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## Article

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# A Multi-Method Approach to Understanding Behavior Change. The Case of Texting and Driving

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*Distracted driving, specifically texting and driving, has become a nationwide public health problem in the U.S. with negative, and potentially fatal consequences. In an effort to combat the growing problem, non-profit organizations, corporations, and the federal government have all stepped in to try to increase public awareness and persuade drivers to cease texting while driving. These efforts have not had the desired impact as texting and driving has continued to increase in recent years. This research investigates the potential that the messages used to curb texting and driving behavior might not be properly constructed. Specifically, we test the potential for message sponsor and self-relevance of the message to influence message outcomes. Our results suggest that messages sponsored by a combination of company and government that are self-relevant to viewers will have different outcomes than other messages. We identify practical and theoretical implications as well as future research directions.*

**Keywords:** *texting and driving, advertising, behavior intent, public health implications*

**JEL Classification:** M38

## 1. Introduction

The first text message was sent more than 20 years ago, and now more than six billion text messages are sent every day in the United States (Kelly 2012). Unfortunately, many of these messages are sent while driving. According to the U.S. Census, there are more than 200 million licensed drivers in the United States (U.S. Census 2012), and at any moment, approximately 660,000 of these drivers are using their cell phones or manipulating their electronic devices while driving their vehicles (Pickrell and Ye 2013). According to the National Highway Traffic Safety Administration, texting while driving doubles the risk of a crash or

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near-crash, as texting drivers take their eyes off the road for an average 23 seconds (Fitch et al. 2013). U.S. Transportation Secretary Ray LaHood has called it a “national epidemic” (Neyfakh 2013).

Distracted driving is defined as the act of driving while engaged in other activities, like texting and talking on mobile phones, which divert the driver’s attention away from the act of driving. Texting while driving involves three types of distracted driving: visual, manual and cognitive. This behavior has exponentially increased with the proliferation of smart phone technology. Add to that the false perceptions of the ability to multi-task, and distracted driving has become a growing public health concern with significant negative consequences. Each day distracted driving causes an estimated nine deaths and more than 1,000 injuries in the United States, most prominently among young, inexperienced drivers. In a recent survey more than 30 percent of U.S. drivers admitted to texting while driving (Centers for Disease Control and Prevention 2013). In response, corporations and non-profit organizations, including government agencies, have launched advertising and other marketing efforts aimed at reducing this behavior.

One approach has been to tackle the problem legally. While no states have banned cell phone use for all drivers, 38 states and the District of Columbia have banned cell phone use by novice drivers (Governors Highway Safety Association 2014). In 2007 Washington was the first state to ban texting while driving, and currently texting and driving is banned in 88 percent of the United States. Only nine states (California, Connecticut, Delaware, Maryland, New Jersey, New York, Oregon, Utah, and Washington) and the District of Columbia have banned talking on hand-held cellular phones while driving. Research has shown that banning texting and driving is difficult to enforce. Amongst the 22 million drivers in California, only 1,000 tickets to drivers in the first year of the texting ban (Farris 2011).

A second approach to curb distracted driving has been to use marketing targeting specific behaviors such as texting and driving. Public service announcements (PSA) and corporate cause advertisements have had some success in social marketing campaigns, where corporations, non-profit organizations, and government agencies have sought to use marketing to promote positive behaviors among certain groups in a population (Andreasen 1994). To complement PSAs, private sector companies also spend money to promote positive behaviors to preserve their corporate interests, while also engendering positive perceptions of the company. These efforts have also not been as effective as desired, and are the focus of this research.

Given the importance of the texting and driving problem combined with the limited effectiveness of past efforts, the purpose of this research is to better understand the potential for different messages to influence customer perceptions and behavioral intentions related to changing texting and driving behavior. We conducted two studies. In the first study, we use content analysis of current texting and driving advertisements to better understand current advertising appeals and messages. In a second study, we conduct an experiment to test how two specific message conditions influence customer perceptions and behavioral intentions. Our results suggest practical and theoretical implications for advertising and public policy.

## 2. Study 1

As an initial investigation into the effectiveness of different messages for our texting and driving context, our first step was to investigate what and how current texting and driving messages communicate with the public. Effectiveness of public service announcements has been addressed in terms of several factors. The amount of information to promote consumer learning can affect whether a PSA has the potential to change behavior (Fishbein et al. 2001). Types of appeals (e.g. emotional or fear appeals, positive vs. negative appeals) (Dillard and Peck 2000) and intensity of appeals or imagery are other factors. A target audience’s sensitivity to violence or the audience’s level of sensation seeking may affect how messages are received as well (Everett and Palmgreen 1995, Palmgreen et al. 2001). Our focus is on message format, which requires an understanding of what different message formats are currently being used.

Content analysis has been used extensively in advertising studies to understand message content and structure. Content analysis is “a scientific, objective, systematic, quantitative and generalizable description of communications content” (Kassarjian 1977). While significant PSA content analysis research has investigated drinking and driving PSAs (e.g., DeJong and Atkin 1995; Dejong et al. 1992; Slater 1999), surprisingly little research into texting and driving PSAs has been conducted (see Kareklas and Muehling 2014 for an exception). In addition, research into the effectiveness of private sector company advertising targeting texting and driving behaviors is virtually nonexistent. Our research fills this gap in the literature.

