

Message Modality and Elaboration on Online Advertisements

by

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## Abstract

The present research examines modality as it relates to elaboration. Previous research indicates that modality does affect the ability to elaborate. This study used print and video modalities of real-world advertisements to examine the differences in elaboration on each modality. There were also notable correlations regarding attitude certainty and perceived knowledge. Overall, modality did not affect aspects of elaboration including actual and perceived knowledge. The modality presented did affect the amount of relevant elaboration on the topic at hand.

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## **The Elaboration Likelihood Model**

The Elaboration Likelihood Model (ELM) focuses on cognitive processes relating to attitude formation and change (Petty & Cacioppo, 1986). In a sense, this model looks at the likelihood of a person elaborating on, or thinking about, a particular message.

Elaboration is defined as the amount of relevant thought a person has about someone or something (Barden & Tormala, 2014). The ELM says that the more people elaborate on a particular message, the more likely that message is going to persuade them to adopt a certain attitude or opinion.

According to Petty and Cacioppo (1986), attitudes are evaluations that someone makes regarding people, things, or ideas. In order to develop an attitude, a person must first think about and evaluate someone or something (Eagly & Chaiken, 1993). This is why the ELM says that elaboration leads to attitude formation. In order for elaboration to occur, a person must have motivation and ability to think about a message. Motivation includes perceptions about the personal relevance of the topic and also a desire to learn about it (Petty & Cacioppo, 1986). If a person has ability to elaborate on a message, he or she will be free of distractions, have sufficient time to look at the message, and have the knowledge and skills to understand the message.

A message is usually evaluated by either central or peripheral cognitive processing. Central route processing means that a person evaluates a communication based on the actual issues and arguments presented (Lane, Miller, Brown, & Vilar, 2013; Petty & Cacioppo, 1986). During peripheral route processing, the attitude is formed based on a peripheral aspect, or something that is not directly related to the issue or topic

at hand (Braverman, 2008; Petty & Cacioppo, 1986). Motivation, ability, and routes of processing are discussed in greater detail below.

### **Motivation and Ability**

The likelihood of elaboration is related to a person's motivation and ability to scrutinize the information at hand (Petty & Cacioppo, 1986). If a person is not sufficiently motivated to elaborate on a message, it is very unlikely that elaboration will occur and his or her attitude will not be affected. An important type of motivation is personal relevance. If a message is about an issue or topic that has "personal meaning" (p. 81) to a person, he or she is more likely to elaborate on and think about it. If something is personally relevant, a person will perceive that it affects his or her life in some way (Apsler & Sears, 1968). For example, the topic of cancer probably has a great deal of personal relevance to someone who has a loved one with cancer. This person would have high motivation when it comes to the topic of cancer. Therefore, if he or she is presented with messages about cancer, the likelihood of elaborating on the issues are higher than if there was no personal connection with the topic. Moreover, people who perceive relevance elaborate in a more thorough and detailed manner. As stated in the previous section, research has shown that personal involvement can influence the route of persuasion, with more perceived relevance leading to more central processing (Braverman, 2008).

Another area that can motivate people to respond to a particular situation is response involvement (Eagly & Chaiken, 1993; Petty & Cacioppo, 1986). In this instance, people are concerned with a response that produces a reward. This type of motivation generally happens when there is not much personal relevance regarding the

issue. In this instance, adopting a particular attitude can lead to personal gain and this is a primary motivating factor.

### **Ability**

For a person to have sufficient ability to elaborate, there must first be no distractions when viewing the message (Petty & Cacioppo, 1986). Distractions can be anything in the environment or in the message that hinder the focus of the receiver. Distraction makes it harder for someone to elaborate and focus on the topic at hand. Someone in a room full of loud noises would have a lower ability to elaborate on a particular message than someone in a quiet place. High elaboration is also related to repetition of the message. If the viewer sees the message many times, he or she will be more familiar with the topics and arguments and will have a greater ability to process the message.

Message modality also affects the ability to elaborate on a message (Braverman, 2008; Petty & Cacioppo, 1986). Modality refers to the mode, or how the message is transmitted. Elaboration is different for the same message presented in print and video formats. In the case of a print advertisement, the viewer is able to control the pace of the message delivery (Petty & Cacioppo, 1986). He or she is able to read as slowly as needed and also is able to go back over certain aspects that are unclear. In print, the pace of the message is internally controlled. In a video message, the pace is controlled by external forces. The viewer is not able to go at his or her own pace and therefore elaboration is more difficult.

