farmers with a disability across the United States. Since then, the communication efforts of AgrAbility projects have evolved. The main communication efforts include paper-based methods (newsletters, brochures, flyers, newspaper and magazine articles), in-person displays at events, and digital-based methods (Facebook™, social media, websites, paper methods adapted for online distribution). Communication efforts are important to AgrAbility projects to determine things such as referral methods, where clients are getting information about the project, and what methods are most successful or popular among clients. Although there are many studies about AgrAbility and how it has impacted the health of farmers with a disability, less research has been conducted on the communication methods, specifically the impact of AgrAbility project websites.

Research has been done on assessing the content of online agricultural awareness campaigns. Rumble, Settle, and Irani (2016) conducted a content analysis to determine the content, image categories, messaging appeals, and frames used in these campaigns. A quantitative content analysis was performed on a sample of agricultural awareness
webpages from each U.S. state to understand how agriculture was being communicated on a national level. The initial sample included 166 agriculture awareness links. During coding, 15 samples were excluded due to factors such as broken links, irrelevant content, and duplicates; the final sample was 151. A coding sheet was created by a panel of experts to analyze the webpages and helps lead the researcher through the analysis process and where data about the online content is recorded. Intercoder reliability was established by training two coders and randomly selecting 10% of the sample for them to code and the reliability measure Cohen’s Kappa was calculated for each variable to guarantee coder consistency. Data was collected according to the two research objectives: determine media content and determine messaging appeals and frames used. Data collected for the first objective consisted of webpage name, type of webpage, uniform resource locator (URL), presence of images, image content, and types of media components. Data collected for the second objective consisted of emotional and logical appeals, calls to action, and pre-determined frames.

The main findings of the study revealed a lack of social media plugins (icons for Facebook, Instagram, Twitter, etc.); majority of image content contained non-farming adults, positive food products, and fields; the message content included more logical appeals than emotional appeals; and agricultural education and economic frames were most frequently used. Overall, this study suggests that there is room to improve the effectiveness of agricultural awareness webpages. Although their content analysis revealed important information, the study did not include information from people who maintain or run the websites. Information such as number of hits per day/week/month,
number of clicks, and how many people maintain the website could provide how
effective, or ineffective, the websites are (Rumble, Settle, & Irani, 2016).

Because AgrAbility provides information and awareness of its services, Rumble,
Settle, and Irani’s (2016) study was used as a guide and adapted to analyze the media
content, messaging appeals, and frames used by AgrAbility project websites. This current
study will examine the content of all AgrAbility SRAP websites and include additional
phone interviews with the webmasters of each respective website to collect additional
information that has the potential to provide correlations between the content on the
websites.

The review of literature outlines content analysis, framing, messaging appeals,
use and usability, and internet use for farmers/rural areas. The literature review begins
with content analysis because it is the main methodology used in this study and it
encompasses aspects of framing, message appeals, and usability. The five topic areas will
include additional agricultural communications research relevant to each topic.

**Content Analysis**

The *Dictionary of Media and Communication* (2016) defines content analysis as a
“primarily quantitative type of formal textual analysis involving the systematic
categorization and counting of recurrent elements in the form or content of texts.” In
other words, it is a research method used to make valid inferences from text (Elo &
Kyngäs, 2008; Weber, 1990). Krippendorff (2013) adds that content analysis should
make replicable inferences from texts or other meaningful matter to the contexts of their
use. It also includes analyzing communication messages in verbal, written, or visual
formats (Elo & Kyngäs, 2008; Cole, 1988). Content analysis has evolved to include much more than just counting the number of times a word or phrase appears in a number of texts; it has grown to work along with other types of analysis including assessing images, messaging appeals, and frames. Throughout content analysis research, scholars have found three emerging definitions. They address the content that is contained in a text, the content that could be a property of the source of a text, and the content that could emerge in the process of researchers analyzing a text in relation to a particular context (Krippendorff, 2013, p. 25). Content analysis is an effective research tool because it incorporates the use of quantitative and qualitative operations (Elo & Kyngäs, 2008; Weber, 1990).

As communication technology evolves, content analysis research faces challenges in applying its method to the World Wide Web, or the Internet. In Krippendorff and Bock’s (2009) *The Content Analysis Reader*, McMillan’s (2000) chapter examined ways that researchers have begun to apply content analysis to the Internet and discover what major challenges they are facing. McMillan examined 11 computer-mediated communication technologies other than the Internet and 19 studies that focused solely on content analysis of the Internet. McMillan followed the five steps in content analysis to examine these studies. The five steps are: formulate research questions and/or hypotheses, select a sample, define categories, train coders and check reliability of their coding skills, and analyze and interpret data (pp. 61-64).

McMillan discovered three major themes from the study. The first was the diversity of websites studied, meaning that many of the researchers found the homepage as a crucial communication form and the variety in structure and function of websites
concluded that the Internet itself is diverse. The second addressed the commercialization of the Internet as both a positive and negative. Today, commercialization has grown and is a major way of promoting companies and services. The third found that many of the websites did not utilize multimedia effects on their websites. This major theme has changed dramatically over the years. Websites today utilize countless multimedia effects and use them to their advantage in recruiting a broader audience. McMillan address the issue that the Web has expanded since that time, and continues to grow. But, it is interesting to discover that analysis of websites today does come to similar conclusions.

For AgrAbility websites, a content analysis is needed to discover the diversity of functions and structures of each website and how sites are using multimedia effects such as graphics and videos. Commercialization is also an important aspect for AgrAbility websites to discover their exposure or how well promoted they are and if they are linked to other popular websites. McMillan states that more research is needed in the context of content analysis and the World Wide Web.

**Framing**

Messages are commonly created through the use of framing. The main concept or idea of framing is that “an issue can be viewed from a variety of perspectives and be construed as having implications for multiple values or considerations” (Chong & Druckman, 2007, p. 104). Framing is a function of messages that influence how the audience perceives the messages (Scheufele & Tewksbury, 2007). In other words, framing is a process that consists of people developing a conceptualization of an issue or reorienting the way they think about an issue. A frame can also be viewed as an idea or
“central story line” that organizes and provides meaning to events related to a certain event or story (Zoch & Molleda, 2006). Framing is also described as, “a critical activity in the construction of social reality because it helps shape the perspectives through which people see the world” (Hallahan, 1999, p. 207). Framing is a component of a message; it limits or defines the message’s meaning by shaping the inferences the individual makes about the message. The frame then reflects the judgments made by the message creator or creators. In communication, frames “organize everyday reality” by providing meaning to events in everyday life and promoting certain definitions of issues or interpretations of messages (Chong & Druckman, 2007).

An aspect of framing that makes it unique, and often difficult to pinpoint into one specific theory, are the multiple unique viewpoints that framing theory can take. Borah’s (2011) article examines the conceptual issues of the theory through a content analysis examining literature from 93 peer-reviewed journals spanning over a 10-year period. The main reason for conducting this research stems from Scheufele (1999, 2000) and Scheufele and Tewksbury (2007) stating “the lack of clear conceptualizations and operationalizations has led framing research to be used synonymously with research approaches that are distinctly different” (Borah, 2011, p. 246).

But, researchers have stated that the call for one single paradigm cannot be fulfilled, as it is not possible or even desirable (Entman, 1993). The article states, “A diverse theoretical and methodological approach has led to a comprehensive understanding of framing. It is indeed neither possible to incorporate the different methodologies or theoretical approaches together, nor will it do any good for the field. Nevertheless, it is equally important to clarify the conceptualizations and
operationalizations of the framing studies conducted, so that the research is not grouped with distinctly different approaches” (Borah, 2011, p. 247). The articles found in the journals were classified as sociological or psychological, where sociological looked at frames in communication and psychological looked at the effects of framing in the audience. The articles were further coded as consistent or unique, consistent meaning frames that can be applied to multiple issues being studied and unique being specific to one particular issue. The major finding of this study was that the majority of framing research in the past decade has focused more on the sociological aspects by examining message design.

Borah (2011) also states that the study “found more than half of the framing research used unique frames—frames that are specific to the particular issue under study. There are several such unique frames that cannot be explained within the generic frames and these may have their own significance” (p. 256). But, it is important to note that if the majority of framing research focuses solely on unique frames, the ability to make broader theoretical conceptions of framing will be severely limited. For agricultural communications research, creating and discovering unique frames could be beneficial and also allow researchers to discover new frames leading to the opportunity of adding to future research.

**Messaging Appeals and Frames**

An additional aspect that falls under the study of framing is message appeals or frames. Framing influences how the audience views a message, whereas the message appeal or frame is incorporated to influence how the information is processed (Atkin &
Salmon, 2010; Rumble, Settle, & Irani, 2016). Message appeals or frames are commonly identified as logical or emotional (O’Guinn, Allen, & Semenik, 2003; Srivastava & Sharma, 2008; Rumble, Settle, & Irani, 2016). The Oxford Dictionary of Media and Communication (2016) defines both logical and emotional appeals: logical relies on rational or practical uses and thoughts by the audience or consumers, and emotional appeals rely on feelings and reasoning.

Rumble, Settle, and Irani’s (2016) content analysis of agricultural awareness websites focused largely on framing. The study’s second objective determined the messaging appeals and frames used on the webpages. The webpages were broken down into emotional and logical appeals, and analyzed for pre-determined frames. The pre-determined frames were agricultural education, economic, environmental, local food, moral norms, prevention, opportunity for all, animal welfare, and food safety. This study employed the use of pre-determined frames, but unique frames could have emerged but were not discovered or used. The researchers, Rumble, Settle, and Irani, looked for logical and emotional appeals on the 151 websites and found that many websites employed both. The researchers identified the use of 116 emotional appeals and 286 logical appeals. This result can be attributed to the frequent use of informative appeal, with 146 (96.7%) webpages using this appeal. This finding is not surprising, as audiences seek out information and expect to be adequately informed once they are finished visiting the webpage (Rumble, Settle, & Irani, 2016).

Goodwin, Chiarelli, and Irani (2011) assessed how consumers interpret agricultural messages commonly found on commodity organization’s websites in Florida. Reasoning behind this study stems from the agricultural knowledge gap between
producers and consumers. Four focus groups were conducted and participants were asked to identify messages as negative or positive. The major findings of the study indicate that out of the 10 messages that were intended to be positive, six messages were found unfavorable and four were favorable. The results indicated that consumers do not always perceive messages the way they are intended to, so it is important to recognize areas of differing perceptions to better promote agricultural industries. The researchers, Goodwin, Chiarelli, and Irani, stated that participants relied on “previous experiences and elements they had observed in media or advertisements when determining if messages were favorable or unfavorable” (p. 30).

If the agricultural industry wants to increase the occurrence of favorable messages, it is recommended to focus on things that the consumers deem most important as well as words and images that reinforce those things. These recommendations work well with AgrAbility’s goals of promoting success in agriculture. If AgrAbility wants to gain more clients and partners, presenting information that is essential to consumers is crucial for the project’s success.

