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# How to Save a Life: The Effect of Message Format and Strength on Persuasiveness in Public Safety Messages

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Eastern Kentucky University

How to Save a Life: The Effect of Message Format and Strength on  
Persuasiveness in Public Safety Messages

Honors Thesis  
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In Partial Fulfillment  
Of The  
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By  
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## Abstract

Public Safety messages aim to get important messages out to the general public. This study seeks to examine how message format and content are interconnected and the role they play within persuasion. The study is a 2x2 design, with the tested variables being central message versus peripheral message and text format versus video format. Participants will self-report interest level in the topic of toxins in household products before viewing a message on the topic, then self-report after. Results concluded that those with high initial interest were less persuaded than those with low initial interest, but central cues were more persuasive to those with high initial interest and peripheral cues were more persuasive to those with low initial interest.

*Key words:* Elaboration Likelihood Model (ELM), Persuasion, Message Format, Interest, Central Cues, Peripheral Cues, Toxins

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## How to Save a Life: The Effect of Message Format and Strength on Persuasiveness in Public Safety Messages

In the past century, society has made a push toward large companies that can provide many convenient and affordable products (Brunner, van der Horst, & Siegrist, 2010). In doing so, these companies have worked to find chemicals compounds that will help meet the demand for convenience and affordability. With their bottom line at risk, many have chosen to use undertested substances as well as known carcinogens, which are chemicals that are linked to cancer, in products typically found within a home, such as, but not limited to, cleaners, cosmetics, and even personal hygiene products. Upon testing 217 cleaners, personal hygiene, and household products, Dodson, Nishioka, Standley, Petrovich, Brody, and Rudel (2012) found almost 80% of the products tested to contain at least one chemical compound containing a

endocrine disruptor or asthma- associated chemical. In another study, 60% of breast cancer tissue samples found 5 or more parabens, while a shocking 99% contained at least one paraben. Parabens are commonly found in deodorants for perspiration control and cosmetics to extend shelf life as well as other hygiene products and even various processed foods (Juhász & Marmur, 2014). Although these researchers concluded that the chemicals examined in their article are not present in high enough quantities to create concern, in the same article they establish dioxane, formaldehyde, lead, and parabens are all harmful to the human body and even admit nearly all breast cancer tissues contain parabens.

Harmful chemical products marketed for public use have been seen for decades now. Lysol was originally marketed to young ladies as a vaginal hygiene product and a birth control with nothing to actually back up the validity or safety of these claims. In fact, doctors had previously used these chemicals in hospitals for years before further testing had been done. They conducted rigorous testing and at that point deemed it unsafe for the human body (Hall, 2013).

In one case study, Zota, Aschengrau, Rudel, and Brody witnessed twice the incidents of breast cancer among women who reported using the highest amounts of chemical-based cleaners in their households (2010). Another study found that fragranced products and sunscreens had the strongest levels of endocrine system disruptors and chemicals

associated with asthma, and that the labeling on the products was not always accurate, so it can be difficult to avoid these chemicals even if made aware (Dodson et al, 2012).

Recently, there has been a movement to discover what is found in these products, and more and more people are starting to research ingredients and deciding to purchase from ethical companies. Despite the trend toward more awareness, a large number of people still seem to either not care, or simply do not know about the chemicals found in their products. Since individuals are turning toward the internet to find health information (Palmen & Kouri, 2012), people's choice in personal products can be influenced by persuasive messages found on the internet. There is evidence that persuasive messages on the internet can make an impact in people's perceptions (Livingston, Cianfrone, Korf-Uzan & Coniglio, 2013).

