Introduction

Humans consume stories their entire lives through magazines, radio, television, and from one another (Appel & Maleckar, 2012). These stories touch our emotions, impact what we believe, teach us new behaviors, and shape our cultural identity (Appel & Maleckar, 2012; Dal Cin et al., 2008). As Gerrig (1993) wrote, "Some [stories] are created out of fact, some out of fantasy. Some are intended to communicate serious truths; some communicate pure joy. Some [stories] are deeply memorable; some make only a fleeting impression" (p. 1). However, the potential impacts and effects of stories are possible because of the cognitive ability of the audience to engage with and process the information (Appel & Maleckar, 2012; Gerrig, 1993; Gordon et al., 2018; Van Laer et al., 2014).

Agricultural communication practitioners are noticing the opportunity to help farmers share their personal stories and capitalize on the potential effects that personal stories have in messaging (Center for Dairy Excellence, 2012). The gap between those involved in production agriculture and those who are not is continuously increasing, and consumers are wanting information for both where their food comes from and how it is made (White et al., 2014). Beyond their food, many consumers are also yearning for an abundance of information regarding practices and issues surrounding the agricultural industry (Verbeke, 2005). However, both evidence and rhetoric are pointing to the need for agricultural issues to be addressed from agriculturalists sharing their stories and perspective (White et al., 2014). According to the Center for Dairy Excellence (2012), "our consumers prefer truths that come from the mouths of producers themselves, not agenda-focused scientists in a laboratory" (para. 4).

Much of communication has changed in the past 30 years due to the internet. As of 2018, there were more than 1.8 billion websites (Tek Eye, 2018) and an estimated 3.9 billion people with online access (Statista, 2019). Sixty-seven percent of Americans had reported receiving news and information from social media (Pew Research Center, 2017). Agricultural communication practitioners, if not already, have to engage with social media in order to reach a large percentage of individuals who received their information from sites such as Facebook and Twitter (White et al., 2014). Sites like Facebook, Twitter, Instagram, and YouTube allow their users to share videos and other multimedia to spread information. Thus, social media presents a substantial opportunity for effective, innovative, and multimedia communication (Pew Research Center, 2018). Fortunately, the evolution of media and media convergence offers farmers the opportunity to reach audiences in a powerful way through multiple forms of communication (Holt et al., 2015). With today's communication landscape, many people, including farmers, have the opportunity to experience a user-friendly process in sharing firsthand experiences and personal stories online (Pew Research Center, 2018). Utilizing multimedia, combined with personal stories, to communicate with consumers about the complex issues in agriculture could help reduce mental efforts in processing information and result in favorable attitudes and cognitive elaboration toward agricultural issues (Gordon et al., 2018).

One potential area of exploration for message development and story-driven communication is food, specifically food safety practices both at home and/or on the farm. Consumers care about the long-term health effects of what they eat, yet they feel that current messaging is not necessarily answering their questions (Qu et al., 2017). Influence from various sources of information and opinion have led to a shift in how food is prepared and consumed, as well as produced (Pew Research Center, 2016). The Pew Center report noted, "the way Americans eat has become a source of potential social, economic and political friction as people follow personal preferences reflecting their beliefs about how foods connect with their health and

ailments" (2016, para. 2). Not unlike other issues in agriculture, food safety is complex, consisting of several dimensions, and remains one that both consumers (Pew Research Center, 2016) and agriculturalists (American Farm Bureau Federation, 2018) alike keep at the forefront of their thoughts. Research-based information can support the efforts of agricultural communication practitioners by highlighting effective and non-effective ways of engaging audiences in today's online communication landscape.

Literature Review

The theoretical framework for this study was the cognitive theory of multimedia learning, the elaboration likelihood model, and narrative transportation theory. For this study, the researchers identified and utilized two approaches to message development: narrative and analytical. The narrative approach was operationalized as using personal stories and subjective perspectives in an effort to support facts and figures surrounding an issue or topic of learning (Green & Brock, 2000). The analytical approach was operationalized as the use of objective perspectives in an effort to only address facts and figures relevant to an issue (Van Laer et al., 2014). To study the effect or narrative and analytical approaches to video production, previous studies were researched to identify what variables have been analyzed before and what results had been found. The following is a review of literature surrounding multimedia learning, elaboration, narrative transportation, and video production.

Multimedia Learning

Mayer and Moreno (2003) defined multimedia learning as "learning from words and pictures" and multimedia instruction as "presenting words and pictures that are intended to foster learning" (p. 43). Mayer and Moreno (2003) went on to further clarify that the words can either be printed, for example, using text on the screen, or spoken. Pictures have options for how they may be displayed: static or dynamic (i.e. animation or video) (Mayer & Moreno, 2003). A certain type of multimedia, video production, has become a prominent part of communication due to its ability to catch and hold people's attention and make subject matter interesting (Telg & Irani, 2012). Furthermore, the feasibility of viewing videos online has led to the increased rise in search engines and hosting sites for videos to be shared and stored (Halvey & Keane, 2007). Content in video can affect its audience at the cognitive level and/or the affective level (Hanjalic & Xu, 2005). The cognitive level is focused on the "information that describes the 'facts,' e.g., the structure of the story, the composition of a scene, and the objects and people captured by the camera" (Hanjalic & Xu, 2005, p. 143). Affective content of a video is defined as the amount and type of affect (feeling or emotion) that are contained in [the] video and expected to arise in users while watching that video" (pp. 143-144).