**Use and Usability**

Usability is defined as “an approach to the design of technological interfaces which attempts to make them intuitive and easy to use” (*Dictionary of Media and Communication*, 2016). This approach can be applied to any technology but it is most commonly used for web design. The popularity of using technology as a way to communicate and receive information has grown. This evolution has greatly impacted older populations, urging them to either adapt to these new developments or force them
to stay behind the technology curve. It is important to note that evidence suggests that functional age, age related to health status, can impact a user’s performance and subjective age, how old someone feels, can affect feelings about a website (Wagner, et. al., 2014). According to 2014 aging statistics, the older population is defined as those 65 years and older. There are 46.2 million people (14.5%) in the older population and they represent about one in every seven Americans (Administration on Aging-AOA, 2016). According to the USDA National Agricultural Statistics Service, the fastest growing group of farm operators is those 65 years and older (Census of Agriculture, 2007). This statistic remains true, as the average age of farmers continue to increase (Census of Agriculture, 2014).

The target audience of those who view AgrAbility websites and similar assistive technology websites are farmers and agricultural workers, and they are either close to or are a part of the older population. To ensure that websites are being used correctly and effectively, and that audiences can navigate with ease, usability testing is needed. Usability testing can identify what is working effectively for the audience, what is not, and how to improve it.

Romano Bergstrom, Olmstead-Hawala, and Jans (2013) assessed website usability for older adults via eye tracking and usability performance. The researchers stated that although older adults use the Internet, they report using it with difficulty. A reason behind this difficulty is navigational elements within the website and the arrangement of elements on the screen, specifically stating, “cluttered peripheral information often results in performance difficulties for older adults” (Ball, Beard, Roenker, Miller, & Griggs, 1988; Mackworth, 1965; Romano, Dennis, Howard, &
Howard, 2007; Scalf et al., 2007; Scialfa, Kline, & Lyman, 1987; Sekuler & Ball, 1986; Sekuler, Bennett, & Mamelak, 2000; Williams, 1989; Romano Bergstrom, Olmstead-Hawala, & Jans, 2013, p. 541). The participants in the study reported being unfamiliar with tested website and included both younger and older participants to compare and contrast results. The main findings suggest that older participants do not acknowledge cluttered information that is outside their useful field of view (UFOV), the visual area over which information can be obtained at a brief glance without eye or head movements (Ringer, et. al., 2016).

Although there is a fair amount of usability research, websites currently suffer from a number of usability problems. According to Lee and Kozar’s (2012) study on understanding website usability constructs, “difficult-to-understand content, inconsistent formats, difficulty in navigation, disorientation, lack of interaction and reliability, inefficient search capabilities, and ill-defined help functions are usability problems frequently identified with commercial websites” (p. 450). Dunn, Akers, Duysen, Myers, and Chambers (2013) evaluated the usability of Texas Tech’s Sorghum Research Initiative website and discovered that student participants with agricultural majors reported better usability of the website versus students in non-agricultural majors. This is a positive in relation to AgrAbility SRAP websites because the target audience of the websites are those familiar with agriculture, thus resulting in a higher usability with the website material.

This information regarding usability is helpful to AgrAbility team members that help design project websites. To ensure that visitors of the website stay on the site, information should be clean and uncluttered. Additionally, a common layout among all
SRAP websites could promote strong usability for both AgrAbility clients and team members.

**Internet Use Among Farmers and Rural Areas**

In 1996, the first edition of “The Farmer’s Guide to the Internet” was published. The book served as a guide for both farmers just starting to use the Internet and those who had not yet owned or used a computer. Over 20 years later, farmers continue to face the problem of limited use and access to the Internet. According to the 2015 USDA National Statistics Service, 70% of U.S. farms report having access to the Internet. Seventy-three percent of farms in the U.S. have computer access and 71% of farms in the U.S. own or lease a computer. Statistics show that farms with high economic class correlates with a greater likelihood of having access to the Internet, and owning or leasing a computer. Economic class refers to sales and government payments received the previous year (USDA-NASS, 2015, p. 16).

Since its creation, AgrAbility has utilized a variety of methods to disseminate information about assistive technology to farmers, ranchers, and agricultural workers with a disability. The Internet is becoming the number one way people communicate, but it is difficult to reach a target audience that does not have access or own a computer. Racz and Field (2011) wanted to discover farmer’s preferred form of communication when it comes to receiving information about assistive technology.

This study involved reviewing dissemination strategies and conducting surveys to obtain perspectives from AgrAbility project staff members and farmers within the national network of farmers and ranchers with disabilities. Major findings of the study
concluded that farmers most preferred information from printed newsletters and publications, whereas AgrAbility staff members most preferred information via internet (internet-based publications and e-mail) followed by printed publications. Additional findings revealed that farmers believed dissemination strategies were moving toward the Internet and assistive technology (AT) information is more readily available than in the past. Even though farmers rely on printed materials, this finding is hopeful in suggesting that farmers know the transition from paper to digital is happening and that to find more information in the future they must look more to digital means.

The growth of social media has influenced farmers and the way they communicate and promote their products. Young farmers are at the forefront of utilizing social media for their farming needs. In 2013, the American Farm Bureau Federation conducted an online survey with young farmers and ranchers and found 92% use a computer in their farming operation, 94% have access to the Internet, and about 80% reported using mobile devices and tablets regularly (Shaw, Meyers, Irlbeck, Doerfert, Abrams, & Morgan, 2015). It is important to note that the survey was conducted online, so farmers and ranchers without internet access were not able to participate. Research on agriculturalist’s personal and business use of online communication tools showed that farmers tend to focus on using websites, Facebook™, and YouTube™. The researchers stated, “Those who are utilizing a specific tool more frequently for personal reasons are also utilizing the same tool for business purposes, and vice versa. In the same token, if they are not using a tool in their personal life, they are unlikely to be exploring use of the same tool in a business setting” (p. 25).
Many farmers have not adopted social media simply because they do not know how to use it. Shaw, Meyers, Irlbeck, Doerfert, Abrams, and Morgan’s (2015) study focused on the identification of agriculturist’s online communication tool training needs. They looked at Facebook™, Twitter™, blogs, websites, other online communication tasks and computer-based communication technology. Shaw et al created a survey focusing on respondents’ perceptions of the importance of their competence to complete certain online communication tasks and identify which online communication tasks they need additional training in (p. 9). Findings show that the highest perceived importance dealt with website tasks, while Twitter™ and blogging tasks had the lowest. Shaw et al cited Irani (2000) stating, “a person’s attitude toward the technology may influence a technology users’ decision to adopt” (p. 17).

Agriculturalists that do use social media state that it provides free and instantaneous channels to communicate with audiences. White, Meyers, Doerfert, and Irlbeck (2014) interviewed four agriculturalists that work in agriculture, use several social media platforms, and use social media to promote their agricultural businesses. White et al stated, “Findings indicated participants became active using social media to combat dominant negative messages about production agriculture” (p. 72). It is important to note the positive way social media can combat negative issues. Having real farmers sharing their own agricultural background helps fill the knowledge gap between producers and consumers or various agricultural products and services.
Summary

The literature indicated many aspects that contribute to presenting and finding online-based agricultural information. According to the literature reviewed, content analysis is a key way to discover information on a particular website that encompasses aspects of framing, message appeals, and usability. To ensure a positive experience on AgrAbility websites, it is important to understand how frequently farmers use the internet, communication methods they prefer, what social media platforms they are using, and if the information and messages presented on a website are desirable and easy to understand.
Chapter 3

Research Methodology

This research study assesses the online content presented on AgrAbility project websites. This study reviews types of content presented, image categories, messaging appeals, and frames. Secondary data from webmaster surveys revealed factors influencing the website content. The aim of the study was to determine what makes AgrAbility project websites usable and effective. The data collected from the study will be used to recommend what a successful AgrAbility project website should look like. Findings from this research may influence creating cohesive and usable content to better serve AgrAbility clients and team members.

Purpose and Objectives

The purpose of this study was to assess the online content of AgrAbility project websites and discover content, image categories, messaging appeals, and frames that emerge through how the content is presented. Additional information regarding online content for each AgrAbility project website was obtained through email-administered surveys with each project’s webmaster.

The following research objectives were developed to:

1. Determine the media content on AgrAbility project websites,
2. Determine the messaging appeals and frames on AgrAbility project websites,
3. Identify the use and usability elements of the information presented on the AgrAbility project websites, and

4. Determine if correlations exist between content analysis and webmaster survey results.

**Population and Sample Description**

The population for this study included the National AgrAbility Project (NAP) and the State and Regional Projects (SRAPs) associated with AgrAbility. The population was further broken down into two groups: project websites and project webmasters. Twenty-seven AgrAbility project websites consisted of one NAP website and 26 SRAP websites. Of the 27 websites, four were removed because they were no longer identified as AgrAbility-funded projects. A total of 23 websites were coded during the content analysis. The collection of websites is a census because every AgrAbility website was included in the content analysis.

Identifying 23 webmasters was based on the assumption that each website has one designated webmaster that would respond to the email-administered survey. Of the 23 AgrAbility projects, 16 webmaster survey responses were collected, resulting in a response rate of 69.5%. The population of webmasters is a convenience sample without the use of random selection. All of the participants were adults. All websites and webmaster responses were included in the study because the population was small. The small population of AgrAbility projects indicates that results are not generalizable to the public, only to AgrAbility projects and interested publics.
Research Design

To determine the content used in AgrAbility project websites, a quantitative content analysis was performed. The study design is a combination of quantitative content analysis and descriptive survey research. The method of using content analysis with other methods often reveals factors that influence the content being examined (Riffe, Lacy, & Fico, 2005). According to Berelson (1952), “A content analysis is a research technique for the objective, systematic, and quantitative description of the manifest content of communication” (p. 18). Krippendorf (1980, 2013) added that content analysis is a research technique that makes replicable and valid inferences from texts, data, or other meaningful matter, to the contexts of their use. Content analyses seek to find out what type of meaning is reflected in the text being examined. They are often used to study computer-based content, such as webpages (Ary, Jacobs, & Sorensen, 2010; Rumble, Settle, & Irani, 2016). Figure 2 outlines how the study was conducted.

![Figure 2: Study Design](image)

Figure 2: Study Design
Variables

Media content is defined as the audio and visual elements used by the AgrAbility project websites specifically, photos, videos, slideshows, and audio. These elements will be coded on whether or not they are present on each website. A frame is defined as how information is presented to the audience from a certain perspective, which influences how the recipient will process the information. Predicted frames used by AgrAbility project websites are economic, environmental, health, moral, prevention, etc.

Messaging appeals refer to the approach used to get a message across to the audience. Appeals are divided into two categories: logical and emotional. Predicted logical appeals used by the AgrAbility project websites are informative, gain, loss, social modeling. Predicted emotional appeals used are threat, empathy, promise, guilt, fear, pride, and emotional.

Use and usability refers to the design and ease of use of the website. The use of these elements on AgrAbility project websites will be observed through the organization of information (cluttered, visually appealing, etc.), the amount of content on each tab or page within the website, and overall ease of finding information.

Instrumentation and Data Collection

To perform the content analysis, a coding sheet (See Appendix A) was developed by the researcher and a university faculty member. The coding sheet contained three sections that corresponded with the first three research objectives. To establish intercoder reliability and thus validate the study, the researcher and a student underwent coder training and coded a randomly selected 10% of the population. Intercoder reliability is
“the degree to which members of a designated community concur on the readings, interpretations, responses to, or uses of given texts or data” (Krippendorff, 2013, p. 268). Three websites were randomly selected and coded. The researcher randomly selected three websites (10%) based on the original sample size of 27 websites.