### **Video vs. Text**

Several studies have attempted to decode how persuasion works and which formats of a persuasive message are more effective. Some have compared visuals such as a video against a text-based message. One study even examined a text heavy message against a comic strip version, but through the lens of high vs. low need for cognition This study demonstrates just how much the psychological characteristics of an individual person can affect how persuasive a message is to that

person (Strasser, Cappella, Jepson, Fishbein, Tang, Han, & Lerman, 2009; Carnaghi, Cadinu, Castelli, Kiesner, & Bragantini, 2007). What has not been examined much is how a text-based message compares to a video based message through the lens of the Elaborated Likelihood Model. Videos are an excellent method of relaying a message because of how immersive they are (Appiah, 2006, Shun, Sheer & Li, 2015). Although research already demonstrates that videos are usually more persuasive than text (Appiah, 2006), the ultimate purpose of this study is to find what causes this intriguing phenomenon to occur. Is it possible that text can, at certain times, be more persuasive than an immersive video? It can be nice to have words in solid print when a person is seeking logical facts presented to them, thus, the Elaboration Likelihood Model (ELM) might offer some insight on how text could be more persuasive in certain manipulated circumstances.

### **Elaboration Likelihood Model**

The Elaboration Likelihood Model attempts to make sense of why people react to stimuli the way they do. It involves two main 'routes' a message can take when attempting to persuade someone. The central route is when the mind must use higher cognitive function to make a decision. This usually occurs when a message provides more logic and fact-based information. For example, an advertisement for a laptop that shows a list of features about the pc such as price, size, RAM or extras



like a warranty would be a central persuasive attempt. The facts are clearly and plainly laid out, and the success of the advertisement depends on how much a person required details. This tactic would most likely be more persuasive to a person who knows a good amount about computers.

Peripheral is the route taken when less information is given, but more stimuli such as color, celebrity endorsement, bandwagon effect, music, etc. The peripheral method of persuasion is any indirect attempt in persuading a person, often lacking actual evidence of the advertisement's true reliability. For example, if the laptop advertisement had a picture of a celebrity holding it, or happy colors with a 'feel good' slogan, the company would be utilizing a peripheral message. This type of message is much more likely to influence those who know little about computers or those who just don't care to know more about the subject. The theory suggests our brains follow one of these routes, or a mixture of the two, every time we see a message (Cacioppo & Petty, 1982).

### **Literature Review**

Many researchers have examined how messages persuade individuals. Adolescents pick up cues for how they believe they are supposed to look based on what images the media puts forward. Young adults who tend to pay attention to media sources that portray unrealistic body types are more likely to develop eating disorders

(Dakanalis, Carra, Calogero, Fida, Clerici, Zanetti & Riva, 2014). Similar research has also shown that media can aid in changing stigmas and beliefs. This Livingston, Cianfrone, Korf-Uzan and Conilio study focused on young peoples' view on mental health issues a year after launching a campaign to help change a stigma. The results showed that there was a slight improvement in participant's attitudes towards mental illnesses (2013). On the other hand, people are much less likely to be influenced by an advertisement if it is put out by the company due to skepticism of the ulterior motives (Friestad & Wright, 1994). Content of the message is not the only indicator of how persuasive it will be. A person is much more likely to be persuaded by an article that appears to have a vast amount of other people 'liking', commenting on, and 'sharing' through a social media site (Stavrositu & Kim, 2014).

### **Message Format**

Media format has been shown to influence how persuasive the message is. One article studies message formats effects on persuasion and uses different levels of reader knowledge. One condition used a poster, another a scientific based text and a third group used layman terms. While the content was held constant, the wording was altered between the scientific text and the layman text, and the format changed more dramatically with the poster. The study didn't see any strong differences among results (Silk, Nazione, Neuberger, Smith & Atkin,

2011). Despite these unexpected results, some discrepancies remain within this study. First of all, the test group was not diverse enough, as each of the participants belonged to the same organization and being of the same gender. Also, the message formats were less diverse than what I am studying, all being text based as opposed to video. Appiah, on the other hand, actually found that individuals were more likely to rate a website favorable if the website contained video and audio testimonials as opposed to text, picture, or no media testimonies (2006). One meta-analysis concluded that video and audio cessation messages were found to have an impact in participants, while text cessation messages were found to have little to no impact at all.