Some research indicates that print modality will not always lead to greater elaboration (Braverman, 2008). It often depends on the subject at hand and the message being communicated. Braverman (2008) found that for health related topics, presenting a testimonial is actually more persuasive in the audio modality versus the print modality. Also, modality loses relevance when a person is highly motivated. People who are highly motivated tend to be persuaded by any message that supports their existing attitude, regardless of the modality used to present it.

### **Message Modality**

Message modality refers to the medium by which the message is presented (Petty & Cacioppo, 1986). For this study, the two modalities are video and print. Research indicates that there are differences when elaborating on a message depending on its modality. When looking at a print modality, the viewer may control the pace of message delivery. There can be pauses and the viewer may go back over information many times. For video modality, the pace of message delivery is controlled by an external source. The viewer might not be able to go back over something that is difficult to understand. The pace of the video modality may be too fast to ensure good comprehension of the message. Message modality has an impact on the ability to elaborate. In general, print advertisements allow for a greater ability to elaborate since the pace of the message may be controlled by the viewer. Video modality may not necessarily have an ideal pace and therefore will lead to lower ability to elaborate (Booth-Butterfield & Gutowski, 1993; Petty & Cacioppo, 1986).



## **Message Effects**

There is a good deal of research on how someone perceives the knowledge and credibility of the source of the communication (Eagly & Chaiken, 1993). This is related to peripheral route processing discussed earlier. If someone has little motivation or ability to evaluate something, they will often turn to a peripheral aspect such as the perceived knowledge of the source of the message. Also, attitudes have a greater likelihood of predicting behavior if they are associated with a high level of perceived knowledge on the topic (Tormala & Petty, 2007). Perceived knowledge is defined as the amount, quality, and direction that a person believes he or she possesses about a particular topic. Past research indicates that a person's perceived knowledge and the actual knowledge he or she has are often very different (Glenburg, Wilkinson, & Epstein, 1982). In addition, there is very little research that connects perceived knowledge to actual knowledge (Radecki & Jaccard, 1995; Tormala & Petty, 2007; Barden & Petty, 2008). However, perceived knowledge has a great impact on attitudes. For instance, Barden and Petty (2008) found that a person is generally aware of the amount of thought he or she has given to a particular topic. People can tell when they have put a high amount of thought into something and vice versa. If a person perceives that he or she has put a lot of thought into something, the attitude formed will be much more certain and lasting than if the perceived amount of thought was small. If someone perceives a great amount of thought about something, he or she will have more certainty about his or her attitude on the topic.

The amount of elaboration is very much related to whether a person develops a strong or weak attitude (Barden & Tormala, 2014). This is important because strong attitudes last longer and are more impactful. Not only does the amount of elaboration

affect attitudes, but the extent of evaluation also impacts attitudes. Evaluation means the degree to which a person characterizes someone or something (Eagly & Chaiken, 1993). Evaluations are generally positive, negative, or somewhere in between. However, simply evaluating something does not give an indication of what the resulting attitude will look like. According to Eagly and Chaiken (1993), people can view something in either a positive or negative way and this can impact the attitude that results from this assessment. If a person thinks about immigration and he or she has mostly negative thoughts about the results and outcomes, this could lead to an attitude about immigration that is unfavorable or negative. The same can be true for thinking very positively about something. When thinking about an issue, a person can develop a favorable or unfavorable attitude towards that particular thing (Petty & Cacioppo, 1986). This can lead to biased elaboration based on the individual's ability. For instance, many topics are very complicated and multifaceted. If a person does not have sufficient cognitive ability to be aware and elaborate on the complexities of an issue, his or her resulting attitude may be biased because it does not result from looking at all the available information. Elaboration is generally viewed as the quantity or amount of relevant thought about something (Barden & Tormala, 2014). Evaluation is generally seen as the valence or direction of the thought about something (Eagly & Chaiken, 1993). Both elaboration and evaluation play an important role in shaping attitudes.

### **Central and Peripheral Processing**

The concept of attitude also has an element of time in relation to it. An attitude is a tendency in that it lasts over time, whether it is a short or long time (Eagly & Chaiken,

1993). Attitudes that last over a long period of time are generally seen as stronger than attitudes that last for a shorter period of time (Petty & Krosnick, 1995).