A scoring scheme was developed for each item in the coding sheet to identify the presence or absence of an item, the number of items in a question or category, and the ranking of certain items. Krippendorff’s alpha was used as the reliability measure because it is one of the strongest and most flexible measure of reliability and most appropriate for content analysis research (Stevens, Lyles, & Berke, 2014). To control for possible changes in content, the sample of websites that were coded by the two coders were viewed at the same day and time.

Data from the coding sheet was divided into two categories: nominal data and scale data. ReCal OIR and ReCal2 are online utilities that compute intercoder reliability coefficients for ordinal, interval, ratio, and nominal data coded by two coders. The following results were obtained for the reliability of the coding sheet:

1. Nominal data — Krippendorff’s Alpha = 0.95
2. Scale data — Krippendorff’s Alpha (ordinal) = 0.71, Krippendorff’s Alpha (interval) = 0.92, Krippendorff’s Alpha (ratio) = 0.85

Once intercoder reliability was established, the 23 project websites were coded during the week of March 6 – 10, 2017. The coding sheet collected data based on the first three research objectives. Microsoft Excel was used to enter the data and SPSS was used to complete the data analysis. To establish content validity and reliability, the questions
for the email-administered webmaster survey were examined by the researcher’s advisers.

The application was submitted to the Pennsylvania State University’s internal review board and approval was received to complete the research (See Appendix B). The AgrAbility project webmaster email surveys were sent in March 2017. The list of AgrAbility project contacts was obtained from the National AgrAbility Project website directory. Surveys collected data based on research objective four. The survey was administered in two parts. An initial email containing information about the research study (See Appendix C) was sent to the 137-people listed on the AgrAbility contact list and a second email containing a survey of six questions (See Appendix D) was sent to the webmaster. After two weeks, a follow-up email was sent; the initial email containing information about the project was sent to subjects that did not respond and the email containing the survey was sent to subjects that responded to the initial email but had not sent their responses. A reminder email was sent one week before the deadline and a final reminder was sent after the deadline to receive late subjects’ responses.

All 23 websites were used in data analysis, even though only 16 webmaster surveys were returned. Non-response rates were noted in the final data analysis.

Data Analysis and Interpretation

For the content analysis, Microsoft Excel was used to enter the data and SPSS was used to complete the data analysis. For the webmaster surveys, Microsoft Word and Excel were used to record the responses and organize the data. Due to the design of the coding sheet, specific items were grouped to obtain a score to discover if correlations
existed between content analysis data and webmaster survey responses. Nominal data and scale data were collected and used for analysis. A bivariate Pearson correlation was run because it is commonly used to measure correlations among pairs of variables. It also indicates if a statistically significant relationship exists between two variables. Table 1 outlines the scales of measurement used for the research objectives.

Table 1. Scales of Measurement for Research Objectives

<table>
<thead>
<tr>
<th>Questions</th>
<th>Variables/Items</th>
<th>Scale of Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>What kinds of <em>media content</em> are used?</td>
<td>The presence or absence of logos and social media plug-ins</td>
<td>Nominal</td>
</tr>
<tr>
<td><em>What kinds of informative content are used?</em></td>
<td>(After content analysis was performed, data analysis revealed that informative content was a separate category of media content)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The presence of absence of basic information the viewer is looking for (i.e. key words that help define the program, mission/vision, description of program, etc.)</td>
<td>Nominal</td>
</tr>
<tr>
<td><em>What kinds of images are used?</em></td>
<td>(After content analysis was performed, data analysis revealed that images were a separate category of media content)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The presence or absence of images, image quality, image subjects</td>
<td>Nominal</td>
</tr>
<tr>
<td>What are the emerging frames and message appeals?</td>
<td>The presence or absence of frames (8 frames) and message appeals (logical appeals vs. emotional appeals)</td>
<td>Nominal</td>
</tr>
<tr>
<td>What are the <em>use and usability</em> elements?</td>
<td>The presence or absence of modifying the website, ease of use, how many pages and tabs, etc.</td>
<td>Nominal</td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
<td>Scale</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td><em>What kinds of organizational elements? (After content analysis was performed, data analysis revealed that the use of a scale to rank the level of organization was a separate category of use and usability)</em></td>
<td>On a scale of 1 (Unorganized) to 5 (Organized), how organized is the use of text, colors, photos/graphics, and tabs/menu on the websites</td>
<td></td>
</tr>
<tr>
<td>Do correlations exist between content analysis and webmaster surveys?</td>
<td>Create a score for each category (media content, informative content, images, frames, message appeals, use/usability, and organizational elements) and run a correlation with results of webmaster survey questions</td>
<td>Nominal and Scale</td>
</tr>
</tbody>
</table>
Chapter 4

Research Findings

Purpose and Objectives

The purpose of this study was to assess the online content of AgrAbility project websites and discover content, image categories, messaging appeals, and frames that emerge through how the content is presented. Additional information regarding online content for each AgrAbility project website was obtained through an email-administered surveys with each project’s webmaster.

The following research objectives were developed to:

1. Determine the media content on AgrAbility project websites,
2. Determine the messaging appeals and frames on AgrAbility project websites,
3. Identify the use and usability elements of the information presented on the AgrAbility project websites, and
4. Determine if correlations exist between content analysis and webmaster survey results.

Population and Sample

The population for this study included the National AgrAbility Project (NAP) and the 26 state and regional projects (SRAPs) associated with AgrAbility. The population was further broken down into two groups: project websites and project webmasters. Of
the 27 websites, four were removed because they were no longer identified as USDA-NIFA-funded projects, resulting in a total of 23 websites. The collection of websites is a census because every AgrAbility website was included in the content analysis.

Identifying 23 webmasters was based on the assumption that each website has one designated webmaster who would respond to the email-administered survey. Of the 23 AgrAbility projects, 16 webmaster survey responses were collected, resulting in a response rate of 69.5%. The population of webmasters is a convenience sample without the use of random selection. All of the participants were adults. All websites and webmaster responses were included in the study because the population was small. Table 2 identifies the AgrAbility projects coded in the content analysis and the AgrAbility projects that participated in the webmaster survey.

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Was the project included in the content analysis?</th>
<th>Did the project respond to the webmaster survey?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>National AgrAbility Project (NAP)</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Arkansas</td>
<td>No</td>
<td>N/A</td>
<td>Removed from study-no longer an AgrAbility funded project; contact information was removed from NAP website directory.</td>
</tr>
<tr>
<td>California</td>
<td>Yes</td>
<td>No</td>
<td>Contact was made with the project; the webmaster survey response was not returned.</td>
</tr>
<tr>
<td>State</td>
<td>Response 1</td>
<td>Response 2</td>
<td>Notes</td>
</tr>
<tr>
<td>--------------</td>
<td>------------</td>
<td>------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Colorado</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Georgia</td>
<td>Yes</td>
<td>No</td>
<td>All emails remained unanswered.</td>
</tr>
<tr>
<td>Idaho</td>
<td>No</td>
<td>N/A</td>
<td>Removed from study-no longer an AgrAbility funded project.</td>
</tr>
<tr>
<td>Illinois</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Indiana</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Iowa</td>
<td>No</td>
<td>N/A</td>
<td>Removed from study-no longer an AgrAbility funded project.</td>
</tr>
<tr>
<td>Kansas</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Kentucky</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Maine</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Michigan</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Minnesota</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Missouri</td>
<td>Yes</td>
<td>No</td>
<td>Contact was made with the project; the webmaster was identified, but survey response was not returned.</td>
</tr>
<tr>
<td>Nebraska</td>
<td>Yes</td>
<td>No</td>
<td>Contact was made with the project; the webmaster was identified, but survey response was not returned.</td>
</tr>
<tr>
<td>North Carolina</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Ohio</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Tennessee</td>
<td>Yes</td>
<td>No</td>
<td>Contact was made with the project; the webmaster survey response was not returned.</td>
</tr>
</tbody>
</table>
Texas  Yes  Yes  
Virginia  Yes  Yes  
Utah  Yes  No  Contact was made with the project; the webmaster was identified, but survey response was not returned.

West Virginia  Yes  Yes  
Wisconsin  Yes  Yes  
Wyoming  Yes  No  All emails remained unanswered.

Vermont  No  N/A  Removed from study-no longer an AgrAbility funded project.

Media Content

To determine the media content on AgrAbility project websites, the presences of logos, media links, informative elements, and images were assessed. Of the 23 websites, 22 (95.7%) included the AgrAbility logo and 20 (87.0%) included additional logos.

Informative elements were identified as the mission/vision/goal of the AgrAbility project; keywords that help define the program, information about the application process, information about making donations to the program, and the use of medical information.

For example, 22 (95.7%) websites included a mission statement on their homepage.

Table 3 shows the frequency of informative elements identified on the AgrAbility project websites.

Table 3. Frequency of Informative Elements

<table>
<thead>
<tr>
<th>Informative Element</th>
<th>( f )</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Information</td>
<td>23</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Additionally, 21 (91.3%) websites included images. The number of images identified on the websites ranged from 0 to 10. Two (8.7%) websites had zero images and two (8.7%) websites had 10 images. Table 4 details the presence of images on the AgrAbility project websites.

<table>
<thead>
<tr>
<th>Number of Images Present</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
<td>8.7</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>17.4</td>
</tr>
<tr>
<td>7</td>
<td>4</td>
<td>17.4</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>21.7</td>
</tr>
<tr>
<td>9</td>
<td>5</td>
<td>21.7</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>8.7</td>
</tr>
</tbody>
</table>
Images were assessed on quality, portrayal of agricultural workers, age of subjects in the image, and depictions of farm equipment, assistive technology, and farm landscape. Twenty-one (91.3%) websites had images of good quality, indicating clear and well-composed images. Twenty (87.0%) websites had images that depicted agricultural workers. Table 5 details all image content found on the AgrAbility project websites.