### **Message Strength**

Although central routes are not always the most persuasive, attitudes formed due to the central route of persuasion are more predictive of future actions than attitudes formed through peripheral routes (Petty, Cacioppo, & Schumann, 1983).

Another study has been done that shows that takes into account the elaboration likelihood model and the format of the message. This study looked at written messages versus comic strip and the participants need for cognition. In this case the central message and peripheral message were divided with message format, the central message being the text and the peripheral being the comic strip. Individuals with a high

need for cognition were more influenced by written text and those with a low need for cognition were more influenced by a comic strip. Individuals with low need for cognition are more likely going to be persuaded by signals that are less factual based (Carnaghi, Cadinu, Castrlli, Kiesner, & Bragantini, 2007). While this study was fascinating, there is no way to prove if the results are the product of the elaboration likelihood or of the different message medium. If a study can split the two up into a two by two study keeping the message the same but shifting the format and cues, than perhaps a better distinction can be reached.

### **Research Questions**

The basic premise of my study is to determine if there is ever a time in which text based messages can be more persuasive then a video based message. The first hypothesis is that, when a person has a high interest in the topic, then a text based central message will be more persuasive. We believe this might be the case because peripheral cues may only get in the way of someone who is genuinely interested in the message, and having the facts laid out on paper could possibly have more substance for a person who is intrigued.

The second hypothesis is that a person who reports a below average interest in the topic will be more persuaded by a video. Those with low interest will care less about the actual facts, and the immersive

nature of the video will serve better to grab their attention and have a more emotional response.

### **Methodology**

Participants were asked to be a part of the study in four Communication Studies Classes at Eastern Kentucky University. The sample was certainly a convenience sample. Some participants were offered bonus points for participating in the study, and this resulted in a total of 40 students. Male participants made up 30% and 60% were female, while 10% did not disclose gender. The vast majority of the participants were either juniors (37.5%) or seniors (45%), with 7.5% being sophomores and 10% unreported. The ages of participants ranged from 19 to 38, though 85% were between the ages of 19 and 24. There were 10 participants in the peripheral video condition, 12 in the central video condition, 9 in the peripheral text condition, and 9 in the central text condition.

### **Procedure**

The Study began with each participant signing a waiver that explained the confidentiality and how the study was voluntary to participate in (Appendix A), while the researcher outlined the basic framework of the study. After the waiver was signed, participants began filling out a pretest that tested both the attitude of the participant towards the subject and how high their interest in the topic was. All four

groups took the pretest. It consisted of questions about participant's household products, purchasing habits in regards to quality versus price, and how aware the participant is of the chemicals found in the products. Then participants rated how familiar they are with certain products and their initial interest level (Appendix B). Participants were then asked to view a persuasive message and each group viewed a different one.

One group was shown a video with a peripheral persuasive message. The video for this condition starts with a woman who is getting ready for bed and washing her face. She then pulls out a can labeled "toxic sludge" and proceeds to apply it to her face. The screen goes black, and the words "sometimes it's not that obvious," "What harmful chemicals are in your household?" and "Is death worth the convenience?" appear on separate screens in white text on a black background (appendix C).

The second group watched a video with a central persuasive message. This message consisted of white words on a black background listing chemicals that are typically found in a home and some of the effects the chemicals can have on a person. The video is narrated in a monotone, authoritative voice (Appendix D).

The third group was given a handout with a text-based peripheral message (Appendix E). This message consisted of a single piece of paper

with an image of “toxic waste” at the top. Underneath, the text explains that carcinogens are lurking in household products and asks in death is worth the convenience, mirroring the peripheral video.

The last group was given a handout with a text based central message. This was just a paper copy of the facts about what chemicals are common and their effects. After the message is received in all groups, a post test was given out to measure how their perception of the topic has changed since witnessing the type of message. Participants reported emotions like “scared” and “interested” on a scale of 1-10 after viewing the message and answered questions about how the message would change their future habits in terms of if they would be likely to further research the topic, or if they were likely to buy naturally based products.