This study seeks to describe the content of social marketing messages in print, online and outdoor communications that are aimed at reducing and stopping distracted driving behaviors, specifically texting and driving. Our initial purpose is to discover what current advertising campaigns are actually communicating to consumers as well as respond to the following questions. What messages are these

campaigns sending? What appeals and images are being used? Are these appeals effective, based on what we know about prior campaigns designed to prevent injury and death as a result of other risky behaviors? Are the ads likely to activate perceptions of risk and potential loss necessary to reinforce positive behaviors? The study's methodology and results are addressed below.

### 2.1. Research Methods

Following the content analysis methodology outlined by Kassirjian (1977), this study seeks to describe the themes and messages featured in current advertising campaigns aimed at decreasing texting and driving behaviors. Investigators conducted online searches for terms such as "text and drive ads," "don't text and drive," and "distracted driving ad" to identify a set of print, online and outdoor advertisements that addressed texting and driving and the general use of the visual features of smartphones while driving. The final sample included 25 advertisements, and each image was considered a unit of analysis. The authors conducted content analysis by analyzing each of the independent advertisements to develop categories that represented the key content areas in the ad set. Of particular importance in the coding were the message characteristics and appeals used in the ads.

### 2.2. Results and Discussion

The content analysis yielded six primary content categories: graphics, imagery, message, source, comparison of behavior or effects, and call to action. A total of 50 dimensions emerged within the categories. Consistency in the coding was high, as the ratings by the two investigators yielded an inter-rater reliability of .84.

Among the advertisements, almost all used a combination of images and text, while six used text only. Of those using images, about half included photographs, and three fourths included a computer generated image. Twenty-two of the ads included a corporate or government agency logo. Seven ads included images of a crash, and eight included images of a road. The remaining most common images were mobile phones, parts of a car, and broken glass. An image of blood was included in three of the ads, as were the images of a child and a medical or hospital setting. Other images, included a gun, beer, corpse, and fire.

The messages included facts and figures, or statistics about consequences resulting from texting and driving. Seven of the ads included specific statistics (numbers). The potential consequences of this behavior illustrated in the ads included the driver's death (6) someone else's death (3), damage to a vehicle (6), potential for self-injury (5), and someone else's injury (6). Two ads highlighted damage to a vehicle, six mentioned the texter's death, four mentioned someone else's death, and two mentioned damage to a vehicle and two damage to other property. Three ads compared driving while distracted by texting or using a smartphone to other behaviors, including using a gun, drinking and driving, and being a detached, "stupid girl."

Nine ads used the word "don't" in their call to action, seven directed readers to a website for more information and five used the word "stop." Three separate ads called readers to "wait to (text)," "join the conversation," or "designate a texter."

Of all the advertisements, 19 were classified as corporate advertising. Nine had an affiliation with a non-profit organization, seven with a government agency and one specifically with a law enforcement agency.

In addition to identifying six broad categories of message content, our analysis revealed two important message format dimensions that could influence message effectiveness. First, there were three different combinations of message sources. Some messages were sponsored by governmental agencies, some were corporate ads, and some were jointly sponsored by companies and government agencies. Perhaps the messages have more or less influence due to perceptions of the credibility and motivation of the sponsor. Second, there was a clear distinction between one set of ads that depicted consequences for the viewer, while another set presented consequences for others. Perhaps the focal "victim" depicted in the ad also could influence effectiveness. We developed a second study to investigate these dimensions in more detail.

## 3. Study 2

Based on the exploratory content analysis undertaken in Study 1, we next developed an experimental study to test the outcomes of the two formatting dimensions revealed in the first study. Study 2 investigated the effects of ad sponsorship and victim context messaging.

### 3.1. Sponsorship and Victim Context

Advertisements sponsors generally fell into three categories. First, ads sponsored by a branded corporate entity were most often represented by companies in the telecom and automotive industry – well-known brands such as AT&T and Volkswagen. Second, government or law enforcement agencies also sponsored ads. Third, some ads were jointly sponsored, including both corporate and government or law enforcement entities. While companies can demonstrate their commitments to encourage consumers to use their products wisely (DeJong et al. 1992), law enforcement or government entities play a part in policing behaviors that can cause public risks. The discovery of this theme leads to the question, does sponsorship of the public service announcement message have an impact on the effectiveness of the message? Source credibility literature suggests that a more credible source increases the persuasiveness of a message (Sternthal et al., 1978). Non-profit sponsors are perceived as more credible than a corporate sponsor (Berry and Shields, 2014). In addition, perception of a company's social responsibility has also been shown to positively influence attitude toward a company and its advertisements (Shanahan et al., 2012). Ads with multiple sponsors should have more credibility given the weight of having both government and corporate backing.

The second dimension identified in Study 1 was the victim context. Some argued that texting and driving behavior by the viewer could cause injury to the viewer, while others highlighted situations in which the viewer could potentially injure or kill someone else while texting and driving. Construal level theory (CLT) of psychological distance proposes that increases in perceived distance from an object or an event increases the level of abstractness in thought (Trope and Liberman 2003, 2010). Psychological distance from the event or behavior (texting and driving) would suggest high construal level, meaning less effort in processing a message and more abstraction. This suggests that, with more distance ("other" victim), viewers may be less likely to put forth processing effort and thus less likely to change behavior. However, when viewers are presented with a message highlighting that they could be a victim ("self" victim), it follows that their thoughts about the hypothetical nature of becoming a victim would be more concrete and salient, thus more likely to produce behavior change. Because the goal of public service announcements is to change behavior, the question arises whether viewers would have more positive attitudes toward the ad and the sponsor and more likely to change their behavior when they are the potential victim in the consequences of their behavior, or when the victim was another person. Kareklas and Muehling (2014) found that messages that have a self-victim context versus others as victim were more self-relevant to consumers, and had a significant impact on behavioral intentions.