Length is another important consideration in online video development (Goodrich et al., 2015). In 2007, Halvey and Keane found that people are likely to share videos based on its length, while Guo et al. (2014) found that shorter videos in an online environment are more engaging. Guo et al. (2014) stated that the "median engagement time is at most 6 minutes, regardless of the total video length" (p. 4). However, videos that are three minutes and under showed the highest engagement between the viewer and the media (Guo et al., 2014). Additionally, Goodrich et al., (2015) found that 30-second informational pieces have been shown to perform well at persuading and conveying emotion, but the use of a talking head could increase the likelihood of audience engagement and length of engagement with longer videos.

Velegol and Zappe (2016) also provided further research that found people were more likely to enjoy shorter videos opposed to longer ones.

Elaboration Likelihood Model

From an educational approach, multimedia learning does present the potential for learners to be exceedingly overloaded in how they process the information (Mayer & Moreno, 2003). Therefore, the developer of the multimedia piece should consider the audiences willingness and ability to process the message.The elaboration likelihood model of persuasion (ELM) explains that people process information through one of two routes, central or peripheral (Petty & Cacioppo, 1986). The route in which an individual processes information is based on the individual's ability and motivation to process. In turn, the individual's attitude is formed depending on the route through which they process information. Petty and Cacioppo (1986) defined attitude as "general evaluations people hold in regard to themselves, other people, objects, and issues" (p. 127). These general evaluations can be influenced by a variety of factors. When individuals process information with a great deal of cognitive effort and incorporate the information into previous knowledge for a detailed evaluation, this is known as "active" processing through the central route. Attitudes that are a result of active processing are typically more resistant to counterarguments and more predictive of future behavior (Petty & Cacioppo, 1986). Individuals who process information from a message based on "cues" in the video--such as source of information, source attractiveness, or features of the media--are processing the message "passively" through the peripheral route. Attitudes formed through this channel are temporary, can be persuaded one way or another, and are also less indicative of future behaviors (Petty & Cacioppo, 1986). Petty and Cacioppo (1986) claimed that two factors influenced the likelihood of message elaboration: motivation and ability. Under both factors, several variables affect whether an individual's motivation or ability is low or high. Motivational variables are highly salient in influencing an individual's message elaboration. These variables include the personal relevance of the message to an individual, as well as his or her need for cognition (Petty & Cacioppo, 1986).

The review of recent ELM literature shows that the model has been used in a variety of contexts (Goodwin, 2013; Lundy, 2007; Manca et al., 2019; Ruth, 2015; Ruth & Rumble, 2017; Verbeke, 2005). Manca et al. found that implicit attitude change occurred in the intended direction among respondents with low involvement and exposure to the expert source. Ruth and Rumble (2017) conducted a study of 515 Florida residents to examine the influence of persuasive communication on consumer attitudes toward genetically modified food. Ruth and Rumble (2017) manipulated the message source for a message on genetically modified food to examine the effect. The findings indicated that the overall attitude was neutral after reading the message; however, source credibility, risk perception, and some demographic characteristics were significant predictors (Ruth & Rumble, 2017). Guided by ELM, Goodwin (2013) found that message transparency had an effect on attitude and trust, but personal relevance did not. The groups with the highest transparency reported the highest scores for trust toward the farm and producer. The study also showed that higher transparency within the message resulted in more favorable attitudes. Lundy (2007) did find that subjects with high issue involvement indicated higher positive attitudes than those with low issue involvement. Additionally, the subjects with high need for cognition reported significantly more positive attitudes.

Narrative Transportation

Narrative transportation theory involves the idea that individuals can be "transported" into a narrative world, becoming mentally immersed in the world of the story:

> Readers become 'lost in a book'; moviegoers are surprised when the lights come back up; television viewers care desperately about the fates of soap opera characters; museum visitors are captivated by the stories encoded in daubs of paint. In each case, a narrative serves to transport an experience away from the here and now. (Gerrig, 1993, p. 3)

Narrative transportation theory suggests that narrative transportation occurs through a distinct mental process, involving an integrative combination of attention, imagery, and feelings, in which all mental systems and capacities become focused on events occurring in the message or story (Green & Brock, 2000). "As technology to deliver multimedia tailored interventions through the internet and mobile phone increases, the future of narrative communication and persusaion will frequently involve video-based stories" (Williams et al., 2010, p. 189). In constructing communication messages, communicators can take a variety of approaches including analytical and narrative. When media, such as videos, use an analytical approach, this involves an objective approach and the use of a message in which story receiver "involvement depends on the extent to which the message has personally relevant consequences for a receiver's money, time, or other resources" (Van Laer et al., 2014, p. 800). When media use a narrative persuasion approach, this involves the use of personal stories and perspectives in an effort to support the facts and figures surrounding an issue or topic of learning. Often, this instruction involves a "character," plot, and lesson (Green & Brock, 2000).