Table 5. Image Content

<table>
<thead>
<tr>
<th>Image Component</th>
<th>( f )</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good Quality Image(s)</td>
<td>21</td>
<td>91.3</td>
</tr>
<tr>
<td>Agricultural workers/farmers/ranchers</td>
<td>20</td>
<td>87.0</td>
</tr>
<tr>
<td>Farm Landscape</td>
<td>19</td>
<td>82.6</td>
</tr>
<tr>
<td>Farm Equipment</td>
<td>19</td>
<td>82.6</td>
</tr>
<tr>
<td>Assistive Technology</td>
<td>15</td>
<td>65.2</td>
</tr>
</tbody>
</table>

Age of Subjects in Image

<table>
<thead>
<tr>
<th>Age of Subjects in Image</th>
<th>( f )</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elderly (55 y/o &amp; older)</td>
<td>14</td>
<td>60.9</td>
</tr>
<tr>
<td>Middle Age Adults (41-55 y/o)</td>
<td>12</td>
<td>52.2</td>
</tr>
<tr>
<td>Adults (31-40 y/o)</td>
<td>9</td>
<td>39.1</td>
</tr>
<tr>
<td>Young Adults (18-30 y/o)</td>
<td>8</td>
<td>34.8</td>
</tr>
<tr>
<td>Children (18 y/o &amp; under)</td>
<td>1</td>
<td>4.3</td>
</tr>
</tbody>
</table>

**Messaging Appeals and Frames**

To assess how the content of the websites might be appealing to the intended audience or public, the researcher looked for logical and emotional appeals. The majority of websites included both logical and emotional appeals. The most frequently recognized logical appeal was inform, with all 23 (100.0%) using this appeal to convey information on their website. The least frequent emotional appeals recognized were threat and guilt, with all 23 (100.0%) not using these appeals to convey information on their website. A summary of the occurrence of logical and emotional appeals can be found in Table 6.
Table 6. Messaging Appeals Used on AgrAbility Project Websites

<table>
<thead>
<tr>
<th>Logical Appeals</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inform</td>
<td>23</td>
<td>100.0</td>
</tr>
<tr>
<td>Gain</td>
<td>22</td>
<td>95.7</td>
</tr>
<tr>
<td>Self-referencing</td>
<td>15</td>
<td>65.2</td>
</tr>
<tr>
<td>Social Mapping</td>
<td>5</td>
<td>21.7</td>
</tr>
<tr>
<td>Loss</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Emotional Appeals</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pride</td>
<td>21</td>
<td>91.3</td>
</tr>
<tr>
<td>Emotion</td>
<td>20</td>
<td>87.0</td>
</tr>
<tr>
<td>Happiness</td>
<td>19</td>
<td>82.6</td>
</tr>
<tr>
<td>Empathy</td>
<td>19</td>
<td>82.6</td>
</tr>
<tr>
<td>Promise</td>
<td>8</td>
<td>34.8</td>
</tr>
<tr>
<td>Fear</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>Threat</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Guilt</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The websites were also analyzed for pre-determined frames. The following frames were developed for the content analysis: agricultural safety (i.e., emphasis on farmer safety, animal safety, and use of appropriate farm equipment), health (i.e., emphasis on various medical conditions, ways to improve health, medical conditions that are made worse due to farming), prevention (i.e., stating AgrAbility as a program that acts as a preventative measure to help reduce the number of farmers with a disability, participate in this program and prevent further damage to your health), moral (i.e., by referring friends and family to this program they are doing something morally right for a disabled or impaired farmer, use this program because it helps people), environmental (i.e., refers to the environmental impact farmers have, the need for farmers to remain farming), economic (i.e., monetary impact of farming, also costs of farming such as equipment, medical costs, lack of economic resources), education (i.e., educational benefits of the program, program itself is a form of educating farmers and the public,
connection to Extension program or university), and community (i.e., the program encompasses multiple people and projects, join AgrAbility community, helping communities). Table 7 details the frames used in the AgrAbility project websites.

Table 7. Frames Used on AgrAbility Project Websites

<table>
<thead>
<tr>
<th>Frames</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Safety</td>
<td>23</td>
<td>100.0</td>
</tr>
<tr>
<td>Moral</td>
<td>23</td>
<td>100.0</td>
</tr>
<tr>
<td>Community</td>
<td>22</td>
<td>95.7</td>
</tr>
<tr>
<td>Health</td>
<td>22</td>
<td>95.7</td>
</tr>
<tr>
<td>Education</td>
<td>18</td>
<td>78.3</td>
</tr>
<tr>
<td>Environmental</td>
<td>17</td>
<td>73.9</td>
</tr>
<tr>
<td>Economic</td>
<td>10</td>
<td>43.5</td>
</tr>
<tr>
<td>Prevention</td>
<td>5</td>
<td>21.7</td>
</tr>
</tbody>
</table>

Use and Usability Elements

To determine if the information on the AgrAbility project websites is presented in an easy and usable format, the content analysis coded for the presence or absence of the following: language modification, text size modification, audio options, color modification, search bar, and dead links. Of the 23 websites, all (100.0 %) lacked the ability to adjust the language and adjust the colors on the website. Presence of a search bar was the most frequently identified usability element, with 16 (69.6%) websites containing one on their website. A summary of the presence of these usability elements can be found in Table 8.

Table 8. Presence of Usability Elements

<table>
<thead>
<tr>
<th>Usability Element</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search Bar</td>
<td>16</td>
<td>69.6</td>
</tr>
<tr>
<td>Dead link</td>
<td>6</td>
<td>26.1</td>
</tr>
<tr>
<td>Text Modification</td>
<td>3</td>
<td>13.0</td>
</tr>
<tr>
<td>Audio Modification</td>
<td>1</td>
<td>4.3</td>
</tr>
</tbody>
</table>
Additional elements consisted of font type usage, ability to view and/or download publications, and whether or not the website was independent or included within a university or another organization’s website. Appropriate font use was identified on all (100.0%) websites. Out of the 23 websites, 18 (78.3%) had the ability to view and download publications. The content analysis showed that if publications could be viewed on the website, they were also downloadable.

Table 9. Additional Usability Elements

<table>
<thead>
<tr>
<th>Usability Element</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate Font Type</td>
<td>23</td>
<td>100.0</td>
</tr>
<tr>
<td>View Publications</td>
<td>18</td>
<td>78.3</td>
</tr>
<tr>
<td>Download Publication</td>
<td>18</td>
<td>78.3</td>
</tr>
<tr>
<td>University/Organization Website</td>
<td>14</td>
<td>60.9</td>
</tr>
<tr>
<td>Independent Website</td>
<td>9</td>
<td>39.1</td>
</tr>
</tbody>
</table>

Usability elements consisting of the number of tabs on each project website and the number of pages within each project website can be found in Table 10. For this research study, tabs refer to the titles or labels at the top of the webpage that help the user navigate through the website. Pages refer to all webpages within the website. Table 11 provides a summary of the most frequently used tab/page names among all 23 websites.

Table 10. Number of Tabs and Pages on AgrAbility Project Websites

<table>
<thead>
<tr>
<th>Number of Tabs</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>13.0</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>30.4</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>8.7</td>
</tr>
<tr>
<td>Number of Pages</td>
<td>$f$</td>
<td>%</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>1 to 10</td>
<td>9</td>
<td>39.1</td>
</tr>
<tr>
<td>11 to 20</td>
<td>10</td>
<td>43.5</td>
</tr>
<tr>
<td>21 to 30</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>31 to 40</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>41 to 50</td>
<td>2</td>
<td>8.7</td>
</tr>
<tr>
<td>51 to 60</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>61 to 70</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>71 to 80</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>81 to 90</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>91 to 100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Over 100</td>
<td>1</td>
<td>4.3</td>
</tr>
</tbody>
</table>

Table 11. Identification of Tabs and Pages on AgrAbility Project Websites

<table>
<thead>
<tr>
<th>Name of Tab and/or Page</th>
<th>$f$</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Contact Us” or “Assistance”</td>
<td>19</td>
<td>82.6</td>
</tr>
<tr>
<td>“Resources”</td>
<td>18</td>
<td>78.3</td>
</tr>
<tr>
<td>“About”</td>
<td>17</td>
<td>73.9</td>
</tr>
<tr>
<td>“Stories” or “Testimonials”</td>
<td>12</td>
<td>52.2</td>
</tr>
<tr>
<td>“Services”</td>
<td>10</td>
<td>43.5</td>
</tr>
<tr>
<td>“News”</td>
<td>10</td>
<td>43.5</td>
</tr>
<tr>
<td>“Assistive Technology”</td>
<td>10</td>
<td>43.5</td>
</tr>
<tr>
<td>“FAQ”</td>
<td>9</td>
<td>39.1</td>
</tr>
<tr>
<td>“Staff” or “Staff Resources”</td>
<td>8</td>
<td>34.8</td>
</tr>
<tr>
<td>“Links” or “Helpful Links”</td>
<td>8</td>
<td>34.8</td>
</tr>
<tr>
<td>“Blog” or “Newsletter”</td>
<td>6</td>
<td>26.1</td>
</tr>
<tr>
<td>“Partners”</td>
<td>6</td>
<td>26.1</td>
</tr>
<tr>
<td>“Classes” or “Workshops”</td>
<td>5</td>
<td>21.7</td>
</tr>
<tr>
<td>“Calendar” or “Events”</td>
<td>4</td>
<td>17.4</td>
</tr>
<tr>
<td>“Videos” or “Pictures/Photos”</td>
<td>4</td>
<td>17.4</td>
</tr>
<tr>
<td>“Networking”</td>
<td>3</td>
<td>13.0</td>
</tr>
<tr>
<td>“Education”</td>
<td>2</td>
<td>8.7</td>
</tr>
<tr>
<td>“Publications”</td>
<td>2</td>
<td>8.7</td>
</tr>
<tr>
<td>“Extension”</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>“Referral”</td>
<td>1</td>
<td>4.3</td>
</tr>
</tbody>
</table>
Organizational elements refer to how organized the text is, the use of colors, the use of photographs and graphics, and the use of tabs on the homepage area of the AgrAbility project websites. The researcher developed a scale, ranging from 1 (Unorganized) to 5 (Organized). Table 12 details the ranking of organizational elements on the project websites.

<table>
<thead>
<tr>
<th>Category</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unorganized</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>Somewhat Unorganized</td>
<td>3</td>
<td>13.0</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Somewhat Organized</td>
<td>8</td>
<td>34.8</td>
</tr>
<tr>
<td>Organized</td>
<td>11</td>
<td>47.8</td>
</tr>
<tr>
<td>Colors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unorganized</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>Somewhat Unorganized</td>
<td>3</td>
<td>13.0</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Somewhat Organized</td>
<td>6</td>
<td>26.1</td>
</tr>
<tr>
<td>Organized</td>
<td>13</td>
<td>56.5</td>
</tr>
<tr>
<td>Photos and Graphics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unorganized</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>Somewhat Unorganized</td>
<td>4</td>
<td>17.4</td>
</tr>
<tr>
<td>Neutral</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>Somewhat Organized</td>
<td>11</td>
<td>47.8</td>
</tr>
<tr>
<td>Organized</td>
<td>6</td>
<td>26.1</td>
</tr>
<tr>
<td>Tabs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unorganized</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Somewhat Unorganized</td>
<td>2</td>
<td>8.7</td>
</tr>
<tr>
<td>Neutral</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>Somewhat Organized</td>
<td>12</td>
<td>52.2</td>
</tr>
<tr>
<td>Organized</td>
<td>8</td>
<td>34.8</td>
</tr>
</tbody>
</table>
**Webmaster Survey Results**

The webmaster survey contained six questions (See Appendix D) pertaining to how often the website is updated, how much time is dedicated to maintaining the website, how many webmasters there are, how many employees in the state project, what the most popular pages are for their project’s website, and how many clients the project served this calendar year and how many of those clients contacted the project through the website.

Of the 23 websites, 16 (69.5%) answered and returned the webmaster survey. The majority (60.9%) of webmasters stated that they have additional help in maintaining the website, whether it is additional employees or IT specialists that are part of an organization or university. Of the 16 webmaster surveys, 12 were able to provide the number of clients that contacted the project through the website. Table 13 details the webmaster survey responses.

<table>
<thead>
<tr>
<th>Table 13: Webmaster Survey Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
</tr>
<tr>
<td>Q1: How much time does the webmaster spend maintaining the website?</td>
</tr>
<tr>
<td>No time</td>
</tr>
<tr>
<td>As needed</td>
</tr>
<tr>
<td>Yearly</td>
</tr>
<tr>
<td>Quarterly</td>
</tr>
<tr>
<td>Monthly</td>
</tr>
<tr>
<td>Weekly</td>
</tr>
<tr>
<td>Daily</td>
</tr>
</tbody>
</table>

Q2: Is there additional help in maintaining the website?