An attitude creates an “inclination” for a person to respond to someone or something in a certain way. Attitudes that are formed using central route processing are more likely to predict behavior and are more likely to last over time (Petty & Cacioppo, 1986). For example, a person may look at a message advocating an Apple computer. If this person forms an attitude based on the arguments presented in the message that favor Apple computers, this is central route processing. This would include looking at things such as storage capacity, processing power, software, and screen resolution. On the other hand, a person may see that the message includes an endorsement from a respected person in society like a celebrity. The person may form an attitude favoring Apple computers based on the credentials of the person in the message, not necessarily about the arguments presented. This is called peripheral route processing (Braverman, 2008; Petty & Cacioppo, 1986). If a person has low motivation and low ability to elaborate on something, he or she will be more likely to turn to peripheral routes to process a message. If someone does not care about the subject of computers, he or she can be said to have a low motivation for thinking about the topic. When presented with a pamphlet about Apple computers, this person may simply look at the credentials or notoriety of the person advocating and use that to develop an attitude about the issue. He or she may use some other peripheral aspect to develop an attitude such as whether the message looks very professional or if sources are cited. Since this person has low motivation, he or she will probably not put effort into thorough elaboration on the actual issues that are central to the topic of choosing a computer. If someone does not have the cognitive ability or the

time to look at the central issues of computers, this person has a low ability to elaborate. Perhaps this person does not have the cognitive capacity to examine the complex issues. This person may have been presented with the message about computers in an environment that is filled with distractions making it hard to focus. Perhaps this person only had a few minutes to look at the message. Regardless of the scenario, if a person has low ability to elaborate on a subject, he or she is more likely to look at the peripheral arguments, like the credentials and professional appearance, to form an attitude.

### **Attitude Strength**

A critical outcome of elaboration is the strength of the attitude that is formed. A strong attitude is usually associated with being more difficult to change, more stable over time, and more correlated with behavior (Krosnick & Abelson, 1992; Petty & Krosnick, 1995). Over time, researchers have identified nearly a dozen indicators that influence attitude strength (Luttrell, Petty, Briñol, & Wagner, 2016). For the purposes of this study, only two prominent indicators of attitude strength will be used: certainty and ambivalence (Rucker, Tormala, Petty, & Briñol, 2014; Armitage & Conner, 2000).

Attitude certainty is how sure someone feels about his or her attitude (Rucker, et al., 2014; Krosnick & Abelson, 1992). The more “right” or correct someone thinks an attitude is, the more certainty he or she will have about holding the attitude. In this sense, attitude certainty is a reflection of perceived validity (Tormala & Petty, 2004). A person with higher attitude certainty will generally feel that his or her attitude is more correct or valid. There are many variables that relate to a specific situation that can affect certainty. For instance, if a person encounters a situation that strongly supports his or her attitude, this person might have an increase in attitude certainty for the moment. However, if there

are situational factors that do not support a person's attitude, he or she may exhibit less certainty. A person who has positive associations with Apple products may feel less confident and certain about the topic in a group of people who are mostly against using these products.

If someone has direct knowledge of or experience with the topic, this can increase attitude certainty (Wu & Schaffer, 1987). People who have direct experience with a certain topic are also more likely to elaborate on that topic using central processing. If someone has direct experience with abortion, he or she is more likely to look at the arguments and concepts when evaluating an argumentative abortion pamphlet. When someone has indirect or no experience with something, he or she is more likely to elaborate based on peripheral processing, or the characteristics of how the message is presented.

Certainty about an attitude is often related to attitude extremity (Gross, Holtz & Miller, 1995). Extreme attitudes often have links to strong values in a person. A person may feel extremely strong about something and feel a need to defend it. A person may feel very against something as well. For example, if a person is strongly and passionately for Microsoft products, this person will probably be very certain or confident regarding this attitude. He or she will probably not hesitate or struggle with providing an answer regarding feelings towards Microsoft or the products of competitors. This is how extreme attitudes are linked to attitude certainty. However, there is a place where attitude extremity and certainty differ. A person can feel very certain that he or she has a neutral stance on a topic. This person could be said to have "extremely neutral" attitudes towards something. In this instance, a person may be very sure that he or she does not feel

strongly one way or the other about a topic. This person is certain about his or her stance, but that stance is not extreme on one side or the other. Therefore, it can be said that “extremity connotes certainty, but certainty does not necessarily imply extremity” (p. 218).

### **Actual and Perceived Knowledge**

Actual knowledge is defined as the possession of factual information pertaining to the subject matter of the advertisements (Radecki & Jaccard, 1995). Perceived knowledge is referred to what a person feels that he or she know about the subject matter. Research has indicated that people often have disproportionate levels of actual and perceived knowledge (Park, Gardner & Thukral, 1988). In other words, what people think they know is often different from what they actually know. If someone has a high level of perceived knowledge, he or she may be less likely to think deeply about all the aspects of a topic (Radecki & Jaccard, 1995). People may not seek to get as much information as possible if they feel that they already know a lot about the subject. If people feel they have put a lot of time into thinking about something, they generally have a high level of perceived thought. Perceived thought is one aspect of attitude certainty. The actual amount of thought put into a message does not affect attitude certainty as much as how much time a person thinks he or she put into thinking about something.