It is important to note that messages can convey both explicit beliefs (ones stated directly within the story) and implicit beliefs (ones implied by the plot or themes of the story) (Green & Clark, 2014). Both types of beliefs may cause viewers to be transported and alter beliefs or perceptions; however, several mechanisms can influence an attitude change. Narrative transportation theory provides a framework for understanding how media experiences can influence a viewer while transporting them into message (Green & Clark, 2014). Van Laer et al. (2014) defined transportability as "a story receiver's chronic propensity to be transported" (p. 803). Additionally, transportability has been posited to function independently of any story or genre (Van Laer et al., 2014). Gerrig (1993) suggested that the story receiver's attention to the narrative is an attribute that can affect narrative transportation. As a result, distractions can cause lower levels of transportation (Green & Brock, 2000).

When a recipient is transported, the real world or "world of origin" becomes inaccessible, and the story receiver may be "less aware of real-world facts that contradict assertions made in narratives" (Green & Brock, 2000, p. 124). According to Green and Clark (2014), when individuals are transported into a narrative, they are more likely to change their real-world beliefs and behaviors to match those suggested by the story. Transportation may also serve to reduce counterarguing. Individuals may be unwilling to counterargue because they do not want to disrupt their enjoyment of a film by breaking out of the narrative world to critique points made in the story (Green & Brock, 2000). Alternatively, individuals may not counterargue because they may not realize they are being persuaded (Green & Clark, 2014).

Much of the research that has provided an understanding of narrative transportation in videos has used traditional surveys and task-based experiments or qualitative interpretive research (Gordon et al., 2018). While the constructs of narrative transportation have traditionally been used for written narratives, they have been adapted to fit video-based narratives as well. Williams et al. (2010) conducted an experimental study to evaluate the video transportation scale

by manipulating the information presented. Respondents who received the narrative-based stories intervention were more engaged with the message than those who received the non-narrative treatment. Williams et al. (2010) also found that narrative transportation led to increased enjoyment, and distractions from the video could hinder enjoyment of the message. Dillard et al. (2017) found that higher narrative transportation resulted in viewers reporting higher intentions to look for more information on the issue and take preventive care measures.

Additionally, recent literature has shown the favorable impacts of transportation on willingness to both share and accept information and messages (Cho et al., 2014; Seo et al., 2018). Narrative transportation in multimedia still requires further research (Williams et al., 2010), as much of the research has focused on written narratives. Despite the lack of research surrounding narratives in videos, many researchers' findings supported the components of narrative transportation theory (Appel & Maleckar, 2012; Dillard et al., 2017; Seo et al., 2018; Williams et al., 2010).

Based on narrative transportation theory, the individual's transportation experience is shaped by his or her own attributes, as well as the characteristics of the storyteller. The end result of the transportation experience can be a change in attitude, behavior, and critical thought (Appel & Maleckar, 2012; Gerrig, 1993; Van Laer et al., 2014). Previous research has recommended that a positive approach to reducing cognitive load and increasing favorable attitudes toward complex issues is to use narrative persuasion (Dillard et al., 2017; Gordon et al., 2018; Seo et al., 2018; Williams et al., 2010). Research has also shown, when communicating messages through video, the appropriate length is important when considering engagement with the information (Goodrich et al., 2015; Guo et al., 2014; Halvey & Keane, 2007). However, research has not established if there is a difference in the effect of approach and length to communication in videos on attitudes, cognitive load and elaboration, and transportation (Williams et al., 2010).

This study aimed to test the effects of narrative and analytical practices in video production on elaboration, attitude, and transportation in order to better communicate about food safety practices. The narrative form of communication involves the use of personal stories and perspectives in an effort to support the facts and figures surrounding an issue or topic of learning, often involving a "character," plot, and lesson (Green & Brock, 2000). The analytical form of communication involves the use of a persuasive message in which story receiver "involvement depends on the extent to which the message has personally relevant consequences for a receiver's money, time, or other resources" (Van Laer et al., 2014, p. 800). Depending on the type of communication and the participant, his or her motivation and ability to process the message will determine the route in which they process the message.

If motivation and/or ability to process the message are absent, the participant will process the message peripherally (Petty & Cacioppo, 1986). Peripheral cues include number of arguments, source attractiveness, and source credibility (Petty & Cacioppo, 1986). These cues may result in the participant having a temporary "peripheral attitude shift" or retaining their original attitude. However, should the respondents have both the motivation and ability to process, they will proceed to process the message through the central route (Petty & Cacioppo, 1986).