Taken together, we expect messages that have a combination of joint sponsors and self as victim to have more influence on perceptions and behavior. We next present four hypotheses tied to message outcomes given the sponsorship and victim context.

### 3.2. Attitude toward the Ad and Behavioral Intentions

Attitude toward an Ad is often the initial goal for advertising. Customers with a positive attitude toward the ad are more likely to pay attention to the ad and receive the message. Ultimately, higher levels of attitudes toward the advertising should result in specific behavioral intentions; relationships supported by MacKenzie et al. (1986). Cognitive social psychologists believe that attitudes and behavior should be consistent, whereby people who possess positive attitudes toward something should behave in a positive way toward the same thing. While attitude toward the ad is a "predisposition to respond in a favorable or unfavorable manner to a particular advertising stimulus during a particular exposure situation" (MacKenzie et al., 1986), behavioral intent refers to a consumer's potential actions toward that social activity. Behavioral intent is a precursor to behavioral change. Consistent with the Theory of Planned Behaviors (Ajzen, 1988; 1991), behavioral beliefs produce a favorable/unfavorable attitude toward the behavior. In this case, advertising campaigns merely providing information do not work, yet campaigns that aim at attitudes tend to be more effective. Thus, a self-victim context should be more salient to the respondent because it will result in more positive attitudes toward the ad, which will influence behavioral intentions (Goldsmith et al., 2000; MacKenzie et al., 1986). We posit the following:

*H1: The combination of dual sponsorship and self-victim contexts will be positively related to Attitude toward the Ad.*

*H2: Dual sponsorship and self-victim contexts will be positively related to behavioral intentions.*

### 3.3. Credibility of the Sponsor

Another potential message outcome that could be influenced by context effects is credibility. Credibility is defined as the set of perceptions that a receiver holds toward a source (Bush et al. 1987). The source credibility model is based on a message receiver's perception of the source to possess the relevant knowledge and/or experience which results in trust of the source to give unbiased information (O'Mahony and Meenaghan 1997/1998). Credible sources are more persuasive in changing attitudes and gaining behaviors (Pornpitakpan 2004), and the effectiveness of spokespeople depends on their fit with the ad context (Bush et al. 1987; Freiden 1984).

At a broader level, we can consider credibility of a company or government agency related to PSA effectiveness. Lafferty and Goldsmith (1999) indicated corporate credibility as the reputation of the company. Pornpitakpan (2004) suggested that high-credibility sources are more persuasive than low-credibility sources in changing not only attitudes but also behaviors. While prior reputation can influence sponsor credibility, it is also possible that perceptions of credibility are based on how messages are presented in the advertising context. We suspect a combination of more sponsors (dual sponsorship) will be perceived as more credible. In addition, the self-relevance created by the self-victim context should heighten message interest and attention. This suggests the following hypothesis:

*H3: Dual sponsorship and self-victim contexts will be positively related to Credibility of the sponsor(s).*

### 3.4. Perceived Social Responsibility of the Sponsor

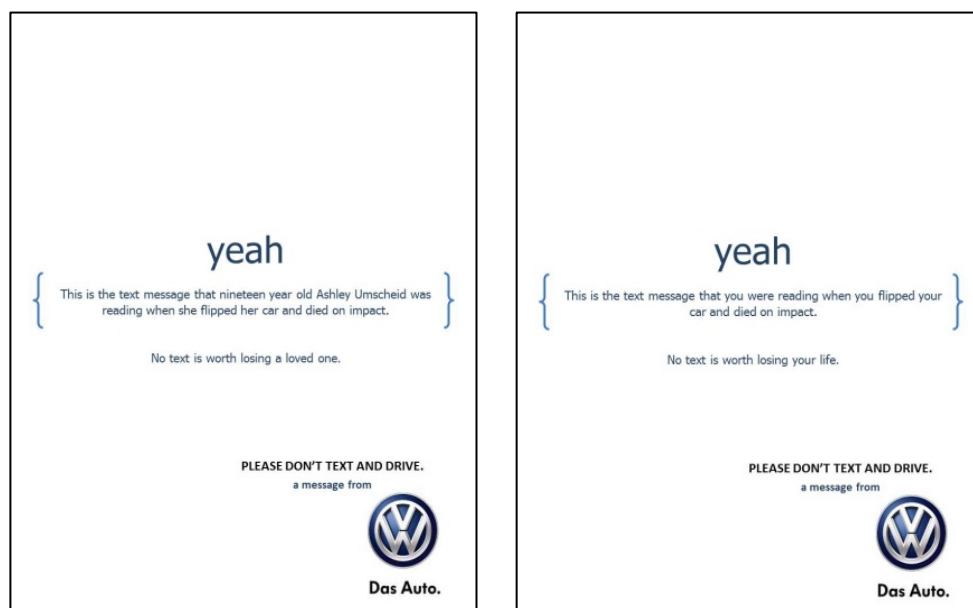
Perceived social responsibility provides an understanding that an organization or corporation has an obligation to benefit society as a whole. Both corporations and non-profit organizations have a responsibility to their consumers and guard their reputation with their consumers. Shanahan and Hopkins (2007) found a significant relationship between liking of an ad (overall attitude toward the ad) and perceived social responsibility of the sponsor. We assume that the combined effect of dual sponsorship will increase perceptions of social responsibility and, consistent with the Theory of Planned Behavior, the self-victim context will elicit greater perception of control over the outcomes of one's behaviors. Thus, the following hypothesis is proposed:

*H4: Dual sponsorship and self-victim contexts will be positively related to Perceived social responsibility of the sponsor(s).*

## 3.5. Methodology

### 3.5.1. Procedure

The purpose of Study 2 was to assess the role of the sponsor (corporate, government agency or both) and the victim context (self vs. other) within an advertisement. We created six ads representing each of the manipulated experimental effects with three ads representing each sponsor manipulation and two for each victim context, resulting in a 3x2 full factorial experimental design (see Figure 1). The ads were based on representative ads from Study 1.





**Figure 1.** Advertisement Manipulations

### 3.5.2. Measures and Sample Characteristics

The questionnaire consisted of four, multi-item measures tapping each of the primary criterion variables including Overall Attitude toward the Advertisement (Kamp and MacInnis 1995); a shortened version of the Ohanian (1990), source credibility scale was utilized to assess Source Credibility, Perceived Social Responsibility of the Sponsor (Brown and Dacin 1997); and Intent to Change Behavior (Dodds et al. 1991). Given we needed to collect both attitudinal and evaluative perception measures, it was deemed appropriate to utilize a reflective measurement model with endpoints such as good/bad, like/dislike (Jarvis et al. 2003). Table 1 presents the full item list. All measures have been used previously with demonstrated reliability and validity. Additional scales were included to assess the demographic composition of the sample and the experimental manipulations.

The sample consists of 304 respondents; of this number 54% were female, 70% were Caucasian, 12% were Asian, 8% were African American, and 5% respectively were Hispanic/Latino or of mixed race. Relative to age, 31% were 18-25 years of age, 42% were 26-34, 20% were 35-50 and the remaining 7% were

greater than 50 years of age. Approximately 68% of the sample was either college graduates or currently pursuing a college degree, and 40% of the sample had an average income of greater than \$50,000.

**Table 1. Confirmatory Model Results <sup>a</sup>**

| Construct/Item  | Comp. St. Estimate | t-value <sup>b, c</sup> |
|---|--------------------|-------------------------|
| <i>Overall Attitude Toward the Ad</i> ( $\alpha = .85$ ; AVE = .52)   |                    |                         |
| Disliked it very much / Liked it very much ( $Y_1$ )  | .76                | -                       |
| Not at all informative / Very informative ( $Y_2$ )   | .71                | <b>14.15</b>            |
| Not at all useful / Very useful ( $Y_3$ )   | .83                | <b>16.51</b>            |
| Very offensive / Not at all offensive ( $Y_4$ )   | .57                | <b>11.15</b>            |
| Very unfair / Very fair ( $Y_5$ )   | .74                | <b>14.79</b>            |
| <i>Credibility of the Sponsor</i> ( $\alpha = .95$ ; AVE = .78)   |                    |                         |
| Not Dependable / Dependable ( $Y_6$ )   | .78                | -                       |
| Not Reliable / Reliable ( $Y_7$ )   | .91                | <b>20.86</b>            |
| Insincere / Sincere ( $Y_8$ )   | .91                | <b>20.71</b>            |
| Not Trustworthy/ Trustworthy ( $Y_9$ )  | .90                | <b>20.41</b>            |
| Dishonest / Honest ( $Y_{10}$ )   | .92                | <b>21.14</b>            |
| <i>Perceived Social Responsibility of the Sponsor</i> ( $\alpha = .92$ ; AVE = .70)   |                    |                         |
| (Corporate, Government or Combined) cares about bettering society ( $Y_{11}$ )  | .81                | -                       |
| (Corporate, Government or Combined) is socially responsible ( $Y_{12}$ )  | .87                | <b>20.16</b>            |
| (Corporate, Government or Combined) plays a necessary role in society ( $Y_{13}$ )  | .96                | <b>20.92</b>            |
| (Corporate, Government or Combined) contributes to society ( $Y_{14}$ )   | .72                | <b>15.41</b>            |
| (Corporate, Government or Combined) will keep its promises and commitments. ( $Y_{15}$ )  | .80                | <b>16.54</b>            |
| <i>Intent to Change Behavior</i> ( $\alpha = .98$ ; AVE = .97)  |                    |                         |
| Not at all likely / very likely ( $Y_{16}$ )  | .99                | -                       |
| Much less probable / much more probable ( $Y_{17}$ )  | .98                | <b>21.56</b>            |
| <sup>a</sup> $\chi^2 = 256.301$ , $df = 113$ , $p \leq .000$ . GFI = .93, AGFI = .90, St. RMR = .057, IFI = .97, CFI = .97, RFI = .95 |                    |                         |
| <sup>b</sup> all $p \leq .01$ for individual items; the first item for each measure was set to a value of 1.00                        |                    |                         |
| <sup>c</sup> significant parameter t-values in bold   |                    |                         |

### 3.6. Results

#### 3.6.1. Manipulation Checks

The study incorporated two manipulation checks, the first, designed to assess the sponsor manipulation consisted of three 7-point Likert-type, items (strongly disagree/strongly agree), asking respondents if the ad they just viewed was designed by a company, a government agency or both. A 3-group, Multivariate Analysis of Variance (MANOVA) model was created with each of the three items serving as dependents and the sponsorship treatment serving as the single (3-group), independent main effect. Follow-up post hoc, multiple comparison (Tukey), tests were incorporated to provide support for the manipulation. The results of this test are presented in Table 2, whereby support for the experimental manipulation, both in significance and directionality, is demonstrated.