### **Hypotheses**

H1: There will be a difference between the print modality and the video modality for relevant elaboration.

H2: Relevant elaboration will predict attitude certainty.

H3: There will be a difference between the print and video modality for perceived knowledge.

H4: There will be a difference between the print and video modality for actual knowledge.

H5: There will be a difference between the print modality and video modality for perceived ability.

## **Methods**

### **Participants**

The participants for this study were recruited from a mid-sized university by asking professors to encourage their students to participate. There were 21 participants used for the data in this study (n=21). For those participants who were used, 66% of them were between the ages of 18-29 with the other 33% aged 40 or older. There was an option for the participants to get bonus points for a class if their professor allowed. No identifying information was collected from the participants.

### **Treatment**

Researchers working with the ELM often use print advertisements as the modality of the message (e.g., Braverman, 2008; Kwon & Nayakankuppam, 2015; Lane, et al., 2013). When presenting the participants with print ads, it is common to use a computer screen and a survey format (e.g., Lane et al., 2013). For this study, a survey was administered in a lab. The participants accessed this survey in a lab setting on a computer. A lab setting was used to control distractions and to be sure that each participant had the same amount of time to view the print and video messages. The advertisement was presented in a print version and in a video version. Both versions were

produced by Goldman Sachs and the differences and similarities are compared in the next section. Based on prior research, it is customary to play the video only one time and put a time limit on viewing the print ad (e.g., Booth-Butterfield & Gutowski, 1993). For this study, the video was shown to the participants once.

### **Comparison of Video and Print Ad Content**

The advertisement used in this study was from Goldman Sachs. This particular ad focused on Mobileye, a technology company that Goldman invested in. The ad was taken from an ad campaign that was started in 2010 following the Great Recession. Most of the ads in this campaign, including the Mobileye ad, focused on a company or institution that Goldman has done business with in the past. The companies featured usually had some sort of positive social aspect about their business. The Mobileye print ad was similar to the video ad in that it focuses a great deal on Mobileye and the technology it has developed. The print ads dedicated two full paragraphs to discussing the history of Mobileye and the technology of the single camera sensors it has developed. One paragraph was devoted to Goldman's initial investment in the company and its IPO that happened later. There were a few quotes from people at Mobileye talking mostly about the technology. There was also a summary section in the beginning that described the new technology as well as the IPO value. The video ad spent the first 80 seconds talking about the technology and Mobileye. It described what the technology was, how it was unique, the importance of cost, and the benefits it can bring to driving. This part was narrated by some of the founders of Mobileye. Then some people from Goldman Sachs talked about Goldman's investment in the company and how they approached it. They also talked about the IPO being the largest Israeli-owned IPO in an American market.



Since both ads had topic areas of Goldman Sachs, investment banking, self-driving car technology, and initial public offerings, the actual knowledge test focused primarily on these areas.

### **Procedure**

There were two treatment groups for this study. Group 1 ( $N = 21$ ) was presented a print ad and group 2 ( $n = 12$ ) was presented a video ad, both promoted by Goldman Sachs. For group 1, participants were kept as a single group. The participants were told the study was concerned with measuring attitudes about large U.S. companies. Each participant sat at an individual computer. All participants were instructed to go to the Survey Monkey site to complete the study. All participants completed the actual knowledge test, perceived knowledge test, attitude certainty, attitude, and attitude ambivalence measures before and after viewing the ad. The ad presented was a print ad published by Goldman Sachs and participants had 3.5 minutes to view it. The thought listing task was presented immediately following the viewing of the advertisement. Following the completion of the survey, participants were then debriefed.

Participants were kept as a single group for group 2 as well. Upon entering the computer lab, each participant received a pair of headphones that were used to listen to the video ad. The participants were told they are in a study concerned with measuring attitudes towards large U.S. companies. Each participant sat at an individual computer. All participants were instructed to go to the Survey Monkey site to complete the study. All participants completed the actual knowledge test, perceived knowledge test, attitude certainty, attitude, and attitude ambivalence measures before and after viewing the ad. The ad presented was a video ad published by Goldman Sachs that was about 3.5 minutes

in length. The thought listing task was presented immediately following the viewing of the advertisement. Following the completion of the survey, participants were debriefed.