<table>
<thead>
<tr>
<th>Category</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>3</td>
<td>13.0</td>
</tr>
<tr>
<td>Yes</td>
<td>13</td>
<td>56.5</td>
</tr>
</tbody>
</table>

Q3: How often is the website updated?

<table>
<thead>
<tr>
<th>Category</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>Frequency</td>
<td>Percentage</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>2.6%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>8.7%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>13.0%</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>26.1%</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>21.7%</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>4.3%</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>4.3%</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>4.3%</td>
<td></td>
</tr>
<tr>
<td>190</td>
<td>4.3%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>52.2%</td>
<td></td>
</tr>
</tbody>
</table>

**Q4: What are the most popular pages on the website?**

- **Homepage**: 11 (47.8%)
- **Other**: 2 (8.7%)
- **Information not available**: 3 (13.0%)

**Q5: How many clients contacted the project via the website this year?**

- 0: 3 (13.0%)
- 3: 2 (8.7%)
- 5: 1 (4.3%)
- 8: 1 (4.3%)
- 10: 1 (4.3%)
- 27: 1 (4.3%)
- 28: 1 (4.3%)
- 30: 1 (4.3%)
- 190: 1 (4.3%)
- Total: 12 (52.2%)

**Q6: How many people are employed in your project?**

- 3: 1 (4.3%)
- 4: 2 (8.7%)
- 5: 1 (4.3%)
- 6: 2 (8.7%)
- 7: 5 (21.7%)
- 8: 3 (13.0%)
- 15: 2 (8.7%)

**Content Analysis and Survey Correlation**

To determine if correlations existed between content analysis results and webmaster survey responses, scores were created based upon the first three research objectives to run a bivariate correlation test with webmaster survey questions. Scores
were conducted for the following: media content, informative content, frames, message appeals, images, pages and tabs, use and usability elements, and organizational scale. Tests were run to determine if the category scores correlated strongly with the webmaster survey responses.

Significance scales were not set a-priori. Because this study is exploratory, all correlations that were identified as significant were accepted. A bivariate Pearson Correlation was chosen for analysis because it is commonly used to measure correlations among pairs of variables. It also indicates the strength and direction the relationship between the two variables, ranging from -1 to +1. If $r$ is close to 0, it means there is no relationship between the two variables. If $r$ is positive, it means that as one variable gets larger, so does the other variable.

Of the six webmaster survey questions, one was significantly positively associated with scores from the content analysis categories. The question of how many clients contacted the AgrAbility project through the website was significant and positively associated with the use and usability elements on the website, $r = .959$, $p < 0.01$. This finding indicates that more clients are contacting AgrAbility through the website when the website has positive usability elements; the easier the website is to use, the more clients will make contact through the website.

Additionally, significant correlations between webmaster survey questions were determined. The question of how much time is dedicated to maintaining the website was significant and positively associated with how often the website is updated, $r = .567$, $p < 0.05$. This finding indicates that a greater amount of time dedicated to maintaining the website indicates a more updated website. The second correlation was between the
number or employees in the AgrAbility project and how many clients the AgrAbility project served in the current year, \( r = .696, p < 0.05 \). This finding indicates that a project with more employees will have served a greater number of AgrAbility clients.
Chapter 5

Summary, Conclusions, and Recommendations

Purpose and Objectives

The purpose of this study was to assess the online content on AgrAbility project websites and discover content, image categories, messaging appeals, and frames that emerge through how the content is presented. Additional information regarding online content for each AgrAbility project website was obtained through email-administered surveys with each project’s webmaster.

The following research objectives were developed to:

1. Determine the types of media content on AgrAbility project websites,
2. Determine the messaging appeals and frames on AgrAbility project websites,
3. Identify the use and usability elements of the information presented on the AgrAbility project websites, and
4. Determine if correlations exist between content analysis and Webmaster survey results.

Summary of Methods and Procedures

The study was approved and identified as not human subject research by the Pennsylvania State University’s Institutional Review Board. To determine the content used in AgrAbility project websites, a quantitative content analysis was conducted. The study employed a combination of quantitative content analysis and descriptive survey
research. A coding sheet was developed based on the first three research objectives. A scoring scheme was also developed for each item in the coding sheet to identify the presence or absence of an item, the number of items in a question or category, and the ranking of certain items. Of the 27 AgrAbility project websites, 23 were included in the content analysis.

The webmaster surveys collected data based on research objective four. The survey was administered in two parts. An initial email containing information about the research study was sent to the contacts listed on the AgrAbility State and Regional Projects (SRAP) directory maintained by the National AgrAbility Project at Purdue University, and a second email containing a survey of six questions was sent to the webmaster. Of the 23 AgrAbility project websites, 16 responded to the webmaster surveys. To determine if significant correlations existed between content analysis data and webmaster survey results, specific items on the coding sheet were grouped to obtain a Pearson correlation score to discover if correlations existed between content analysis data and webmaster survey responses.

**Discussion of Major Findings**

The main purpose of this study was to assess the online content on AgrAbility project websites. The coding sheet created for the content analysis assessed three areas of online content: media content, messaging appeals and frames, and use and usability elements. In addition to the online content analysis, a webmaster survey was created to gather information about each project and determine if significant correlations exist between the survey responses and the online content.
Of the 27 AgrAbility projects, 23 were included in the content analysis. Four projects, Arkansas, Idaho, Iowa, and Vermont, were removed from the study because they were no longer a USDA-NIFA funded project. Of the 23 AgrAbility projects included in the content analysis, 16 projects provided responses to the webmaster surveys. Contact was made with California, Missouri, Nebraska, Tennessee, and Utah, but webmaster survey responses were not returned. No contact was successful with two projects, Georgia and Utah. Non-response may be attributed, but is not limited, to several factors: how the survey was administered, sending the survey to someone who was not the webmaster, if the emailed survey was labeled as trash or spam in the receiver’s inbox, and inaccurate or out of date contact information.

**Objective 1**

The content analysis determined media content as the use of logos and social media plug-ins observed on the project websites. Subcategories of media content were revealed as informative content and image content. Of the 23 websites, 22 (95.7%) included the AgrAbility logo and 20 (87.0%) included additional logos other than the AgrAbility logo. The results showed that a limited number of the websites were using social media plugins, including Facebook™ (73.9%), Twitter™ (47.8%), Instagram™ (8.7%), Pinterest™ (21.7%) and Blog plugin (4.3%). Previous studies focusing on the content analysis of online agricultural awareness campaigns also found a lack of social media plugins. This deficiency is seen as a negative, because a lack of social media plugins is limiting to the reach and spread of information (Rumble, Settle, & Irani, 2016; Elder et al., 2004; Palmgreen & Donohew, 2006).
Informative content included the textual information that helps identify what the website viewer is looking for. Informative content elements were identified as the mission/vision/goal of the AgrAbility projects, keywords that help define the program, information about the application process, information about how to make a donation, and the use of medical information and sources. Three informative elements were identified on all 23 websites were the mission statement, searching the term “AgrAbility,” and the use of medical information and sources. These informative elements help the viewer identify what the project’s mission is, help make a connection with the appropriate logo, and inform the viewer with correct and accurate medical information.

Image content was assessed by counting the number of images located on the main homepage. Images were only accounted for if they were displayed on the homepage, as the homepage is the first page that viewers see. Of the 23 websites, 21 (91.3%) displayed images on their homepages. The number of images identified on the websites ranged from 0 to 10. Images were also assessed on quality, portrayal of agricultural workers, age of subjects in the image, and depictions of farm equipment, assistive technology, and farm landscape. Twenty-one (91.3%) websites had images of good quality, indicating clear and well-composed images. Twenty (87.0%) websites had images that depicted agricultural workers. The target audience for AgrAbility programs was farmers or agricultural workers with a disability. Thus, it is important for websites to portray their intended audiences in an accurate and positive way, because effective images create personal connections with their audiences (Rumble, Settle, and Irani, 2016; Jacobs and Shapiro, 1994; Sniderman et al., 1990). Overall, the number of images found
on each website’s homepage was low. Two (8.7%) websites had zero images and two (8.7%) websites had 10 images. Although images help to create connections with viewers, the more images a website has is not necessarily better; webpages that include images are more likely to appeal to viewers with a low interest in agriculture (Rumble, Settle, & Irani, 2016; Abrams & Meyers, 2012).

**Objective 2**

To assess how the content of the websites might be appealing to the intended audience or public, the researcher looked for logical and emotional appeals. The majority of websites included both logical and emotional appeals. As stated in the literature review, message appeals are commonly identified as logical or emotional (O’Guinn, Allen, & Semenik, 2003; Srivastava & Sharma, 2008; Rumble, Settle, & Irani, 2016). The most frequently identified logical appeal on the websites was “inform,” (100.0%), followed by “gain” (95.7%), and “self-referencing” (65.2%). The most frequently identified emotional appeal was “pride” (91.3%), followed by “emotion” (87.0%), “empathy” (82.6%) and “happiness” (82.6%). Message appeals influence how the information on the website is processed (Atkin & Salmon, 2010; Rumble, Settle, & Irani, 2016). AgrAbility project websites aim to inform the viewer about their project, so it is not surprising that “inform” was the most frequently identified appeal.

The websites were also analyzed for pre-determined frames. As stated in the literature review, the majority of framing research focuses solely on unique frames (Borah, 2011). In the agricultural communications research field, creating and discovering unique frames could be beneficial and also allow researchers to discover new
frames leading to the opportunity of adding to future research. For this research study, eight frames were developed that were specific to the AgrAbility project websites. The frames were agricultural safety, health, prevention (prevent further farm and health related injuries), moral, environmental, economic, education, and community. Two frames were identified on all 23 websites, the agricultural safety frame and moral frame. These findings are important because the combination of educational and fact-based frames with other frames increases the effectiveness of messages (Rumble, Settle, & Irani, 2016; Durkin et al., 2009). As a consumer of information, it is often found that having facts within real human stories or emotions makes information more relevant and memorable.

**Objective 3**

According to the literature review, the target audience of those who view AgrAbility websites and similar assistive technology websites are farmers and agricultural workers. To ensure that websites are being used correctly and effectively, and that audiences can navigate with ease, usability testing is needed. Usability testing can identify what is working effectively for the audience, what is not, and how to improve it.

To determine if the information on the AgrAbility project websites was presented in an easy and usable format, the content analysis coded for the presence or absence of the following: language modification, text size modification, audio options, color modification, search bar, and dead links. The most common usability element identified on the project websites was the presence of a search bar (69.6%). The websites lacked the ability to modify language (0.0%), text (13.0%), audio (4.3%) and color (0.0%).
Although it may be detrimental to audiences that these usability elements are not present, it does not mean that the agricultural information is difficult to understand. Dunn, Akers, Duysen, Myers, and Chambers (2013) evaluated the usability of Texas Tech’s Sorghum Research Initiative website and discovered that student participants with agricultural majors reported better usability of the website than students in non-agricultural majors. This is a positive in relation to AgrAbility project websites because the target audience of the websites are those familiar with agriculture, thus resulting in a higher usability with the website material.