In order to support the victim context manipulation, a two-group Hotelling's  $T^2$  test was incorporated. This test consisted of a model with a two-group (self/other), independent main effect and two dependent criterion variables including 7-point, Likert type measures asking respondent to strongly disagree/agree with the question, "The ad you just viewed suggests that texting and driving can lead to: your own death or someone else's death. Results of this test (see Table 3), also provided support for the experimental manipulation.

**Table 2. Ad Sponsor Manipulation Tests**

| Main Effect                    | Dependent Variables (Sponsor Manipulation) |         |             |  |         |             |   |         |             |
|--------------------------------|--|---------|-------------|--|---------|-------------|---|---------|-------------|
|                                | The ad was sponsored by a company.         |         |             | The ad was sponsored by a government agency. |         |             | The ad was sponsored by both a company and a government agency. |         |             |
|                                | $\bar{x}$                                  | F-ratio | p-value     | $\bar{x}$                                    | F-ratio | p-value     | $\bar{x}$   | F-ratio | p-value     |
| <i>Sponsor</i> <sup>a, b</sup> |  | 75.90   | <b>.000</b> |  | 140.63  | <b>.000</b> |   | 155.29  | <b>.000</b> |



|   |  |  |  |                |  |  |                |  |  |
|---|--|--|--|----------------|--|--|----------------|--|--|
| Corporate   | 6.43                                       |  |  | 2.25           |  |  | 2.43           |  |  |
| Government  | 4.11                                       |  |  | 5.24           |  |  | 3.89           |  |  |
| Combined  | 5.79                                       |  |  | 4.27           |  |  | 5.97           |  |  |
| <i>Treatment<sup>b</sup></i>  | Post Hoc Multiple Comparison (Tukey) Tests |  |  |                |  |  |                |  |  |
| <i>Comparisons</i>  | <i>p-value</i>                             |  |  | <i>p-value</i> |  |  | <i>p-value</i> |  |  |
| Corporate/<br>Government  | <b>.000</b>                                |  |  | <b>.000</b>    |  |  | <b>.000</b>    |  |  |
| Corporate/<br>Combined  | <b>.002</b>                                |  |  | <b>.000</b>    |  |  | <b>.000</b>    |  |  |
| Government/<br>Combined   | <b>.000</b>                                |  |  | <b>.045</b>    |  |  | <b>.000</b>    |  |  |
| <sup>a</sup> <i>Wilks' A</i> = .367 ( <i>f</i> <sub>(4)</sub> = 97.03; <i>p</i> ≤ .000) |  |  |  |                |  |  |                |  |  |
| <sup>b</sup> <i>significance in bold</i>  |  |  |  |                |  |  |                |  |  |

Table 3. Victim Context Manipulation Tests

| Main Effect   | Dependent Variables (Victim Manipulation)                          |                |                |   |                |                |
|---|--|----------------|----------------|---|----------------|----------------|
|   | The ad suggests texting while driving will lead to your own death. |                |                | The ad suggests texting while driving will lead to someone else's death |                |                |
|   | $\bar{x}$  | <i>F-ratio</i> | <i>p-value</i> | $\bar{x}$   | <i>F-ratio</i> | <i>p-value</i> |
| <i>Victim</i> <sup>a,b</sup>  |  | 8.44           | <b>.004</b>    |   | 3.35           | <b>.018</b>    |
| Self  | 6.41   |                |                | 4.83  |                |                |
| Other   | 4.16   |                |                | 5.93  |                |                |
| <sup>a</sup> Wilks' <i>A</i> = .972 ( <i>f</i> <sub>(2)</sub> = 6.914; <i>p</i> = .001); Hotelling's <i>T</i> = .029 ( <i>f</i> (2) = 6.914; <i>p</i> = .001) |  |                |                |   |                |                |
| <sup>b</sup> significance in bold   |  |                |                |   |                |                |

### 3.6.2 Psychometric Assessment

Assessment of scale reliability and validity was accomplished via a confirmatory factor model with LISREL 9.1. The initial model demonstrated adequate fit with a  $\chi^2 = 256.301$ ,  $df = 113$ ,  $p \leq .000$ . GFI = .93, AGFI = .90, St. RMR = .057, IFI = .97, CFI = .97 and RFI = .95. Testing for the occurrence of common method variance was accomplished via the Harman's single-factor test (Podsakoff et al. 2003). This method stipulates that all manifested items within a confirmatory model be modeled as indicators of a single factor.

Method biases are assumed to be substantial if the hypothesized model and single factor model are not significantly different via  $\chi^2$  difference tests with one degree of freedom. If the single factor model demonstrates substantial reduction in model fit and is significantly different from the hypothesized model then it is implied that common method variance does not exist (e.g., Mossholder et al. 1998). The  $\Delta\chi^2$  was significant with an increased value for the single-factor model; thus implying that common method variance was not a factor.