## **Measures**

**Perceived Ability to Elaborate.** Following the presentation of the message, the respondents were asked the following questions relating to ability: How difficult to understand was the Goldman Sachs advertisement?, How hard to follow was the Goldman Sachs advertisement?, To what extent was the Goldman Sachs advertisement complex? The questions are on a 5-point scale anchored from (1) not at all difficult to (5) very difficult, (1) not at all hard to follow to (5) very hard to follow, and (1) not at all complex to (5) very complex, respectively (Petty & Cacioppo, 1986). This ability measure was reliable,  $\alpha = .85$ . The responses for the three ability measures were summed and averaged,  $M=1.89$ ,  $SD=1.0$ .

**Attitudes.** The participants were presented with several different companies including Walmart, Goldman Sachs, Wells Fargo, Amazon, Google, Exxon Mobil, Apple. For each company, the participants were asked to rate their thoughts about the company on a 5-point scale anchored at (1) unfavorable to (5) favorable, (1) bad to (5) good, (1) negative to (5) positive (Tormala & Petty, 2002). This measure was reliable,  $\alpha = .94$ . The companies other than Goldman Sachs were included as control questions so the participants would not be primed to think a certain way. The other companies were listed to reduce bias in the participants. Only the responses to Goldman Sachs were used for analysis.

**Actual Knowledge.** This variable was defined as having knowledge about Goldman Sachs, investment banks, the banking industry, self-driving car technology, and

initial public offerings (Park, Gardner, & Thukral, 1988). Several multiple-choice questions were presented regarding general knowledge of banks and autonomous automobile technology. The specific questions for the actual knowledge test can be found in the Appendix. The actual knowledge measures were summed with the result indicating the average correct responses ( $M=3.67$ ,  $SD=1.07$ ).

**Perceived Knowledge.** Before and after the presentation of the message, an assessment of perceived knowledge was administered. The items used to measure perceived knowledge were based on previous research (e.g., Tormala & Petty, 2007; Radecki & Jaccard, 1995). These questions include: How much information do you feel you have about Goldman Sachs? How knowledgeable do you feel you are about Goldman Sachs? To what extent do you feel that you have enough information to make a sound decision about Goldman Sachs? These items are based on a 5-point scale anchored at (1) none at all to (5) very much, not knowledgeable at all to very knowledgeable, not at all to very much, respectively. The three measures of perceived knowledge were summed and averaged,  $M=3.28$ ,  $SD=.68$ . The measure was reliable,  $\alpha = .95$ . The control questions for the perceived knowledge measure include: How knowledgeable do you feel you are about Walmart as a company? How knowledgeable do you feel you are about Apple as a company? To what extent do you feel that you have enough information to make a sound decision about Google as a company? To what extent do you feel that you have enough information to make a sound decision about Exxon Mobil? The anchors for the control questions were the same as the perceived knowledge questions about Goldman Sachs.

**Thought Valence.** To measure the kind of elaboration, the participants completed a thought listing task. They were asked to list all the thoughts they had about Goldman

Sachs. They put one thought per line and decided whether each thought was positive, negative, or neutral (Tormala & Petty, 2007). The participants were instructed to list as many thoughts as they wanted to within a 3-minute time limit. The average positive thoughts were,  $M=3.5$ . The average negative thoughts were,  $M=2.33$ . The average number of neutral thoughts were,  $M=1.82$ .

**Relevant Elaboration.** To measure how relevant a thought is to a person, the thought listing task was coded by two researchers based on a scheme. Each thought that was written down was coded as being relevant or not relevant with a percent agreement of 95.6%. The criteria for relevant or not relevant was anything explicitly to do with the advertisements that were viewed and also any thoughts about concepts presented in the ads (Petty & Cacioppo, 1986).

Attitude strength is difficult to measure and a common ELM outcome variable. Variables that impact attitude strength were measured in this study, including ambivalence and certainty.

**Attitude Ambivalence.** Participants were presented with two statements designed to get at either positive or negative associations regarding Goldman Sachs (Armitage & Conner, 2000). The first was: Considering the positive things about Goldman Sachs, and ignoring the negative things, how positive are those things? Anchored from (1) not at all positive to (5) very positive. The second was: Considering only negative things about Goldman Sachs, and ignoring the positive things, how negative are those things? Anchored from (1) not at all negative to (5) very negative.

**Attitude Certainty.** After viewing the advertisement from Goldman Sachs, the participants were asked one question regarding attitude certainty (Tormala & Petty,

2002): How certain are you of your opinion regarding Goldman Sachs? The responses were anchored on a 5-point Likert scale ranging from (1) not at all certain to (5) extremely certain. The control questions for this measure used the exact same wording as the original question except the term “Goldman Sachs” will be replaced with the following corporations: Walmart, Apple, Google, and Macy’s.