Depending on the type of message the individuals receive, narrative or analytical, they will experience specific levels of mental effort and transportation into the message. These two components will work to influence the overall enjoyment and engagement in the video. After this process has occurred, the participant will have one of three reactions. 1) Their favorable thoughts will predominate, 2) their unfavorable thoughts will predominate, or 3) they will remain neutral

on the topic (Petty & Cacioppo, 1986). If they remain neutral on the topic, they will then revert back to the peripheral cues and follow the same process as those who went directly to the peripheral processing route. If the participant, however, has either favorable or unfavorable thoughts that predominate, this will result in a cognitive structure change that has either a positive or negative attitude change that is relatively enduring, resistant, and predictive of their behavior.

Purpose and Objectives

The purpose of this study was to determine the effects of narrative and analytical practices on elaboration, attitude, and transportation when communicating about food safety practices. The objectives that guided this study were to:

1. Determine the effects of different types and lengths of video communication on the elaboration of Florida residents toward the message.
2. Determine the effects of different types and lengths of video communication on the attitude of Florida residents toward the message.
3. Determine the effects of different types and lengths of video communication on the transportation of Florida residents into the message.
4. Compare the effects of different types and lengths of video communication on elaboration, attitude and transportation.

Methods

This study followed an experimental research design. The researcher utilized a 2 (type of media: narrative and analytical) x 3 (length of media: short, medium, and long) between-subjects factorial design. Factorial designs can allow each independent variable to be assessed both separately and in combination with other independent variables on its influence (Keppel & Wickens, 2004). Additionally, the researcher used survey methodology to collect data from Florida residents. Florida residents 18 years of age or older were chosen as the population for this study.

For this study, the researcher hired Qualtrics, an online survey company, to collect data on behalf of the researcher. Through the use of non-probability sampling and opt-in panels, the survey was completed by 712 respondents, with 71% ($n= 507$) of the surveys deemed usable due to completeness and lack of errors. The survey was disseminated online and sent to participants via Dillman et al. (2009) recommendations for online surveys. The type of video communication and length of the video treatments that the subjects received were randomly assigned through the survey software. The survey distribution began on January 15, 2019, and closed on January 21, 2019, after the complete responses were obtained.

To determine the reliability and validity of the instrument, a pilot study was completed. The instrument was piloted with 70 Florida residents who were not included in the final sample. The pilot test provided 32 usable responses. The researcher tested three constructs for reliability using Cronbach's alpha: elaboration on the message, attitude toward information provided, and transportation into the video. A Cronbach's alpha value larger than .70 indicates a reliable scale (Ary et al., 2018). The scales for elaboration ($\alpha = .87$) and attitude ($\alpha = .89$) were deemed reliable. The reliability of the transportation scale was .63. Results from the pilot study indicated that eliminating the statement "Activity going on in the room around me was on my mind" would increase the reliability score to .70. Additionally, a panel of experts, consisting of one tenured professor, three assistant professors, and a research coordinator, reviewed the instrument

for face and content validity prior to the pilot test. The panel of experts was selected based on their knowledge and experience in survey design, communication theory, video production, and experimental design.

The study included a posttest design. The experimental groups were designed as follows: R = random assignment; X1 = narrative, short length; X2 = analytical, short length; X3 = narrative, medium length; X4 = analytical, medium length; X5 = narrative, long length; X6 = analytical, long length; O1 = posttest measures. Two independent variables were used in this study. Both variables were manipulated. The two variables were type of media persuasion and length of media. These two variables were combined to create six treatment groups.

Six videos – Video X_1, X_2, X_3, X_4, X_5, and X_6 – were produced with messages focusing on food safety practices on a citrus farm operation. To control the effect of stimuli, the six videos were each developed with their own script that controlled the length and type of message. To develop the script, the researcher interviewed 10 farmers to gather information on the types of common food safety practices that can occur on a farm operation. The researcher also asked questions about each farmer's personal narrative regarding his or her decision to pursue a career in farming. Using common themes, the researcher developed three narrative-driven scripts that included both a personal narrative and information on food safety practices, and three analytical-driven scripts that only included information on food safety practices. All six scripted videos listed the same food safety practices and contained the same imagery.

The participants in this study were randomly assigned to one of the six message treatments. The six videos varied both in type and length. The six videos were either short, medium, or long in length. There were two videos for each length option, one of each type: narrative or analytical. The researcher developed the videos for this study based on the suggested length for high audience engagement of no longer than 3 minutes (Guo et al., 2014). The short-length videos were 60 seconds long (one minute). The medium-length videos were 90 seconds long (one-and-half minutes). The long-length videos were 120 seconds (two minutes) long. A brief description of each group can be found in Table 1.

To control the effect of each message stimuli, the researcher used all of the same visuals for each video. Additionally, all narrative videos utilized the same type of narration, tone, intro, and outro. Furthermore, all analytical videos abided by the same guidelines. To differentiate between experimental treatment groups, the scripts differed in how much the farmer mentioned personal stories or expanded on the practices. The researcher tried to incorporate a tone of personal connection in the narrative scripts. The three scripts used in the narrative videos utilized the pronoun "you" so that the audience felt that the farmer was addressing them. The farmer also referenced his family and the audience's family to try and create a connection to the operation, product, and viewer. The analytical videos did not use any pronouns and simply replaced all "you" appearances with the words "the consumer." The researcher incorporated this change to try and evoke a feeling of disconnect from the farmer and the viewer.