Based on the CFA results, we retained all indicators associated with each latent construct for further analysis. Each scale proved both reliable and valid. As noted in Table 1, the coefficient alpha values ranged from .98 to .85 while the variance extracted scores ranged from .97 to .52. Convergent validity was assessed via the t-value associated with the ratio of factor loadings to standard error for each item. Item t-values ranged from 21.56 to 11.15 (see Table 1). Generally, a t-value of greater than 2.00 lends support for convergent validity (Segars 1996). Further, average variance extracted scores greater than .50 support a case for convergent validity (Fornell and Larcker 1981). As noted in Table 1, AVE for each construct was greater than the .50 cutoff. Three tests were incorporated for the assessment of discriminant validity. These included (a) all off-diagonal phi correlations among dimensions being less than one (Bagozzi 1980), (b) no confidence interval estimates around the phi correlations should include a value of one (Gerbing and Anderson 1988), and (c) average variance extracted estimates should be greater than the square of the correlation between two dimensions (Fornell and Larcker 1981). Support for discriminant validity was demonstrated.

### 3.7.3 Hypothesis Testing

Hypothesis testing required the creation of a 3 x 2, between subjects, full-factorial experimental design model via MANOVA. The main effects consisted of the sponsor (company, government or both), and the victim context (self/other). Scale scores for the four criterion variables including Overall Attitude toward the Advertisement, Intent to Change Behavior, Source Credibility, and Perceived Social

Responsibility of the Sponsor served as dependents. Model results are presented in Table 4. Significant effects were found for the sponsor ( $f=1.870$ ;  $p=.048$ ), and interaction effects ( $f=2.799$ ,  $p=.005$ ), though the victim context main effect was not significant ( $f=.688$ ;  $p=.601$ ).

**Table 4: Univariate and Multivariate Results**

| Main Effects                  | Dependent Variables               |         |             |                           |         |         |                            |         |             |                                      |         |             |
|-------------------------------|-----------------------------------|---------|-------------|---------------------------|---------|---------|----------------------------|---------|-------------|--------------------------------------|---------|-------------|
|                               | Attitude toward the Advertisement |         |             | Intent to Change Behavior |         |         | Credibility of the Sponsor |         |             | Social Responsibility of the Sponsor |         |             |
|                               | $\bar{x}$                         | F-ratio | p-value     | $\bar{x}$                 | F-ratio | p-value | $\bar{x}$                  | F-ratio | p-value     | $\bar{x}$                            | F-ratio | p-value     |
| Sponsor <sup>a</sup>          |                                   | 2.863   | <b>.048</b> |                           | .108    | .897    |                            | 1.783   | .169        |                                      | 4.998   | <b>.007</b> |
| Corporate                     | 40.81                             |         |             | 8.68                      |         |         | 29.91                      |         |             | 28.58                                |         |             |
| Government                    | 40.54                             |         |             | 8.92                      |         |         | 29.13                      |         |             | 28.39                                |         |             |
| Combined                      | 42.23                             |         |             | 8.89                      |         |         | 30.31                      |         |             | 29.93                                |         |             |
| Victim <sup>b</sup>           |                                   | .025    | .874        |                           | .468    | .226    |                            | .160    | .690        |                                      | .504    | .478        |
| Self                          | 41.41                             |         |             | 9.12                      |         |         | 29.89                      |         |             | 29.14                                |         |             |
| Other                         | 41.24                             |         |             | 9.23                      |         |         | 29.68                      |         |             | 28.82                                |         |             |
| Sponsor x Victim <sup>c</sup> |                                   | 6.042   | <b>.003</b> |                           | .445    | .641    |                            | 3.765   | <b>.024</b> |                                      | 6.893   | <b>.001</b> |