### **Minimizing Social Desirability Bias**

In Western society, a common societal norm is to be relatively positive (Dovidio & Fazio, 1992). Many of the scale measures in this study call for ratings on an obvious bipolar scale, with *good* being on one end and *bad* being on the other. Due to the societal norms and the obvious nature of the questions, respondents may feel uncomfortable selecting negative answers regarding their own attitudes. Therefore, the preceding measures followed a variable rating scale procedure. Some items were inversely worded in order to minimize bias in responses.

### **Results**

For both treatments, an independent samples t-test demonstrated that there was a statistically significant difference between the print and video modalities for relevant elaboration ( $t = 2.47, p = .03$ ). For the print condition, there was an average of 11.25 ( $M = 11.25$ ) and a standard deviation of 9.07 ( $SD = 9.07$ ) for relevant thoughts. This exceptionally high standard deviation can be explained by a lower number of participants for treatment group 1 ( $N = 4$ ). The video treatment had a lower mean ( $M = 3.25, SD = 2.19$ ). Those who saw the print advertisement had a higher number of average relevant thoughts than those who saw the video. Elaboration, as indicated by relevant thoughts, was greater for those that saw the print message. Hypothesis 1 was supported.

This finding is in line with prior research on modality (Petty & Cacioppo, 1986). Since print modality does not have a predetermined pace of viewing the message, it is easier to elaborate on this message further. In addition, the difference between print and video advertisements approached statistical significance for total number of thoughts ( $t = 1.77, p = .11$ ). The results for the print condition were summed and averaged,  $M=12, SD=9.4$ . The results for the video condition were summed and averaged,  $M=5.25, SD=4.2$ . With more participants for the study, this could possibly have been statistically significant.

Although relevant thought was influenced by modality, relevant thought was not correlated with attitude certainty ( $r = -.07, p = .84$ ). Hypothesis 2 was not supported. Relevant elaboration did not have an impact on how certain the participants were about their attitudes towards Goldman Sachs. There was also no statistically significant difference between groups for attitudes (Print group  $M = 2.92, SD = .42$ ; Video group  $M = 3.13, SD = .40$ ).

There was no statistically significant difference between the print and video groups for perceived knowledge ( $t = .19, p = .85$ ). Hypothesis 3 was not supported. Interestingly, perceived knowledge was correlated with attitude certainty ( $r = .88, p = .001$ ). The more people think they know, the more likely they are to feel confident or certain in their attitudes (Tormala & Petty, 2002). On the other hand, actual knowledge did not correlate with attitude certainty ( $r = -.145, p = .65$ ).

There was no significant difference between the video and print groups for actual knowledge ( $t = -1.63, p = .13$ ). Hypothesis 4 was not supported. For the actual knowledge test, the average number of correct responses for the print group was three ( $M = 3, SD =$

1.41). The average number correct for the video group was four ( $M = 4$ ,  $SD = .76$ ). Since those who view the print ad can go at their own pace, it was assumed that print modality would lead to greater understanding of the message, which should increase actual knowledge of the subject (Petty & Cacioppo, 1986). However, these results indicate that when people are allowed to go at their own pace, they may choose to go faster rather than slower. Many participants in the print group may have skimmed the text rather than read thoroughly. According to research, this would indicate a lack of motivation to elaborate, although motivation was not directly measured in this study (Petty & Cacioppo, 1986).

Between the print and video groups, there was no statistically significant difference on perceived ability ( $t = -.327$ ,  $p = .75$ ). When participants were asked about their perceived ability to understand the content of the ads, both groups found the ads relatively easy to understand (Print  $M = 1.75$ ,  $SD = .32$ ; Video  $M = 1.96$ ,  $SD = 1.23$ ).

### **Non-hypothesized relationships**

For this study, there were relationships worth noting that were not directly dictated in the hypotheses. The first notable relationship is that there was a negative correlation between proportion of negative thoughts and actual knowledge ( $r = -.62$ ,  $p = .03$ ). Proportion of negative thoughts refers to the number of thoughts a participant listed as having a negative quality compared to the total number of thoughts the participant listed. It is a relation of negative thoughts to total thoughts (the other types of thoughts being positive or neutral). For this study, the more negative thoughts someone listed, the fewer questions he or she got correct on the actual knowledge test. In addition, there was a positive correlation between proportion of positive thoughts and actual knowledge ( $r = .65$ ,  $p = .02$ ). The more positive thoughts someone listed, the more actual knowledge he

or she possessed. There could be many explanations for this but one possibility deals with attitude strength and certainty. It is very possible that negative thoughts regarding Goldman Sachs are strong in that these thoughts would be very resistant to persuasion. The participants may have been counterarguing by habit and not necessarily learning the advertisement content in an unbiased way. Those who have these strong negative thoughts would probably be certain of their attitude and as a result they would be less likely to have high elaboration.