For the purpose of this study, the researcher utilized an actor to portray a farmer who ran a fictional farm. The actor was a young, white male with an understanding of agriculture. The actor read each of the six scripts from a teleprompter in a studio. The background for the interview with the farmer was a white screen background. The actor read the narrative scripts utilizing emotion and personality to add to the feel of the video. The analytical scripts were read without personality and very little emotion to provide a different tone to the video compared to the narrative-driven videos. The researcher filmed b-roll video at a citrus farm to match the practices that were discussed in the video.

Table 1

Description of Each Treatment Group

	Type of Video	
Length of Video	Narrative	Analytical
Short	60 second long video that included personal narrative (e.g. referencing own family, viewer's family, and personal connections to the product) and information on food safety practices.	60 second long video that included only information on food safety practices. The video included no personal connections or attempts to address the viewer and their family.
Medium	90 second long video that included personal narrative (e.g. referencing own family, viewer's family, and personal connections to the product) and information on food safety practices.	90 second long video that included only information on food safety practices. The video included no personal connections or attempts to address the viewer and their family.
Long	120 second long video that included personal narrative (e.g. referencing own family, viewer's family, and personal connections to the product) and information on food safety practices.	120 second long video that included only information on food safety practices. The video included no personal connections or attempts to address the viewer and their family.

The six scripts were both reviewed and pretested to ensure that the manipulation of the type of message was successful. The six scripts for the video treatments went through three revisions. The scripts were reviewed by five communication professionals. These individuals consisted of an agricultural communication professor, two videographers with six or more years of experience in the agricultural industry, a graduate student who attended film school and worked in communications for several years, and an agricultural communication specialist. The role of these professionals was to ensure that the messages contained similar information but provided enough detail to distinguish a narrative script from an analytical script.

The three constructs of interest to this study were attitude, elaboration, and transportation. The constructs were measured using multiple-item scales adapted from pre-validated instruments from prior research and reworded to relate specifically to the context of this study. Several approaches have been used to directly measure attitude (Goodwin, 2013). Direct measurement of attitudes is also known as self-reporting. Self-reporting has been found to have a higher reliability and validity score than indirect measures, as well as be more precise (Petty & Cacioppo, 1996). In this study, the researcher implemented a 10-item semantic differential scale to measure attitudes about the information provided in the videos regarding food safety at the fictional "Sunrise Citrus Farms." The semantic differential scale was adapted from a scale used by Goodwin (2013).

The researcher used the message elaboration measurement developed by Reynolds (1997). After watching a message, participants self-report their level of agreement to 12 items that were measured using a 7-point Likert-type response scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The elaboration index response items were categorized to the real limits of 1.00 to 1.49 = *strongly disagree*, 1.50 to 2.49 = *disagree*, 2.50 to 3.49 = *somewhat disagree*, 3.50 to 4.49 = *neither agree nor disagree*, 4.50 to 5.49 = *somewhat agree*, 5.50 to 6.49 = *agree*, 6.50

to 7.00 = *strongly agree*. The researcher created the elaboration index by averaging the responses for each item in the index, for each subject.

Transportation has largely been measured through the use of traditional surveys, task-based experiments, or qualitative interpretive research (Gordon et al., 2018). Researchers are still working to identify how transportation affects persuasion (Williams et al., 2010). Based on previous works of Green and Brock (2000), Williams et al. (2010) developed the video transportation scale which was used in this study. While a transportation scale for measuring both engagement and attention in written narratives has been validated, the transportation scale has not been fully evaluated for use with video-based interventions (Williams et al., 2010). The video transportation scale developed by Williams et al. (2010) was adapted from the transportation scale used with written narratives. An advantage of the video transportation scale is its brevity and feasibility for an applied situation.

The researcher ran descriptive statistics for all of the objectives. The demographics of the subjects were analyzed using frequency measures. Data in this study was also weighted to the U.S. Census. Reliability of each construct was measured by the use of Cronbach alpha coefficient. The Cronbach alpha for the attitude index was .86 and the Cronbach alpha for the elaboration index was .83. The researcher created an index for transportation using a factor analysis. One component, consisting of three items from the original video transportation scale (Williams et al., 2010), was extracted. The three items were, "I was mentally involved in the video," "I was affected emotionally," and "I found the events in the video relevant to my everyday life." The transportation index was created using the factor loadings and had a Cronbach alpha of .78. The researcher also used frequency measures to analyze the data for each index.