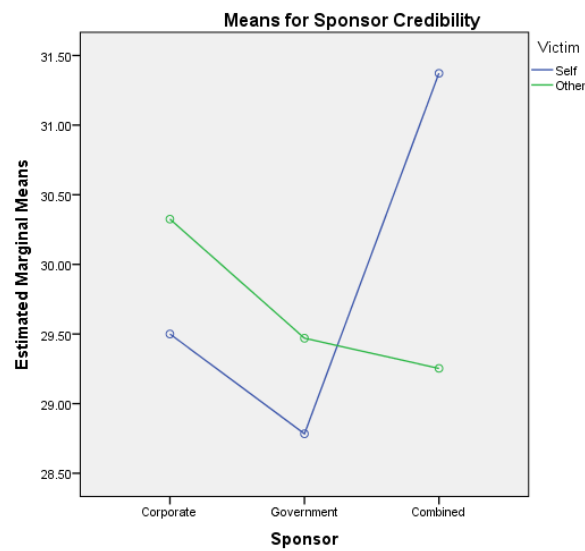
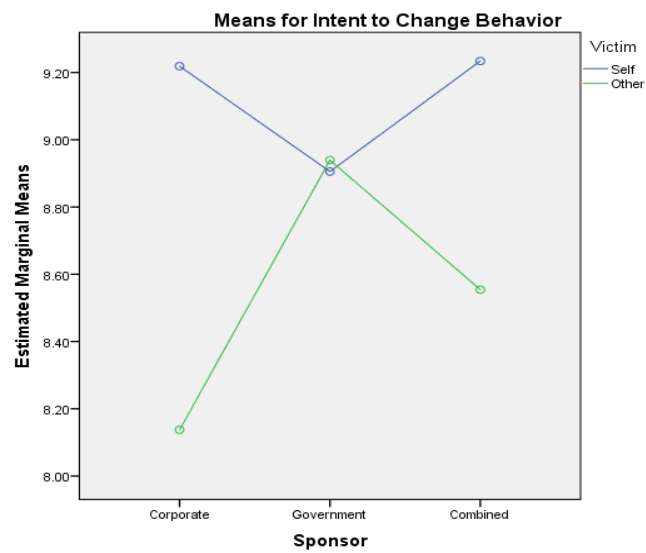
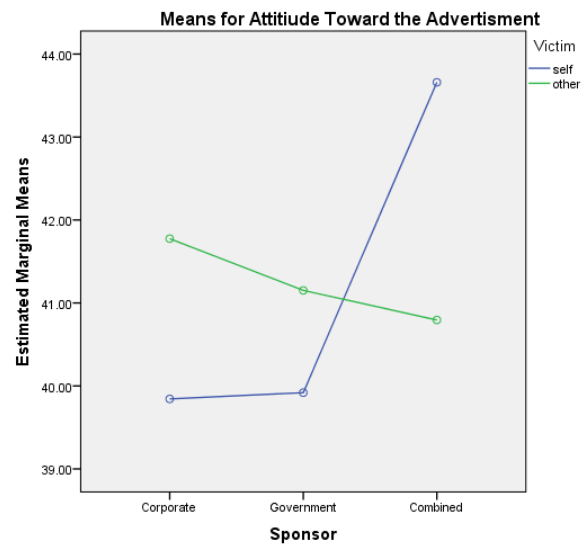
<sup>a</sup> Wilks'  $\Lambda = .970$  ( $f_{(4)} = 1.870$ ; ,  $p = .048$ )  
<sup>b</sup> Wilks'  $\Lambda = .994$  ( $f_{(4)} = 0.688$ ; ,  $p = .601$ )  
<sup>c</sup> Wilks'  $\Lambda = .955$  ( $f_{(4)} = 2.799$ ; ,  $p = .005$ )

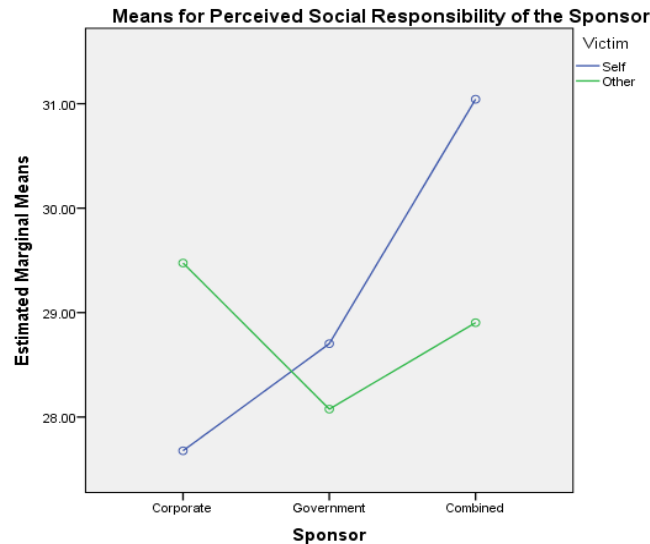
Hypotheses 1-4 posit that utilization of dual sponsorship and a self-victim context will result in heightened levels of each of the criterion variables. Noting the interaction effects as presented in Table 2, initial support is provided for Hypotheses 1, 2 and 4. Hypothesis 2 was not supported. Figure 2 shows the graphical plots of the significant interaction effects. From the graphs it appears that disordinal interaction effects exist, thus rendering interpretation of the main effects unwarranted (Hair et al. 2006). For each of these interactions the greatest mean is for the combined sponsor/self-victim context ad. Additional testing (planned contrasts), provides further evidence as the mean scores are significantly different and greater than the other treatment levels (see Table 5), for all cases, with the exception of the "corporate/other" (corporate sponsorship/other victim context) treatment for credibility of the source and perceived social responsibility of the sponsor, thus supporting Hypothesis 1 and showing marginal support for Hypotheses 3 and 4. Practical and theoretical implications of these findings follow.

**Table 5. Planned Contrast Test Results**

| Treatment Level<br>(Sponsor/Victim Context) | Dependent Variables               |                      |                           |                      |                            |                      |                                      |                      |
|---|-----------------------------------|----------------------|---------------------------|----------------------|----------------------------|----------------------|--------------------------------------|----------------------|
|   | Attitude toward the Advertisement |                      | Intent to Change Behavior |                      | Credibility of the Sponsor |                      | Social Responsibility of the Sponsor |                      |
|   | $\bar{x}$                         | p-value <sup>a</sup> | $\bar{x}$                 | p-value <sup>a</sup> | $\bar{x}$                  | p-value <sup>a</sup> | $\bar{x}$                            | p-value <sup>a</sup> |
| Combined/Self                               | 43.66                             | -                    | 8.17                      | -                    | 31.37                      | -                    | 31.04                                | -                    |
| Combined/Other                              | 40.79                             | <b>.037</b>          | 6.98                      | .748                 | 29.25                      | <b>.021</b>          | 28.90                                | <b>.050</b>          |
| Corporate/Self                              | 39.84                             | <b>.002</b>          | 7.71                      | .888                 | 29.50                      | <b>.032</b>          | 27.67                                | <b>.000</b>          |
| Corporate/Other                             | 41.77                             | <b>.048</b>          | 7.67                      | .854                 | 30.33                      | .235                 | 29.45                                | .065                 |
| Government/Self                             | 39.91                             | <b>.007</b>          | 8.17                      | .958                 | 28.78                      | <b>.035</b>          | 28.73                                | <b>.033</b>          |
| Government/Other                            | 41.15                             | <b>.041</b>          | 7.42                      | .848                 | 29.47                      | <b>.029</b>          | 28.76                                | <b>.050</b>          |