### **Discussion**

This study indicated that there are differences between print and video modalities when it comes to the relevance of elaboration. There are significant differences in relevant thoughts between those who saw a print ad and those who saw a video. Participants who viewed the print ads had more relevant thoughts than those who saw the video ads. Booth-Butterfield and Gutowski (1993) note that the pace for a video message is controlled by an external force and cannot be adjusted by the viewer to compensate for varying abilities. Someone who has low ability or is not familiar with the topic may be able to read a print ad at a slower pace in order to enhance comprehension. This is not an option with the video ad and therefore would influence elaboration. This study confirms past research that message modality has an influence on relevant elaboration.

Another finding deals with perceived knowledge and attitude certainty. There was a positive correlation between these two variables indicating that those who think they have a high level of knowledge are certain of their attitudes. Tormala and Petty (2002) state that those who have greater attitude certainty tend to have attitudes that are stronger and do not change easily. Moreover, higher attitude certainty is more likely to cause a



person to feel that his or her position is correct and valid (Tormala & Petty, 2004). If a person has past experiences with Goldman Sachs, he or she may feel possessive of a great deal of knowledge (Gross et al., 1995). In this case, past experience may refer to hearing or reading about Goldman Sachs in the news, since it is a prominent company that is often used to represent big banks and Wall Street. This study was conducted in the fall of 2016, which was an election year. The election of 2016 was followed closely by many individuals and one of the candidates was asked questions regarding her relationship with Goldman Sachs. Having a relationship with Goldman Sachs was often framed as a negative aspect of this candidate and many people felt distrustful of Goldman Sachs. It can be said that due to Goldman Sachs being negatively portrayed in the media during the election, many people would be primed to thinking negatively about Goldman Sachs. Even though Goldman was shown in this ad to be helping a company that could make a positive impact on the world, participants may have easily found counterarguments because they have heard negative news about Goldman in recent months. People who have heard a lot about Goldman Sachs in the news may feel like they have sufficient knowledge about the company and also feel very certain in their attitudes because of this. These findings are in line with prior research. Those who have a high perceived knowledge tend to not look deeply at topics or consider all the sides of an issue because they believe they have more information than they actually do (Radecki & Jaccard, 1995; Gross, Holtz, and Miller, 1995).

Many of the knowledge outcomes were in line with previous research. Actual knowledge was not related to attitude certainty and the video and print groups did not differ in perceived or actual knowledge. Perceived knowledge usually comes from prior

experience with a topic. It is likely that many of the participants have heard of Goldman Sachs or large banks before since this topic has been a subject of media for many years. Participants would develop any perceived knowledge from this prior experience and not from exposure to the topic for this study. Actual knowledge comes from prior experience as well but the participant may not be aware of his or her level of actual knowledge. It is the perception of knowledge that determines how certain someone feels regarding an attitude.

### **Implications**

There were many implications from this study relating to using certain types of messages as well as the limitations of the ELM. This study was different from many other ELM studies in that it used actual advertisements that were created, published, and disseminated by a company. Many ELM studies have used advertisements that were created by the researchers in order to control all the aspects of the ads. When using different modalities of a message, it can be beneficial to use ads that are artificially created by the researchers so as to make sure the content of the ads is similar and occurs for similar lengths of time. On one hand, creating advertisements is a great way to increase the reliability to account for mean differences across the modalities. On the other hand, artificially creating advertisements reduces the validity of accounting for responses to actual advertisements. It is doubtful if the results from artificially creating ads are truly generalizable in the real world because very few companies have the exact same ads across different modalities. Companies will often adapt the same advertisement depending on whether it is in print or a video format. This study used real world advertisements in the hopes to get at results that might be generalizable to actual advertisements as they are used in industry. A drawback to using these real world ads

was that the researcher did not have much control of the content and time of the ads. While the video and print versions of the Mobileye ads were similar, there were also significant differences that were noted earlier. Because of this, the procedure had to be altered. The participants needed to come into a lab because the length of time for viewing the print ad needed to be the same as that of the video ad, about 3.5 minutes. In addition, the reliability and validity of the results were not as strong given that the ads were not identical in content and time. The effects of using real world ads were very practical. The researchers can say that the Mobileye ad for Goldman Sachs received a certain amount of relevant thought, and therefore a certain amount of elaboration. There are very good reasons to create ads for a study on modality but doing so does have some drawbacks.