Additional usability elements consisted of font type usage, ability to view and/or download publications, whether or not the website was independent or included within a university or another organization’s website, number of tabs and number of pages on the website. Organizational elements were also included under use and usability. Organizational elements refer to how organized the text is, the use of colors, the use of photographs and graphics, and the use of tabs on the homepage area of the AgrAbility project websites. A scale of 1 (Unorganized) to 5 (Organized) was created to rank how organized the use of text, colors, photographs and graphics, and tabs are. Overall, the websites were ranked as organized or somewhat organized. These findings are important, as the audience for the AgrAbility project websites are older adults, who often report using it as a difficult task. A reason behind this difficulty is navigational elements within the website and the arrangement of elements on the screen (Bergstrom, Olmstead-Hawala, & Jans, 2013).
Objective 4

A webmaster survey was administered to gather the following information for each AgrAbility project: how often the website is updated, how much time is dedicated to maintaining the website, how many webmasters there are, how many employees in the state project, what the most popular page is on the project’s website, and how many AgrAbility clients the project served this calendar year, including how many of those AgrAbility clients contacted the project through the website. Of the 23 websites included in the content analysis, 16 (69.5%) answered and returned the webmaster survey.

To determine if significant correlations existed between content analysis results and webmaster survey responses, scores were created based on the first three research objectives. Evaluations were conducted for the following: media content, informative content, frames, message appeals, images, pages and tabs, use and usability elements, and organizational scale. Analyses were run to determine if the category scores correlated strongly with the webmaster survey responses. Of the six webmaster survey questions, one was significant and positively associated with scores from the content analysis categories. The question of how many AgrAbility clients contacted the AgrAbility project through the website was significant and positively associated with the use and usability elements on the website, \( r = .959, p < 0.01 \). This correlation suggests that AgrAbility project websites with a greater number of use and usability elements had more clients contact them via the website.

Additionally, significant correlations between webmaster survey questions were determined. The question of how much time is dedicated to maintaining the website was significant and positively associated with how often the website is updated, \( r = .567, p < \)
0.05. This finding indicates that a greater amount of time dedicated to maintaining the website indicates a more updated website. The second correlation was between the number or employees in the AgrAbility project and how many clients the AgrAbility project served in the current year, $r = .696, p < 0.05$. This finding indicates that a project with more employees will have served a greater number of AgrAbility clients.

It is important to note that results may be skewed due to the higher number of clients in the National AgrAbility Project (NAP). The NAP differs from the State and Regional Projects (SRAPs) in the areas of clients, number of web pages and tabs, and employees. In the webmaster survey, the NAP webmaster stated,

The AgrAbility definition of "client" means that the individual has received a site visit. Since these visits are almost exclusively done by the state projects, the National AgrAbility Project, by definition, has no clients. Approximately 190 people contacted the project through the website in 2016 related to various issues. Forty-seven of these were people in need of direct services that were from states that have AgrAbility projects and were thus referred to those projects as potential clients. Twenty-eight people in need of direct services that were from states that did not have AgrAbility projects, so the National AgrAbility Project provided information and referral services.

**Summary and Conclusions**

This study assessed the online content presented on AgrAbility project websites. The content analysis identified the types of content presented, image categories, messaging appeals and frames, and usability elements. Secondary data from webmaster surveys revealed correlations between survey results and website content.

Objective one identified what types of media content was on AgrAbility project websites. Media content was broken down into two subcategories of informative content and image content. The most commonly used media content was the use of the
AgrAbility logo and additional logos. Informative content was identified as texts and information that are used to convey the project’s message. The mission/vision/goal statement, along with searching the terms “disability,” “disabilities,” and “AgrAbility” were the most frequently identified informative content. Image content referred to the quality of images, portrayal of agricultural workers, age of subjects in the image, and depictions of farm equipment, assistive technology, and farm landscape. Majority of images were good quality and depicted agricultural workers, elderly subjects in the photos, and depictions of farming equipment and landscape.

Objective two identified message appeals and frames to assess how the content of the websites might be appealing to the intended audience or public. The websites used a combination of both logical and emotional appeals, resulting in an effective message strategy. The websites were also analyzed for pre-determined frames. The creation of specific frames was crucial to the study, because AgrAbility is a unique program that conveys information that is not common to all publics. Eight frames were developed. The most frequently used frames were agricultural safety, health, moral, and community.

Objective three determined if the information on the AgrAbility project websites was presented in an easy and usable format. The content analysis coded for the following usability elements: language/text/audio/color modification, presence of a search bar, dead links, appropriate font, ability to view and download publications, if website was linked for a university or organization, number of pages and tabs, and the name or label of the pages and tabs. Additional organization elements were identified and were ranked from 1 (Unorganized) to 5 (Organized).
Objective four determined if any correlations existed between the webmaster survey results and the content analysis. To determine if correlations existed between content analysis results and webmaster survey responses, scores were created based on the first three research objectives to run a correlation test with webmaster survey questions. Of the six webmaster survey questions, two were significantly positively associated with scores from the content analysis categories.

**Recommendations for AgrAbility Projects**

The aim of this study was to determine what makes AgrAbility project websites usable and effective. The data collected from the study will be used to recommend what a successful AgrAbility project website should look like. Findings from this research may influence creating cohesive and usable content to better serve AgrAbility clients and team members. The following recommendations are offered:

**Webmaster Survey**

The significant and positive correlation between the content analysis data and webmaster survey suggests that AgrAbility project websites with a greater number of use and usability elements had more clients contact them via the website. Based on this finding, a greater emphasis on use and usability should be placed on improving AgrAbility websites. If AgrAbility project websites continue to improve the usability of their websites, more clients will visit and make contact through the website.

Additionally, the significant and positive correlation between webmaster survey questions suggest that the amount of time the webmaster dedicates to maintaining the
website increases how often the website is updated. If webmasters continue to dedicate a
greater amount of time maintaining the website, they will provide clients and website
visitors with accurate and up-to-date information, thus resulting in a greater chance of
attracting new clients. Also, the number of AgrAbility employees in each project was
significant and positively associated with the number of clients the AgrAbility project
served in the current year. This correlation indicates that AgrAbility projects with a
higher number of employees will attract and serve more clients. This suggests that
AgrAbility projects need to continue to hire and expand their projects in the hopes of
expanding their client base.

Contact Information

It is recommended that all AgrAbility SRAP contact information be updated on
the National AgrAbility website project directory. In the beginning stages of this research
study, the researcher encountered problems of identifying whether or not certain
AgrAbility projects were still funded and if they should be included in the research study.
Lack of current information could be detrimental to potential clients that are interested in
receiving AgrAbility services. If contact information, such as employee emails and phone
numbers, are no longer up to date, projects will miss out on being able to help new
AgrAbility clients. It may also leave those potential clients discouraged that they are
unable to receive information or assistance. Projects that are no longer funded should be
able to refer AgrAbility clients to other AgrAbility projects or related programs that are
still in existence. To take it one step further, clients that are trying to visit AgrAbility
project websites that are no longer funded should be redirected to the National AgrAbility Project website.

Use and Usability

Based on the findings in this study, universal usability among websites is recommended. According to Menzi-Çetin, Alemda, Tüzün, and Yildiz (2017), “to highlight the difficulties people with disabilities face in accessing and using information, designers’ emphasis on universal usability is crucial” (p. 152). It is recommended that text modification features be added to websites. Of the 23 AgrAbility project websites, 3 (13.0%) had the option to modify the size of the text on the webpage. If this feature cannot be added to a website, viewers can zoom or magnify the webpage by enabling a keyboard function or using a web browser function. Websites often lack a search bar, as well. Of the 23 AgrAbility project websites, 16 (69.6%) had a search bar. To combat this issue, search functions can be enabled by entering the proper keyboard functions. This allows the web viewer to search for key words or phrases within a webpage.

AgrAbility works with a variety of clients, some who may be visually impaired. To ensure proper usability for all clients, websites and documents should be downloadable and perhaps even audible. It is common for documents online to be PDF files. PDF files cannot be converted to audio, so a different format such as Word documents are recommended. Although this topic was not addressed in this study, it should be noted in future research. Accommodations for visually impaired clients or website visitors should be made. Menzi-Çetin, Alemda, Tüzün, and Yildiz (2017) stated,
Since websites use visuals extensively, visually impaired people face more difficulty accessing and using websites than other people with disabilities. People with poor vision or complete lack of vision are considered visually impaired. There are assistive technologies that visually impaired people use to access to web pages. People with a complete lack of vision use screen readers, and those with poor vision use screen magnifiers (p. 152).

Additional usability recommendations include monitoring and deleting dead links, which are webpages that are no longer functioning or are no longer accessible. Also, simple and easy to remember URL or domain names for websites should be considered.

University or Organizational Affiliations

Several AgrAbility projects examined in this study were linked to a university. This finding can be associated to a lack of creativity or freedom when designing the AgrAbility project website. For the AgrAbility for Pennsylvanians project, the website is restricted and must follow Penn State College of Agricultural Sciences website guidelines. Additionally, difficult URL and/or domain names could also be attributed to a lack of control over the website. This could be the case for several other AgrAbility projects that are connected or linked to a university or organization.

Template for Ideal Website

A template for a successful AgrAbility website was created based on the findings of this study and information found in the literature review (See Appendix E). This template does not claim to be the ideal format for a website, but serves as a starting point for AgrAbility projects to reference when creating or updating their website. Based on the
findings from the content analysis and webmaster surveys, a template for what an ideal AgrAbility project website should include the following elements. The template is presented as the homepage or first page on a website; based on the finding from the webmaster survey stating that the homepage was identified as the most popular page on the AgrAbility project websites.

A universal or common layout, based on the NAP website, among all SRAP websites could promote strong usability for both AgrAbility clients and team members. This recommendation is reinforced by Lee and Kozar’s (2012) study on understanding website usability constructs; the researchers stated that “difficult-to-understand content, inconsistent formats, difficulty in navigation, disorientation, lack of interaction and reliability, inefficient search capabilities, and ill-defined help functions are usability problems frequently identified with commercial websites” (p. 450).

Media content: All websites should include the AgrAbility logo, additional logos that are a part of each state’s project, and popular social media plugins (Facebook™, Twitter™, and Instagram™). A lack of social media plugins is limiting to the reach and spread of information (Rumble, Settle, & Irani, 2016; Elder et al., 2004; Palmgreen & Donohew, 2006).

Informative content: All websites should include a mission/vision/goal statement that conveys the project’s message to the intended audience. The use of certain terms, such as “disability,” “disabilities,” “assistive technology,” and “application process/apply for assistance” should be on the website, as these are the main identifiers and resources of the AgrAbility project. Racz and Field (2011) found that farmers most preferred information about assistive technology (AT) from printed newsletters and publications.
Additional findings revealed that farmers believed dissemination strategies were moving toward the Internet and AT information is more readily available than in the past. To make the transition from printed information, websites should have all printed publications available on their websites.

Image content: Images should be based on the average client age of each project. Due to varying demographics in each state, images should relate and create a connection to the AgrAbility client base each project wants to reach. According to Rumble, Settle, and Irani (2016) who referenced Nabi and Oliver (2010), “Images or messages that form strong personal connections are more likely to be remembered and used in future decision-making (p. 101).

Message appeals and frames: A combination of logical and emotional appeals is most effective. The use of agricultural safety information in addition to emotional or personal client stories is an effective way to promote the AgrAbility project and create more exposure to the project. A similar strategy should be employed with frames.