As many factors as possible were kept constant between the peripheral messages and between the central. The peripheral messages both had more color to them and the text was held as constant as possible, though there was more text on the textual message since it lacked the depth of story found in the video. The “toxic sludge” image appeared in both messages. There was a pop of color to the text that was not in the video.

The central messages were held more constant than peripheral. The text was very similar with abbreviations being made in the video for time. The only marked difference was the narration in the video.

### **Results**

To assess the main effects of the factors on subjects' post-message interest in the subject, the group means were compared. A modest effect for format was also observed. Those in the written message condition reported higher post-test interest ( $M = 6.08$ ) than those in the video condition ( $M = 4.85$ ). A modest effect for the type of cue was also observed. Those in the central message condition reported slightly higher post-test interest than those in the peripheral condition. ( $M_1 = 5.99$ ,  $M_2 = 4.95$ ). In an unexpected finding, people in the low involvement reported greater interest in the subject after the message than those with high pretest involvement ( $M_1 = 6.7$ ,  $M_2 = 4.2$ ).

To test for a possible interaction between message format and strength, a 2 (video vs. text) x 2 (central vs. peripheral message) ANOVA was performed. There was a significant interaction between format and strength ( $F(1,36) = 5.93$ ,  $p < .05$ ). For those in the video condition, the peripheral message was more persuasive ( $m = 6.12$ ) than the central ( $m = 4.02$ ). But, for those in the written condition, the central ( $6.13$ ) and the peripheral ( $m = 5.86$ ) messages had no meaningful difference.



Hypothesis 1 predicted an interaction between initial topic involvement and the strength of the message. To test this interaction, a 2 (High interest vs. low interest) x 2 (Central vs. Peripheral Message) ANOVA was performed. The effect of message strength was moderated by initial involvement ( $F(1,36) = 5.93, p < .05$ ). For those with low initial involvement, the peripheral message was more persuasive ( $m=8.00$ ) than the central ( $m=5.43$ ). But for those with high initial interest, the central was slightly more persuasive ( $m=4.48$ ) than the peripheral ( $m=3.98$ , see Figure 1).

Hypothesis 2 predicted an interaction between initial topic interest and the format of the message. To test this interaction, 2 (High interest vs. low interest) x 2 (Video vs. Text) ANOVA was performed. No interaction between initial interest and message format was revealed ( $F(1,36) = 0.01, n.s.$ ).

### **Discussion**

As figure one shows, the group of participants who had the highest initial interest in the topic of toxins in household products were most persuaded by the central message. Those who had the lower than average initial interest were more persuaded by the peripheral message. These results substantiate both hypotheses.

Figure one also portrays another interesting result. Those with the lowest initial interest were much more likely to be persuaded by any message than those with the high initial interest.

Figure two lines up the four conditions in terms of how persuasive each condition was in comparison to one another. Strangely enough, the central text and the peripheral video were almost the same level of persuasive, and the central video was the least persuasive of them all. There was little difference between the messages that were

The emotional differences between conditions was also examined. Figure three portrays the average emotional reactions that each condition experienced after viewing the persuasive message. From all conditions, interest was the highest reported emotion followed by scared. Of all conditions, the central text reported the highest emotion responses in every single category. This was rather unexpected since the peripheral conditions employed more scare tactics by far than the central conditions.

### **Limitations**

One major issue with the study was the relatively small size. Although researchers were able to see clear trends in the results, a larger sample size is always preferred for the accuracy of the results and this study had way less than the ideal number of participants. If the same

study with the same results can be replicated on a larger population, the results would hold much more value.

Another issue was that many of the participants knew the researcher quite well, and that could have certainly tainted the results.