Another implication has to do with the limitations of the ELM to account for biased processing of a message. As noted in the discussion section, participants who had a high level of perceived knowledge were certain of their attitudes. People who felt that they knew a lot were very sure that they knew a lot. Goldman Sachs was part of the news in the months leading up to the election due to the presidential campaigns. Petty and Cacioppo (1986) say that one of the biggest things that can bias elaboration is the presence of a preexisting schema or knowledge on the topic. The reason is that when knowledge is stored for recall later on, it is usually stored with an initial opinion that is not objective. Specifically, the more experience or knowledge someone has on the topic, the more he or she is able to find counterarguments for information that does not agree with their existing opinion (Chaiken & Maheswaran, 1994). They are also able to find more evidence in favor of their own knowledge to bolster their position. Much of the national media attention on Goldman Sachs leading up to this study was negative. It

concerned a candidate who made a great deal of money by working with Goldman and was often portrayed as a negative quality that this candidate had a relationship with the bank. Goldman was labeled in the media as an organization that could not be trusted and regardless of the veracity, it was effective. Therefore, if participants came to the study with an already slightly negative view of Goldman Sachs, they would be able to find a great deal more negative aspects in the ads and they would counterargue any positions in the ads that portrayed Goldman in a positive way. The more people think about something, the more their attitude becomes polarized in the direction that they initially held the attitude (Petty & Cacioppo, 1986). The ELM is not that effective for measuring elaboration on a topic that may already have been given a great deal of thought because if people have prior knowledge about the topic they tend to become more biased when thinking about it. Since elaboration is easily biased, the ELM is sensitive to topics that may have been given a great deal of thought and topics that have the potential for polarization of attitudes.

### **Limitations**

For this study, a few measures including total number of thoughts approached significance but not enough to be considered usable. Other measures were not significant at all, even though past research indicated they should be statistically related. A big issue surrounding this was the low number of participants for the study. The low number of participants was largely a result of the design of the study. The decision to have the study completed in a lab was done to ensure consistency across modalities and to provide internal validity. However, many potential participants were not sufficiently motivated to attend a study in a lab setting because this requires more effort than a study that can be

completed online. Future studies of this nature should find a way to reach a large group of people, perhaps by using a survey that could be completed online. Another possible solution would be to have sufficient incentives for participants to come into the lab. Items such as gift card or cash may entice a greater number of people to participate, but the researcher should be aware that doing this can bias responses and affect the validity of the results. In the interest of gaining more participants and possibly getting valid and reliable results, compromises such as this are justified.

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## Appendix

Actual knowledge questions. Correct responses marked with an \*.

1. A company that has used self-driving technology in cars is:
  - a. IBM
  - b. Go Pro
  - c. Uber\*
  - d. Cisco
  
2. An investment bank is a financial institution that:
  - a. raises money for other corporations through stock or bond offerings\*
  - b. issues loans to individuals so they can buy a house
  - c. both a and b
  - d. neither a or b
  
3. An example of an investment bank would be:
  - a. Farmer's National Bank
  - b. Jones Day
  - c. Goldman Sachs\*
  - d. Fannie Mae
  
4. A specific business segment that would belong to an investment bank is:
  - a. helping a company with an initial public offering (IPO)\*
  - b. selling crops
  - c. conducting a communication audit
  - d. developing a supply chain

5. A company that deals with semi-autonomous cars is:

- a. Amazon
- b. Tesla\*
- c. Google
- d. Oracle

The following questions are control questions and will be presented with the other questions. These questions will not be used in the data for this study.

6. The largest online retailer in the United States is:

- a. Cisco
- b. Macy's
- c. Amazon\*
- d. Exxon Mobil

7. One company that primarily deals in the oil industry is:

- a. Walmart
- b. Macy's
- c. Intel
- d. Exxon Mobil\*

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October 16, 2016

Dr. Rebecca Curnalia, Principal Investigator  
Mr. Philip Volpe-Monrean, Co-investigator  
Department of Communication  
UNIVERSITY

RE: HSRC Protocol Number: 031-2017  
Title: Elaboration on Online Advertisements

Dear Dr. Curnalia and Mr. Volpe-Monrean:

The Institutional Review Board has reviewed the abovementioned protocol and determined that it is exempt from full committee review based on a DHHS Category 3 exemption.

Any changes in your research activity should be promptly reported to the Institutional Review Board and may not be initiated without IRB approval except where necessary to eliminate hazard to human subjects. Any unanticipated problems involving risks to subjects should also be promptly reported to the IRB.

The IRB would like to extend its best wishes to you in the conduct of this study.

Sincerely,

Mr. Michael Hripko  
Associate Vice President for Research  
Authorized Institutional Official

MAH:cc

c: Dr. Adam Earnhardt, Chair  
Department of Communication

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