Use and usability: Websites should be uncluttered and organized. Too much text or graphics makes the website difficult to navigate for an older audience, which is the majority of AgrAbility clients. As the literature review stated, a reason that older adults report using the Internet with difficulty is attributed to the navigational elements within the website and the arrangement of elements on the screen.

Romano Bergstrom, Olmstead-Hawala and Jans (2013)’s study stated specifically, “cluttered peripheral information often results in performance difficulties for older adults” (Ball,Beard, Roenker, Miller, & Griggs, 1988; Mackworth, 1965; Romano,
Dennis, Howard, & Howard, 2007; Scalf et al., 2007; Scialfa, Kline, & Lyman, 1987; Sekuler & Ball, 1986; Sekuler, Bennett, & Mamelak, 2000; Williams, 1989; p. 541).

**Recommendations for Study Replication**

*Non-respondents in this Study*

It is recommended that a similar study in the future should send out an initial recruitment email earlier, along with a link to a survey. Respondents may be more inclined to answer questions when it is presented in a multiple-choice format, instead of an essay-style format. This also allows for easier tracking of respondents.

*Examine A Correlation Between Content Analysis Categories*

Determine if correlations exist between certain content analysis categories and items. These findings may discover if there are relationships between content categories, such as a relationship between media content and frames.
References


Appendix A
Coding Sheet

List of AgrAbility Project websites
Directions: go to www.agrability.org, find “AgrAbility Projects Directory.” List of projects appears. Select each state to find out information. Select “National AgrAbility Project” and find information. If website is not listed, name is typed into Google search engine.

1. National AgrAbility Project Website: www.agrability.org
4. Colorado: http://agrability.agsci.colostate.edu/
5. Georgia: http://farmagain.com/
6. Idaho: (website unavailable—might not have been renewed by USDA)
8. Indiana: https://engineering.purdue.edu/~bng/
9. Iowa: http://www.exnet.iastate.edu/Pages/agrability/
11. Kentucky: http://www2.ca.uky.edu/ANR/Agrability/NewAgrabilityWebsite/index.php
12. Maine: https://extension.umaine.edu/agrability/
15. Missouri: http://agrability.missouri.edu/
16. Nebraska: http://agrability.unl.edu/
18. Ohio: http://agrability.osu.edu/
20. Tennessee: https://ag.tennessee.edu/agrability/Pages/default.aspx
21. Texas: http://txagrability.tamu.edu/
22. Utah: http://agrability.usu.edu/
23. Vermont: http://www.vcil.org/services/agrability
24. Virginia: http://www.agrability.ext.vt.edu/
25. West Virginia: http://agrability.ext.wvu.edu/
26. Wisconsin: http://agrability.bse.wisc.edu/
PART 1—Information and media content

*Answer the following questions by viewing the main homepage and each tab listed.

Q: Are the following media content present on the website?

- [1A_logo] Is the AgrAbility logo present? (No=0, Yes=1)
- [1A_logo_diff] Are there additional logos present? (i.e. the nonprofit partner or affiliate name) (No=0, Yes=1)
- [1A_facebook] Is there a Facebook plugin present? (No=0, Yes=1)
- [1A_twitter] Is there a Twitter plugin present? (No=0, Yes=1)
- [1A_instagram] Is there an Instagram plugin present? (No=0, Yes=1)
- [1A_youtube] Is there a YouTube plugin present? (No=0, Yes=1)
- [1A_pinterest] Is there a Pinterest plugin present? (No=0, Yes=1)
- [1A_blog] Is there a Blog plugin present? (No=0, Yes=1)

[1A_mission] Is the mission/vision/goal statement of AgrAbility present on the homepage? (No=0, Yes=1)

*Answer the following questions by viewing the main homepage and using the Search tool [COMMAND + F to search for these words on the main homepage]

The “Command + F” search tool allows the coder to search for a word or phrase on a specific page of the site. Also, focusing on the homepage is important because it is the most viewed page by people visiting the site and should mention these key words.

[1B_search_disability] Does the homepage mention “disability”? (No=0, Yes=1)

[1B_search_disabilities] Does the homepage mention “disabilities”? (No=0, Yes=1)

[1B_search_AgrAbility] Does the homepage mention “AgrAbility”? (No=0, Yes=1)

[1B_search_assist] Does the homepage mention “assistive technology”? (No=0, Yes=1)
*Answer the following questions by viewing the main homepage

[1C_application] Does the homepage mention the “application” or “application process” for “applying to seek assistance” from AgrAbility? (No=0, Yes=1)

*Is the following information available for the application process?*

- [1D_app_phone] Is a phone number listed to call for information? (No=0, Yes=1)
- [1D_app_download] Is a PDF or downloadable file available? (No=0, Yes=1)
- [1D_app_link] Is there a link to the “application process” that provides more information? (No=0, Yes=1)
- [1D_app_email] Is there an email listed to contact for information? (No=0, Yes=1)
- [1D_app_address] Is there an address to send mail to find more information? (No=0, Yes=1)

*Answer the following questions by viewing the main homepage

[1E_donate] Does the homepage mention ways to “donate” or “support” the AgrAbility program? (No=0, Yes=1)

[1F_donate] Is there a designated tab or page for donation? (No=0, Yes=1)

Is the following information available about donating?

- [1G_donate_phone] Is a phone number listed to call and donate? (No=0, Yes=1)
- [1G_donate_link] Is there a link to donate? [a link to another page or place to donate]? (No=0, Yes=1)
- [1G_donate_email] Is there an email listed to get more information to donate? (No=0, Yes=1)
- [1G_donate_address] Is there a mailing address to send a donation to? (No=0, Yes=1)

*Answer the following question by viewing the main homepage and each tab listed

[1H_medical_sources] Does the website mention or reference medical information (ex. Information on arthritis from the Arthritis Foundation, information about disabilities, etc.)? (No=0, Yes=1)
PART 2—Frames and message appeals

*Answer the following question by viewing TEXT ON THE MAIN PAGE AND THE TEXT ON EACH TAB LISTED

Q: What are the frames used in how information is presented on the AgrAbility Project website? Note: can have multiple frames, not just one.

The main concept of framing is that an issue can be viewed from a variety of perspectives and be construed as having implications for multiple values or considerations. Framing influences how the audience perceives a message. Frames organize and provide meaning.

[2A_agrsafety_frame] Agricultural Safety
- The frame refers to the ways in which agricultural safety is important and ways to reduce exposure to hazards and managing agricultural emergencies. Emphasis on farmer safety, animal safety, appropriate equipment, and farm emergencies.
- Is this frame present? (No=0, Yes=1)

[2A_health_frame] Health
- The frame refers to medical conditions developed or made worse by farming. Will emphasize different medical conditions, ways to improve your health (tips, healthy eating, physical therapy, etc.)
- Is this frame present? (No=0, Yes=1)

[2A_prevent_frame] Prevention
- The frame refers to the AgrAbility program as a preventative measure to help reduce the rise of farmers with a disability. (i.e. take part in this program and prevent further damage to your health).
- Is this frame present? (No=0, Yes=1)

[2A_moral_frame] Moral
- The frame refers to doing the right thing when helping farmers with a disability. Friends and family members may view the site and get the feeling that by referring this program, they are doing something morally right for a disabled or impaired loved-one. (i.e. use this program because it helps people and it’s the right thing to do).
- Is this frame present? (No=0, Yes=1)
[2A_environment_frame] Environmental
- The frame refers to the impact farmers have on the environment and the need for them to remain in farming.
- Is this frame present? (No=0, Yes=1)

[2A_econ_frame] Economic
- The frame refers to the monetary impact of farming. This includes cost of farming equipment, cost of medical bills and needs, lack of economic resources for farmers to receive the proper equipment. These concerns can be resolved through help of this program.
- Is this frame present? (No=0, Yes=1)

[2A_edu_frame] Education
- The frame refers to the educational benefits of the program. Clients can learn about agricultural topics, etc. The program itself is a form of education due to Extension. References the partnership between AgrAbility and university (and non-profit partnership).
- Is this frame present? (No=0, Yes=1)

[2A_community_frame] Community
- The frame refers to the program as a “place” or thing that multiple people can be a part of. The AgrAbility program encompasses multiple people and projects, references events and ways to be involved and how it helps farming communities.
- Is this frame present? (No=0, Yes=1)

*Answer the following question by viewing the TEXT on the MAIN PAGE AND the TEXT on EACH TAB/page

Q: What message appeals are used? Note: can have multiple appeals, not just one

Message appeals are broken down into two categories: logical and emotional. Appeals refer to the approach used to attract the attention of consumers and/or to influence their feelings toward the product, service, or cause. It’s something that moves people, speaks to their wants or need, and excites their interest.
[2D_logic_gain] Gain
- Gaining something from the information/program. Gain, improve, get something, positive
- *Is this appeal present? (No=0, Yes=1)*

[2D_logic_loss] Loss
- Lose something or missing out. Example—you will lose out on possibilities or benefits if you do not utilize this program
- *Is this appeal present? (No=0, Yes=1)*

[2D_logic_inform] Informative
- Based on subjective information for the viewer, not persuasive, just giving the facts
- *Is this appeal present? (No=0, Yes=1)*

[2D_logic_self] Self-reference
- (“occurs in natural or formal languages when a sentence, idea or formula refers to itself.” Also, “the notion that people in one’s own company, culture, or country know best how to do things—AgrAbility program knows best about assistive technology, etc.)
- *Is this appeal present? (No=0, Yes=1)*

[2D_logic_social] Social modeling
- (learning by observing/doing, if you do these things and they are rewarding then it will be adopted)
- *Is this appeal present? (No=0, Yes=1)*

[2E_emo_threat] Threat
- (threats to health; “if you do not use this program, there will be threats to your health. OR addressing potential threats that could be prevented through use of this program)
- *Is this appeal present? (No=0, Yes=1)*

[2E_emo_empathy] Empathy
- (understand the risks and limitations of farming related disabilities; ability to understand how hard it is or what person is going through)
- *Is this appeal present? (No=0, Yes=1)*

[2E_emo.promise] Promise
- (this program will help you, promises of assistance)
- *Is this appeal present? (No=0, Yes=1)*
**[2E_emo_guilt] Guilt**
- (aimed at making viewer feel guilty of not using proper equipment, or using friends and family members guilty in not helping disabled family member seek help sooner)
  - *Is this appeal present? (No=0, Yes=1)*

**[2E_emo_fear] Fear**
- (fear of greater disability if this program is not utilized; “family member could be saved through help of this program, don’t want a farm emergency to occur, etc.)
  - *Is this appeal present? (No=0, Yes=1)*

**[2E_emo_pride] Pride**
- (proud of being a farmer, taking pride in the agricultural industry, help keep that person in agriculture so they can improve their life and their profession)
  - *Is this appeal present? (No=0, Yes=1)*

**[2G_emo_emotional] Emotional**
- (using real life stories from clients to evoke emotions on how the program has helped them, personal, moving, etc.)
  - *Is this appeal present? (No=0, Yes=1)*

**[2E_emo_happy] Happiness**
- (positive, “you can do it”, uplifting information)
  - *Is this appeal present? (No=0, Yes=1)*

*Answer the following questions by viewing the PHOTOS/IMAGES on the main homepage*

**[2F_images] Are there any images on the homepage? (No=0, Yes=1)**

**[2F_image_quality] Are the images good quality? (Are they clear and not fuzzy)? (No=0, Yes=1)**

**[2F_images_ag] Do the images contain farmers, ranchers, or agricultural workers? (No=0, Yes=1)**

**[2F_images_children] Do the images contain children/adolescents under 18? (No=0, Yes=1)**
Do the images contain young adults (best visual guess approximately 18-30 years of age)? (No=0, Yes=1)

Do the images contain adults (best visual guess approximately 31-40 years of age)? (No=0, Yes=1)

Do the images contain middle-aged adults (best visual guess approximately 41-55 years of age)? (No=0, Yes=1)

Do the images contain elderly/older people (best visual guess approximately 56 years of age and older)? (No=0, Yes=1)

Do the images portray farm equipment (Example: tractors, silos, skid steer, etc.)? (No=0, Yes=1)

Do the images portray modified equipment/forms of assistive technology (Modified equipment, demonstrations, displaying how equipment works)? (No=0, Yes=1)

Do the images portray farmland (Barns, fields, landscape)? (No=0, Yes=1)

PART 3—Use and usability

*Answer the following questions by viewing the main homepage of website

*NOTE: This section includes the MAIN TABS and ADDITIONAL PAGES/DROP DOWN TABS for the entire website. Example: website has 5 main tabs (About, Contact, Resources, Testimonials, and Calendar). Within the Resources tab, 3 topics appear (assistive technology, disability information, and education). These three topics are marked as PRESENT, as well as the 5 MAIN TABS.