There were some issues with the pre and post surveys that could have been fixed. The final question on the pre message survey was formatted to where it looked like more text so nearly one quarter of the participants (22.5%) completely overlooked it. This question was asking individuals to rate their initial interest before the message, so it was a rather important question.

### **Further Research**

The difference in video and textual messages may not have been fully portrayed in this study. There could be a better way to study the difference. In real life, a person's attention must be naturally captured in order to view a message while in the study, the participants were asked to sit and view the message. If there was some way to come to the message organically, the results would be more conclusive.

After seeing how those with low interest were more likely to be persuaded than those with high interest in general, it would be fascinating to apply the Social Judgment Theory to the results of this study or perhaps take this theory into consideration and redo the study

entirely focusing more on participant's latitude of acceptance and latitude of rejection in the pre-message survey.

### **Future Implications**

This is an important topic because public safety messages have the potential to impact the lives of many in a positive way. This research can be used to further show how previous knowledge about a subject influences how persuasive the message is, so that messages can truly be tailored to the individual audience for more successful results.

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doi:10.1186/1476-069X-9-40

Figure 1

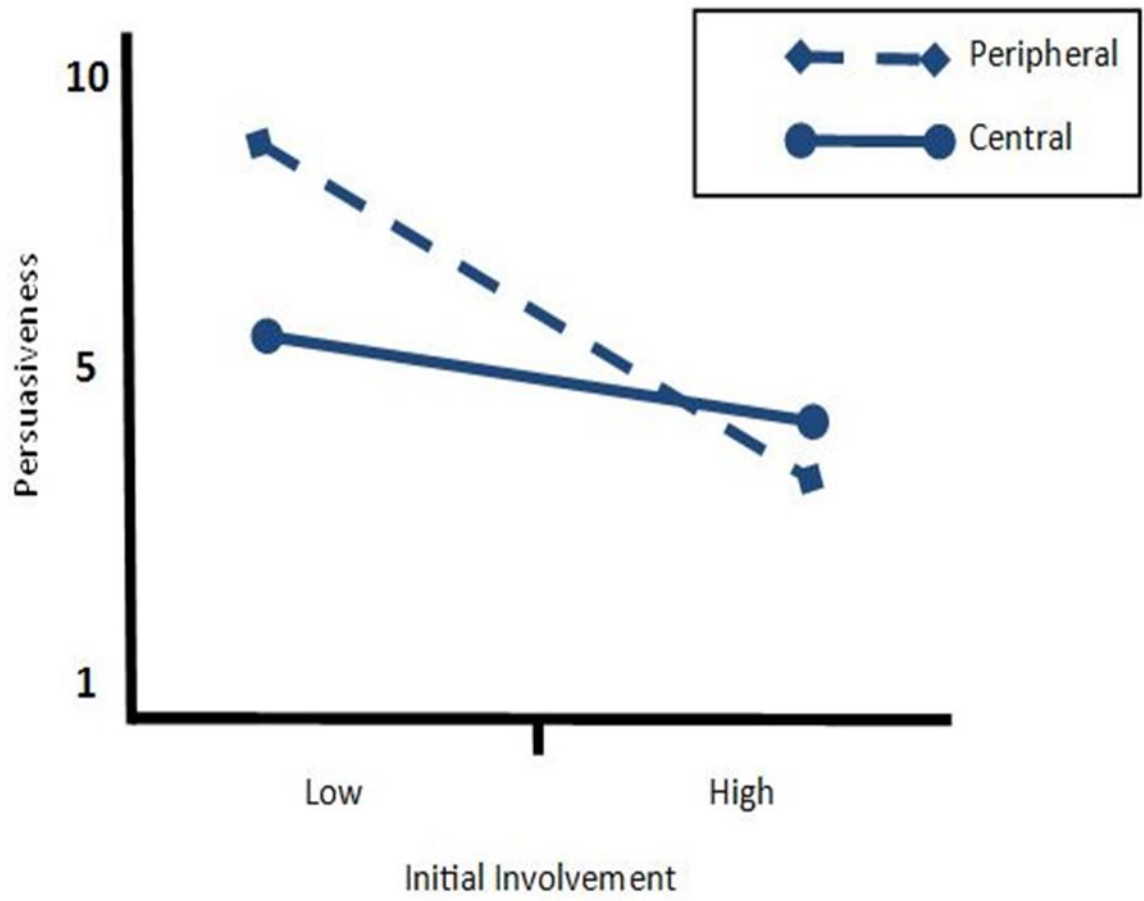


Figure 2

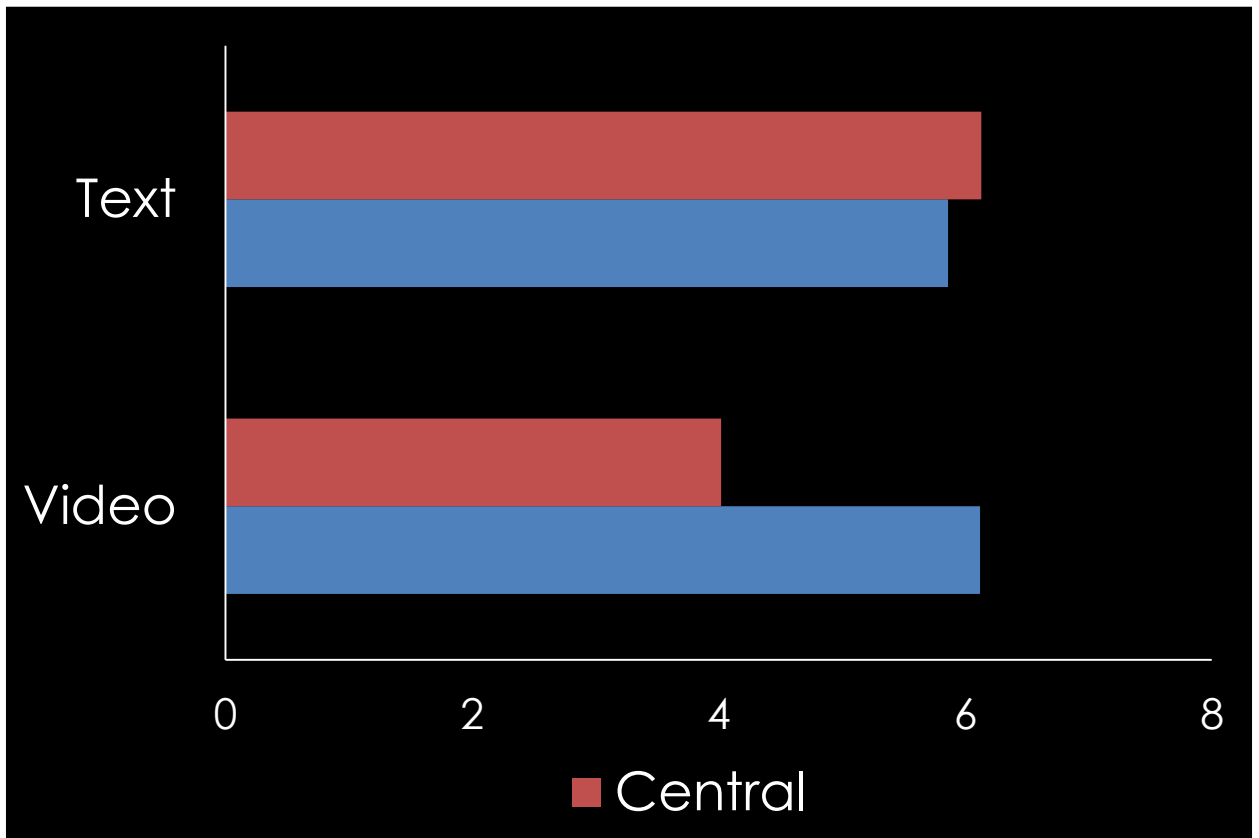
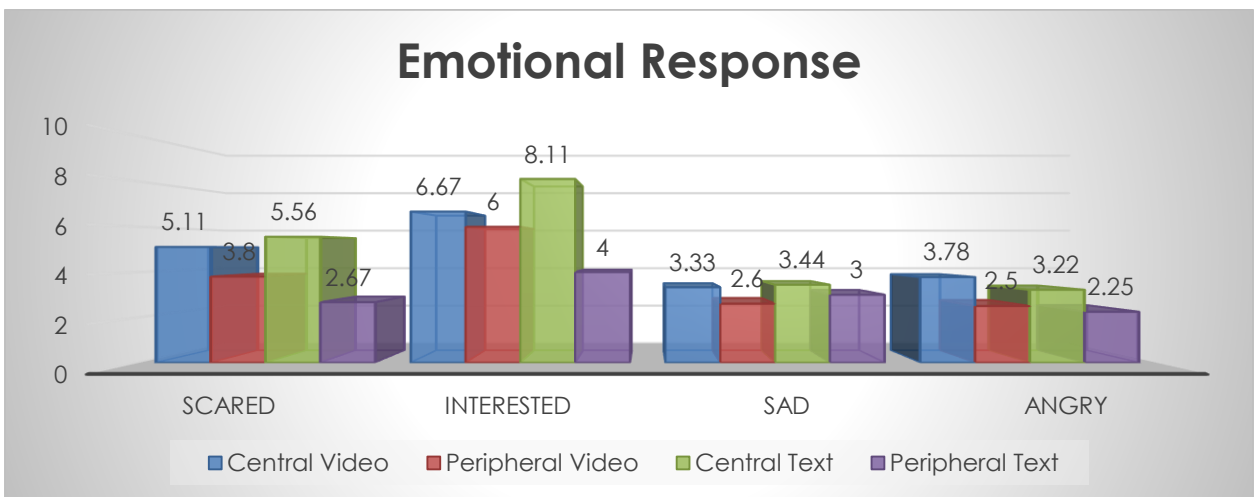