The instrument included demographic-type questions about age, gender, race, area of residence while growing up and, currently, self-involvement in the agriculture industry, household income, and political beliefs. The respondents in this study ranged in age from 18 to 95 years old. A majority of the group was under the age of 50 ($n = 269$, 53.1%), with the largest population of respondents between the ages of 40 to 49 ($n = 91$, 17.9%). Males accounted for 245 (48.3%) of the subjects, and females accounted for 262 (51.7%) of the subjects. Sixty-six (13%) respondents self-reported that they were currently living in a rural area or on a farm, while the remaining respondents ($n = 441$, 87%) self-reported living in urban, suburban, or city areas. College graduates of two-year ($n = 57$, 11.2%), four-year ($n = 119$, 23.4%), and graduate or professional ($n = 79$, 15.5%) programs made up half of the respondents (50.1%). A majority ($n = 284$, 56%) of respondents reported a combined household income of $49,999 or less. A breakdown of all the demographics can be seen in Table 2.

Table 2

Subject Demographics

	n	%
Gender		
Female	262	51.7
Male	245	48.3
Age		
18-19	18	3.5
20-29	82	16.3
30-39	78	15.5
40-49	91	17.9
50-59	87	17.2
60-69	72	14.2
70-79	48	9.4
80+	31	6.2
Current area of residence		
Counties in metro areas 1 million population or more	320	63.1
Counties in metro areas of 250,000 to 1 million population	130	25.7
Counties in metro areas of fewer than 250,000 population	24	4.8
Urban population of 20,000 or more adjacent to a metro area	18	3.5
Urban population of 2,500 to 19,999; adjacent to a metro area	13	2.6
Completely rural or less than 2,500 urban population, adjacent to a metro area	2	.3
Race		
White	393	77.6
Black	73	14.4
Asian	13	2.5
American Indian	2	.4
Multi-Racial	10	1.9
Other	16	3.2
Highest level of education		
Less than 12th grade	4	.8
High school graduate	100	19.7
Some college	149	29.5
2-year college degree	57	11.2
4-year college degree	119	23.4
Graduate or professional degree	79	15.5

Results

Objective 1: Determine the effects of different types and length of video communication on elaboration

Cognitive elaboration of the videos' features occurs when the respondents are able to think critically, as well as evaluate the content of the stimuli. Overall, all treatment groups reported favorable scores indicating some cognitive elaboration (Table 3). The treatment group with the largest overall mean was narrative medium ($M = 4.87$, $SD = .97$). The lowest overall mean was attributed to the analytical long ($M = 4.60$, $SD = 1.08$) treatment group. The lowest overall mean was attributed to the analytical long ($M = 4.60$, $SD = 1.08$) treatment group.

Table 3

Cognitive Elaboration Group Mean Scores

	N.S.	N.M.	N.L.	A.S.	A.M.	A.L.	Overall
"While viewing the video, I was…"							
Overall Elaboration	4.70	4.87	4.67	4.72	4.84	4.60	4.73
Attempting to analyze the issue in the message.	4.54	4.82	4.46	4.68	4.85	4.72	4.67
Not very attentive to the ideas.*	4.98	5.50	5.54	5.29	5.49	5.09	5.31
Deep in thought about the message.	4.64	4.86	4.45	4.10	4.71	4.20	4.49
Unconcerned with the ideas.*	5.29	5.26	5.03	5.38	5.47	4.96	5.23
Extending a good deal of mental effort.	4.27	4.16	4.55	4.34	4.59	4.28	4.37
Distracted by other thoughts not related to the message.*	4.94	5.46	5.05	5.20	5.26	4.85	5.11
Not really exerting my mind.*	4.15	4.99	4.91	4.68	4.45	4.44	4.59
Doing my best to think about what was said.	5.01	5.05	5.08	5.22	5.14	5.20	5.11
Reflecting on the implications of the arguments.	4.81	4.66	4.46	4.37	5.27	4.67	4.72
Resting my mind.*	4.93	5.28	4.37	4.86	4.54	4.44	4.72
Searching my mind in response to the ideas.	4.70	4.19	4.35	4.43	4.66	4.42	4.47
Taking it easy.*	4.22	4.26	3.79	4.04	3.59	3.98	3.98

Note: N.S. = Narrative short treatment, N.M. = Narrative medium treatment, N.L. = Narrative long treatment, A.S. = Analytical short treatment, A.M. = Analytical medium treatment, and A.L. = Analytical long treatment

Real Limits: 1.00 to 1.49 = *Strongly disagree*, 1.50 to 2.49 = *Disagree*, 2.50 to 3.49 = *Somewhat disagree*, 3.50 to 4.49 = *Neither agree nor disagree*, 4.50 to 5.49 = *Somewhat agree*, 5.50 to 6.49 = *Agree*, 6.50 to 7.00 = *Strongly agree*

*Reverse Coded

Objective 2: Determine the effects of different types and length of video communication on attitude

The complete 10-item attitude index had a grand mean of 4.34 (SD = .56). The 10 items included in the scale had standard deviations ranging from .68 to 1.17. The results for attitude by each treatment group are in Table 4. The treatment group with the largest overall mean was narrative medium (*M* = 4.44, *SD* = .54). The lowest overall mean was attributed to the narrative long (*M* = 4.21, *SD* = .64) treatment