Which pages/tabs are included on the website? (Not present=0, Present=1)

- [3A_about] About/about us
- [3A_asst] Assistive technology
- [3A_resource] Resources
- [3A_contact] Contact us/assistance
- [3A_stories] Stories/testimonials
- [3A_classes] Classes/workshops
- [3A_services] Services
- [3A_news] News
Q: How does the AgrAbility project website allow visitors to accommodate their audio/visual needs and ease of use?

These questions refer to the use and usability of the website and if visitors of the website can modify things to accommodate their needs. An example: on the NAP website, 3 different sizes of the letter “A” indicate the text can be modified to aid in visual needs.

[3B_lang] Can you modify the language used on the website? (No=0, Yes=1)

[3B_text] Can you modify the text size on the website? (No=0, Yes=1)

[3B_audio] Can you modify the audio options on the website? (No=0, Yes=1)

[3B_color] Can you modify the colors used on the website? (No=0, Yes=1)

[3B_search] Is there a search bar on the website? (No=0, Yes=1)

[3B_font] Is the type of font used appropriate (Is the font type easy to read and understand)? (No=0, Yes=1)
*Answer the following question by viewing the homepage and each tab

Q: How is information organized on the website? OR Is the information presented in an organized and attractive format? (Attractive format is defined as pleasing to the viewer's eye, not chaotic and overwhelming).

[3C_use_tabs] How many tabs are on the website? ______
- Note: Count all tabs on the website. Do not confuse them with a “main menu.” Tabs are normally found at the top of a website, often displayed horizontally.

[3D_use_pages] How many pages are within the website?
- Note: Pages include accessing the tabs, and any links to additional pages within the website.
  o 1 = 1-10 pages
  o 2 = 11-20 pages
  o 3 = 21-30 pages
  o 4 = 31-40 pages
  o 5 = 41-50 pages
  o 6 = 51-60 pages
  o 7 = 61-70 pages
  o 8 = 71-80 pages
  o 9 = 81-90 pages
  o 10 = 91-100 pages
  o 11 = over 100 pages

[3O_dead_link] Are there dead links present? (No=0, Yes=1)
- A dead link is “a link on a web page that no longer works because the website is encountering one or more of the reasons below. An improper URL entered for the link by the website owner. The destination website removed the linked web page (causing what is known as a 404 error).”
*Answer the following by viewing the homepage and ranking the level of organization:

*Use this scale to answer the following questions and rank the level of organization*

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unorganized</td>
<td>Somewhat unorganized</td>
<td>Neutral</td>
<td>Somewhat organized</td>
<td>Organized</td>
</tr>
<tr>
<td>-Lacking order or coherence -Either TOO MUCH or TOO LITTLE texts/images -Visually chaotic, or very sparse -NOT BALANCED</td>
<td>-somewhat lacking order and coherence -not a lot of text or not enough text -somewhat unbalanced</td>
<td>-Neither organized nor unorganized</td>
<td>-somewhat arranged in a systematic way -images and text could be balanced better</td>
<td>-Arranged in a systematic way -Texts/images are balanced, not too much or too little -Visually appealing for the viewer, not chaotic</td>
</tr>
</tbody>
</table>

[4A_org_info] On a scale from 1 to 5, how organized is the text on the homepage?  
  • Rank ______

[4B_org_info] On a scale from 1 to 5, how organized is the use of colors on the homepage?  
  • Rank ______

[4C_org_info] On a scale from 1 to 5, how organized is the use of photos/graphics on the homepage?  
  • Rank ______

[4D_org_info] On a scale from 1 to 5, how organized are the tabs on the homepage (i.e. are the tabs easy to find (listed at the top of page or on the sides))?  
  • Rank ______

*Answer the following by viewing the homepage and tabs*

[5A_view] Can you view AgrAbility publications from the website (Example: being about to click and view a publication)? (No=0, Yes=1)

[5A_download] Can you download and save AgrAbility publications from the website (Example: being able to click, download, and save a publication to your computer or device)? (No=0, Yes=1)
*Answer the following by viewing the homepage and website url*

**[6A_alone]** Is the website a standalone site, meaning it is not linked to a university or organization? It is its own website, not a tab or page on a university website. (No=0, Yes=1)

**[6B_univ_linked]** Is the website linked to a university or organization? This means the website is part of a university’s extension page, or is a tab on a university website. (No=0, Yes=1)
## Appendix B

### IRB Approval

**NOT HUMAN RESEARCH**

**Date:** March 9, 2017  
**From:** Julie James, IRB Analyst  
**To:** Colleen Pease

| Type of Submission: | Initial Study  
|---------------------|--------------  
| Title of Study:     | Assessing the Online Content on AgrAbility Project Websites  
| Principal Investigator: | Colleen Pease  
| Study ID:           | STUDY00005927  
| Submission ID:      | STUDY00005927  
| Funding:            | Not Applicable |

The Office for Research Protections determined that the proposed activity, as described in the above-referenced submission, does not meet the definition of human subject research as defined in 45 CFR 46.102(d) and/or (f). Institutional Review Board (IRB) review and approval is not required.

The IRB requires notification and review if there are any proposed changes to the activities described in the IRB submission that may affect this determination. If changes are being considered and there are questions about whether IRB review is needed, please contact the Office for Research Protections.

This correspondence should be maintained with your records.
Appendix C

Initial Recruitment Email for Entire Contact List

Hello (insert name),

I am currently conducting a research study at the Pennsylvania State University focusing on the online communication efforts of all 27 AgrAbility project websites. I am sending this email because I need your help in identifying each person who is in charge of maintaining (insert AgrAbility project name) website. For the purpose of this research study, the person in charge of maintaining the website is called a Webmaster.

Please forward this email to your project’s Webmaster. If you are the Webmaster, please reply to this email (exp467@psu.edu) or call at 814-771-0325 to let the researcher know.

Below is a description of the research study.

Assessing the Online Content on AgrAbility Project Websites

AgrAbility is a program designed to help farmers, ranchers, and agricultural workers with a disability or long-term health condition remain in farming or production agriculture. AgrAbility was created through the 1990 Farm Bill to address the growing needs of farmers with a disability across the United States. Since then, the communication efforts of AgrAbility Projects have evolved. The main communication efforts include paper-based methods (newsletters, brochures, flyers, newspaper and magazine articles), in-person displays at events, and digital-based methods (Facebook, social media, websites, paper methods adapted for online distribution). Communication efforts are important to AgrAbility Projects to determine things such as referral methods, where clients are getting information about the project, and what methods are most successful or popular among clients. Although there are many studies about AgrAbility and how it has impacted the health of farmers with a disability, no research has been conducted on the communication methods, specifically the impact of AgrAbility Project websites.

The purpose of this study is to assess the online content on AgrAbility project websites and discover content, image categories, messaging appeals, and frames that emerge through how the content is presented. Additional information regarding online content for each AgrAbility project website will be obtained through a brief online survey completed by each project’s webmaster. The following research questions were developed:

1. What kinds of media content are used by AgrAbility project websites?
2. What are the frames and messaging appeals used by AgrAbility project websites?
3. What are the use and usability elements of the information presented on the AgrAbility project websites?
4. Do correlations exist between content analysis and Webmaster survey results?

Thank you for your time and cooperation.

Sincerely,
Colleen Pease
M.S. Agricultural & Extension Education 2017
Graduate Assistant - AgrAbility for Pennsylvanians
The Pennsylvania State University
Appendix D

Webmaster Survey Email

Hello (insert name),

We would appreciate your participation in this e-mail administered survey. All responses will be secure. Thank you in advance for your valuable insight. Your input will be used to improve AgrAbility Project websites and thus improve the experience of AgrAbility team members and clients.

Thank you for your time and completion of this survey.

Below is a series of short questions in regard to the web analytics of your (insert each state project name) AgrAbility State and Regional Project website.

Please send back your responses by (insert date). If you have any questions, please contact the researcher, Colleen Pease at 814-771-0325 OR at cxp467@psu.edu.

Please answer each question as best as you can. For the purpose of this survey, a webmaster is defined as “the person who maintains a particular website.”

1. Does the (insert AgrAbility Project name) have a designated webmaster? If yes, is there more than one person?

2. How much time does the webmaster designate to maintain the website?

3. How often is the (insert AgrAbility Project name) website updated?

4. Which pages on the website are the most popular? How many hits per day, week, or month does the most popular page get?

5. How many clients did you serve this year (January 2016 – January 2017)? And ow many of those clients contacted the project through the website?

6. How many team members/employees work in the (insert AgrAbility Project name)?

Thank you for your time and cooperation.

Sincerely,

Colleen Pease
M.S. Agricultural & Extension Education 2017
Graduate Assistant - AgrAbility for Pennsylvanians
The Pennsylvania State University
Appendix E

Website Template

AGRABILITY LOGO

MISSION/VISION/GOAL STATEMENT

“This statement informs the website viewer and provides them with key information about the AgrAbility Project. This assures them they are visiting the correct website.”

PHOTO HERE

Place photos in one spot. Middle of the page that illustrates the mission statement will allow the viewer to visualize what the project does. It also helps with usability, and does not overload the viewer with information.

PHOTO HERE

INFORMATION ABOUT THE PROJECT

Important information about the project should be placed here. The homepage was identified as the most popular page for AgrAbility project websites. So, it is important to get viewers to understand what the project does, how it can help them, and what they can do to receive further assistance. It is also helpful to have credible sources and information about medical issues and assistive technology.

INFORMATION ON HOW TO APPLY FOR ASSISTANCE AND CONTACT INFORMATION

Contact information should be easy to find. An additional element of providing an application form to fill out and send would be a helpful tool to potential clients. The following contact information should be available:

- Contact name or names
- Phone number
- Email
- Mailing address
- If applicable, an affiliation to a university or organization

Place logos of participating organizations. This will alert viewers to partnerships and help establish credibility and recognition. It can also help with further contact information and assistance.