Figure 3



## Appendix A

**Message Format Influencing Persuasion**

Hello, my name is Katherine Lauber and I am a student in the Department of Communication at Eastern Kentucky University. I am studying how message format can influence how persuasive a message is.

If you choose to participate, this questionnaire should take about **15 minutes** to complete.

**There is no penalty for not participating in this survey. You may withdraw from this study at any time. If you do choose to participate, your responses are voluntary and confidential to the maximum extent of the law.** Besides the researchers, no one else will have access to your responses. The data collected will be stored on a computer hard drive that will only be accessible to the researchers. Your answers may be combined with those of others and included in a published scientific article.

If you agree to participate in this study, please write and sign your name below. **If you have any questions regarding this study after you finish completing the questions, feel free to contact Katherine Lauber at (502) 316-4894 or at Katherine\_devers@mymail.eku.edu.**

By completing and returning this questionnaire, you indicate voluntary agreement to participate in this study.

**Thank you for your time!**

WRITE YOUR NAME HERE \_\_\_\_\_

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_/\_\_\_\_/\_\_\_\_

***Please turn to the next page.***

## Appendix B

## Consumer Decisions Pre-message Survey

Sex: M/f

Age:

Year in School:

The following questions have to do with how you choose which products you buy. Please indicate how true each statement is to you.