Table 4

Attitude Scale Group Mean Scores

	N.S.	N.M.	N.L.	A.S.	A.M.	A.L.	Overall
"I feel the information about food safety practices in the video was…"							
Attitude Index	4.26	4.44	4.21	4.34	4.40	4.41	4.34
Acceptable: Unacceptable	4.42	4.73	4.54	4.56	4.73	4.72	4.61
Right: Wrong	4.48	4.69	4.25	4.63	4.66	4.55	4.53
Bad: Good*	4.30	4.69	4.54	4.57	4.70	4.44	4.53
Complete: Incomplete	3.88	4.25	4.24	4.19	4.26	4.12	4.15
Relevant: Irrelevant	4.44	4.53	4.18	4.30	4.38	4.40	4.37
Complex: Simple*	3.68	3.90	3.71	3.81	3.73	3.83	3.77
Unclear: Clear*	4.60	4.48	4.28	4.44	4.36	4.52	4.45
Accurate: Inaccurate	4.25	4.37	4.08	4.26	4.36	4.42	4.29
Reliable: Unreliable	4.42	4.54	4.15	4.33	4.45	4.52	4.40
Timely: Untimely	4.10	4.22	4.02	4.21	4.24	4.35	4.19

Note: N.S. = Narrative short treatment, N.M. = Narrative medium treatment, N.L. = Narrative long treatment, A.S. = Analytical short treatment, A.M. = Analytical medium treatment, and A.L. = Analytical long treatment Responses based on semantic differential scale from 1 = Unacceptable to 5 = Acceptable
*Reverse Coded

Objective 3: Determine the effects of different types and length of video communication on transportation

The three-item transportation index had a grand mean of 3.82 ($SD = 1.22$). The results for transportation by each treatment group are in Table 5. The transportation index scores for each treatment group indicated the participants in each group neither slightly nor moderately transported into the message. The treatment group with the largest overall mean was analytical medium ($M = 4.09$). The lowest overall mean was attributed to the analytical short ($M = 3.55$) treatment group.

Table 5

Transportation Group Mean Scores

	N.S.	N.M.	N.L.	A.S.	A.M.	A.L.	Overall
Transportation Index	3.92	4.01	3.64	3.55	4.09	3.69	3.82
Activity going on in the room around me was on my mind*	5.30	5.85	5.07	5.82	5.51	5.30	5.45
I was mentally involved in the video.	5.05	5.43	5.07	5.13	5.66	5.26	5.26
I was affected emotionally.	4.03	3.95	3.64	3.19	3.98	3.50	3.72
I found my mind wandering*	4.87	5.41	4.88	5.22	4.76	4.78	4.97
I found the events in the video relevant to my everyday life.	5.01	5.02	4.39	4.45	5.09	4.53	4.75

Note: Real Limits: 1.00 to 1.49 = Not at all, 1.50 to 2.49 = Very slightly, 2.50 to 3.49 = Slightly, 3.50 to 4.49 = Neither slightly nor moderately, 4.50 to 5.49 = Moderately, 5.50 to 6.49 = Much, 6.50 to 7.00 = Very much
*Reverse Coded

Objective 4: Compare the effects of different types and lengths of video communication on elaboration, attitude and transportation

A test of between-subjects effects (Table 6) was conducted to identify if there were any significant effects among the groups' elaboration, attitude, and transportation. The analysis revealed that there were no significant differences between treatments and interactions except for one. There was a statistically significant difference in participants' attitudes among video lengths ($p = .001$).

Table 6

Test of Between-Subjects Effects

Dependent Variable	Source	Type III Sum of Square	df	Mean Square	F	Sig.
ELM	Video Type	.006	1	.006	.238	.626
	Video Length	.104	2	.052	2.141	.119
	Video Type*Video Length	.040	2	.020	.830	.437
Attitude	Video Type	.021	1	.021	.664	.416
	Video Length	.501	2	.250	7.733	.001
	Video Type*Video Length	.061	2	.030	.936	.393
Narrative Transportation	Video Type	.127	1	.127	3.431	.065
	Video Length	.024	2	.012	.328	.720
	Video Type*Video Length	.136	2	.068	1.842	.160

Discussion

This study found that all videos resulted in positive attitudes toward the information and practices on the farm. The findings surrounding the type of video may be an outcome of the several mechanisms, including the use of explicit and implicit beliefs, narrative quality, and liking of character (Green & Clark, 2014). The narratives for this study were scripted and developed by combining a variety of narratives to create one generic farmer. This farmer was brought to life by using a young, white male actor. Additionally, the scripted narrative was a minimal narrative rather than a fully formed narrative (Green & Brock, 2005; Labov, 1972;). However, due to the time limit allowed in the survey, the longest video did not exceed two minutes and five seconds. It is possible that lack of time available for each video could prevent a viewer from being pulled into a narrative (Guo et al., 2014).