<sup>a</sup> significant difference between the Combined Sponsorship/Self Victim Context and the listed treatment level





*Figure 2. Graph of Interaction Effect*

#### 4. Implications, Limitations, and Future research Directions

The purpose of this study was to understand the use of sources in a social marketing context and assess their effect on ad message perceptions. Two studies were incorporated; the first consisting of a content analysis of texting and driving related advertisements which resulted in identifying two key message formats that have been used significantly, which included corporate/government sponsorship and victim context (self/other). A second study was undertaken whereby the manipulated effects of sponsorship and victim context were assessed as influences of ad message perceptions including ad attitude, behavioral change, source credibility, and perceived social responsibility of the sponsor. Of the four posited hypotheses, one was fully supported and two were partially supported, which lead to theoretical, managerial and public policy implications.

##### 4.1. Theoretical Implications

From a theoretical perspective, while the combined sponsor/self-victim message format is related to ad attitudes, source credibility and perceived social responsibility, this format did not prove significant in evoking behavioral intentions. This would seem to contradict the premises of the theory of planned behavior, as attitude did not appear to act as a precursor to behavioral intentions. It is possible that the simplified message format did not provide salient enough priming cues used in prior PSA studies that showed positive effects for self as victim imagery positively influencing behavioral intentions (e.g., Kareklas and Muehling, 2014). Perhaps insights gleaned from additional theoretical perspectives (i.e. attribution theory, elaboration likelihood etc.), may provide greater guidance into understanding what stimuli will result in heightened behavioral change.

##### 4.2. Managerial and Public Policy Implications

Overall, it was expected that the utilization of combined sponsorship and a self-victim context would be positively related to all the dependent variables. This proved to be the case relative to overall attitude toward the ad. Specifically, when combined sponsorship and self-victim context is utilized, respondents appear to have the most positive perception of the advertisement. Thus, in-order to facilitate positive ad perceptions, it is recommended that combined sponsorship (corporate and non-profit) and the self-victim context be utilized.

The fact that behavioral intentions were not significantly tied to context is interesting and requires additional discussion. One possible explanation is that respondents did not feel the self-victim scenario and texting while driving context was self-congruent. For an advertisement to be effective, the viewer has to feel the ad context was self-relevant (Hong and Zinkhan, 1995). It is possible that respondents either felt they did not text and drive as much as others or that they were somehow more capable of texting and driving than others and would not have an accident, so the outcome would not apply to them. This requires more research to shed more light on possible denial issues with this specific behavior.

This study supports the concept of upstream social marketing introduced by Andreasen (2006). Upstream social marketing encourages several organizations to participate in a “crusade” to change a social behavior (Dibb and Carrigan, 2013). While this type of social marketing may be challenging, a change in texting and driving behavior may result with the influence of multiple constituents, including the government, non-profits as well as corporations like wireless providers and automobile manufacturers.

Relative to source credibility and perceived social responsibility of the sponsor, the combined/self-victim context proved to be most salient to all other formats with the exception of the corporate/other victim context. In gaining insights into this finding, it is noted that there did not exist a significant main effect for victim context, hence, this would imply that sponsorship tends to drive perceptions. When using both formats, health-concerned non-profits are urged to use the combined/self-victim format, yet in cases where government sponsorship is not forthcoming, it would appear that selection of a perceived socially responsible sponsor is necessary. In this case, corporate sponsors appear to be more credible than government agencies. However, in this study, the corporate sponsor was an automobile manufacturer, and further research is needed to test message from other related corporations like cellular phone providers and insurance companies.

While our study found support for the self-victim messaging, many believe that it is other drivers on the road that provide the risk, even though drivers are aware that texting and driving behavior is dangerous (Farris 2011). The government and corporations can learn from the seat belt advertising campaigns. “Buckle Up for Safety” only got 13 percent of drivers to comply, whereas, the “Click It or Ticket” was more successful in reinforcing seat belt laws and supporting the self-victim context (Farris, 2011).

#### 4.3 Limitations and Future Research

As with all studies, the limitations of this undertaking constrain the usefulness of these findings. First, while the study’s sample was proportionally representative of the population, it was still a convenience sample limiting the generalizability of the results. How does actual texting behavior relate to perceived texting behavior and potential risk associated with texting and driving? Different drivers might respond differently based on their self-reflection of actual texting and driving and its consequences. Moreover, a single automobile brand was used (Volkswagen), and the impact of other brands and other industries in similar messages might have different outcomes.

Additional inquiry could assess other ad message issues. Key topics to research might include the impact of emotional response to the ad, appeal types (fear, celebrity, etc), and ad types (narrative vs informational) on responses. In addition, it would seem important to also expand the victim context to include groups with a self/other context (my family vs other family or my friends vs a group of other friends).

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