- 1) I do not care about which brands of personal hygiene or cleaners I use.  
Very true    Somewhat True    Moderately True    Somewhat Untrue    Not At All True
- 2) I often read the label on common household products before purchasing.  
Very true    Somewhat True    Moderately True    Somewhat Untrue    Not At All True
- 3) I buy household products primarily when it is a good financial value.  
Very true    Somewhat True    Moderately True    Somewhat Untrue    Not At All True
- 4) I sometimes wonder what is in my personal hygiene products.  
Very true    Somewhat True    Moderately True    Somewhat Untrue    Not At All True
- 5) I never look at or research ingredients in personal hygiene products  
Very true    Somewhat True    Moderately True    Somewhat Untrue    Not At All True
- 6) Cost is more important than quality to me when buying personal hygiene products.  
Very true    Somewhat True    Moderately True    Somewhat Untrue    Not At All True
- 7) I buy something only after knowing it is nontoxic.  
Very true    Somewhat True    Moderately True    Somewhat Untrue    Not At All True
- 8) I prefer to be able to understand the ingredients on a product.  
Very true    Somewhat True    Moderately True    Somewhat Untrue    Not At All True

Check how familiar you are with the following chemicals:

	Never Heard of it	Unsure	Know very little	Familiar With	Very Familiar With
Formaldehyde					
Parabens					
Bisphenol A (BPA)					
Phthalates					
Pesticides					

You are about to view a message dealing with toxins in everyday household and personal hygiene products. Please rate your interest in this topic 1-10 (1 is low, 10 is high):

## Appendix C



## Appendix D

# Formaldehyde

probable carcinogen

building materials, cleaning products, nail polish

- National Cancer Institute

# Toxins



**Sometimes it's just not that obvious.**

Do you know what is hiding in your household products? Chemicals found in common personal hygiene and cleaning products have been linked to certain types of cancers, infertility, and many chronic illnesses. Is death worth the convenience?



## Appendix F

# Dangerous Household Chemicals

Many common household chemicals are known carcinogens. Carcinogens are chemicals that are known to cause cancer. It can be beneficial to research what is commonly found in personal hygiene products and cleaners.

## Examples:

**Formaldehyde**- Commonly found in building materials, cleaning products, and nail polish, formaldehyde is known as a probable carcinogen.

-National Cancer Institute

**Parabens**- Most often found in cosmetics and antiperspirant, parabens are incredibly prevalent in the average household. It is a known carcinogen. In one study, 60% of breast cancer tissues biopsied found 5 or more different parabens to be present.

-Breast Cancer Fund

**Bisphenol A (BPA)**- BPA is commonly found in plastic, especially water bottles and food packaging. It is so common, that 97% of people's urine tested had been exposed. Animal studies have shown effects in fetuses and newborns.

-National Institute of Environmental Health Services

**Phthalates**- Found in a variety of things from cosmetics to personal hygiene, Phthalates are most likely carcinogenic and can cause reproductive issues.

-Tox Town (U.S. National Library of Medicine)

**Pesticides**- Linked to nervous disorders, reproductive issues, and cancers, they are most commonly found on non-organic produce.

-National Resources Defense Council

## CDC Recommendations

- Be aware of the chemicals in the products you buy for your home—you can check for harmful ingredients at [http://householdproducts.nlm.nih.gov/...](http://householdproducts.nlm.nih.gov/)
- Read product labels and follow the directions carefully.
- Store household chemicals... safely and prevent chemicals from... coming into contact with children and pets.
- Use chemicals in well-ventilated rooms or use them outside.

## Appendix G

## Consumer Decisions Post-message Survey

- 1) Please indicate to what degree you felt each emotion after viewing the message(1 is low, 10 is high):

To what degree did the message make you feel each of the following emotions? Please rate each emotion 1-10, 1 being low and 10 being high.

Scared \_\_\_\_

Interested \_\_\_\_

Intrigued \_\_\_\_

Sad \_\_\_\_

Angry \_\_\_\_

Please rate each item on a scale from 1-10, 1 being low and 10 being high.

- 2) After viewing this message, how interested are you in this topic: \_\_\_\_
- 3) After viewing this message, how likely are you to read ingredient lists in products in the future: \_\_\_\_
- 4) After viewing this message, how likely are to do further research on this topic: \_\_\_\_
- 5) After viewing this message, how likely are you to spend extra money to purchase “natural” or “naturally based” products: \_\_\_\_