Findings from this study suggest that video communication, narratively or analytically, could be an effective tool to communicate messages about food safety. Therefore, videos may be able to effectively and positively communicate information on other agricultural-related topics. The findings from this study indicated that there is no statistically significant difference in elaboration, transportation, and attitude among video types. Additionally, there was no statistically significant difference in elaboration or transportation among video length. The data analysis did suggest a statistically significant difference in attitudes among video length. This supports previous research that has found length to be an important factor in video having impact on cognitive and affective results (Goodrich et al., 2015; Guo et al., 2014). Thus, companies should strategically develop their messages with video length in mind to favorably impact attitudes toward their message. However, further research is warranted and recommended to explore various lengths and participant engagement to identify best practices for varying situations.

This study did find that the respondents who received the medium-length video treatment reported higher transportation as well as higher elaboration and positive attitude scores. However, it is possible that the low variances between the lengths of each video in the study also impacted the scores. The results from this study revealed that overall mean scores for each treatment group's attitude, elaboration, and transportation toward the message were favorable. While this study did not analyze the data for correlations, the researchers do recommend that further analysis should be conducted to identify if there is any connection between transportation, elaboration, and attitude. Further research should be done to look at connections between type and length of video to transportation. Additional variables of interest could include cognitive load, age, sex, education level, and issue involvement/knowledge.

One objective of this study was to determine the effects of narrative and analytical practices on elaboration in order to better communicate about food safety practices. Based on the results, a follow-up study should include direct measures of motivation and ability to process the message to help provide guidance into the formation of resulting attitudes, as well as test the statistical effects. A potential study that implements biometric measures could provide further understanding of the reported scores. For this particular type of study, a pretest-posttest design, with the use of biometrics measurement, could prove to be beneficial in identifying the impact that the type of video communication has on attitudes. Further research should test what images, sounds, and words serve as peripheral cues or cognitive models (Petty & Cacioppo, 1986) based on their video engagement (Visser et al., 2016).

This study also revealed that narrative videos resulted in more favorable scores when measuring cognitive elaboration. However, analytical videos resulted in more favorable scores

when measuring attitudes. These findings help provide some guidance not only for future studies but also for practice. If a company or communication practitioner wants to influence an audience's cognitive elaboration on an issue, they should consider utilizing narratives. If a company or practitioner wants to influence attitudes, then they should consider utilizing analytical persuasion in their video communication. While this finding might be attributed to the idea that a viewer may be engaged in a narrative and focus on the personal information, further statistical analysis and replication of the study could confirm which is the most efficient approach. Alternatively, by removing the personal stories and solely including the facts, viewers may be able to place all of their attention on the facts and statistics surrounding the issue to develop a specific attitude.

The researcher recognized that the study possessed several limitations regarding the population, sample, and methods. This study was missing a group in which videos were not present, a control group. A critical piece of research design in an experimental study is the inclusion of a control group or group in which the proposed cause is absent (Field, 2013). This allows the researcher to compare the absence of a proposed cause to the presence of the manipulations. "Forutnately, such rigorous control is not absolutely essential because many aspects in which situations differ are irrelevant to the purpose of the study and, thus, can be ignored" (Ary et al., 2018, p. 220). The researchers instead applied the law of the signle significant independent variable.The study was conducted with the population of Florida residents; thus, nationwide generalizability was not possible. The study was solely quantitative in nature, thus a deeper understanding of what might have affected attitudes and/or knowledge was not explored. The scripts for the videos in this study were informed and developed based on the interviews with 10 farming operations. The researcher recognizes that those 10 stories are not indicative of every food safety experience or practice. This study only sampled a small portion of Florida residents. This limitation led to an unequal representation of the consumer landscape in Florida. For this study, the survey and videos were administered online. Therefore, anyone without access to the internet or a computer was unable to participate. The researcher did not have a controlled environment for respondents to watch the video; therefore, attentional focus could possibly have been influenced by the external environment. Distracting noises can make transportation into narrative worlds more difficult (Williams et al., 2010). Additionally, this study utilized non-probability sampling with an opt-in panel. The respondents' active willingness to participate by opting in could potentially affect results that were reported on their motivation and ability to process information. Furhter studies should use probability sampling to ensure the chance of every element in the population having an equal chance of being selected (Ary et al.)

Revisiting the video design, an unscripted story may be more appropriate than a scripted narrative. In using an unscripted story and an actual farmer, the storyteller may have been able to share a fully formed narrative and bring craftsmanship to the delivery. In addition, the use of more matching visuals at certain points in the video to emphasize the storyteller's message may have led to different results. Furthermore, looking back to the video design, the researcher would increase the differences in length of video. In addition, not using a real farmer may have impacted participants' responses to the survey questions. Future research should compare the use of an actor against an individual who is holistically involved with the issue and the effect on a story receiver's transportation.

The findings from this study suggest that when producing videos to share with the public, agricultural communication practitioners should identify their overall goal. If the intention is to impact attitudes, then analytically-driven videos should be considered; however, if the intention

is to influence the cognitive elaboration of an audience, then narrative-driven videos should be used. As the agriculture industry continues to experience a larger gap between producers and consumers, effective communication will only continue to be a larger focus of educational efforts. However, further research into narrative transportation, length of videos, and type of videos may provide an efficient approach to developing communication that narrows the educational disconnect between consumers and producers, and the strategic message design to disseminate essential information.

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