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# **SOCIAL MARKETING AND DISTRACTED DRIVING BEHAVIORS AMONG YOUNG ADULTS: THE EFFECTIVENESS OF FEAR APPEALS**

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## **ABSTRACT**

*This paper examines the topical issue of discouraging young adults from engaging in distracted driving behaviors. While the focus of the paper is on the effectiveness of fear appeals in achieving this objective, the paper also considers the role that distracted driving laws might play.*

*In an experiment involving 840 young adults, we examined whether social marketing fear appeals (1) changed participants' beliefs about distractions caused by four unsafe driving behaviors and (2) influenced participants' intentions of engaging in those behaviors. After viewing two fear appeals, participants rated the behaviors as more distracting than they previously believed. However, they reported increased intentions of engaging in the behaviors (a boomerang effect). Males reported greater increases in intentions to engage in two behaviors than those reported by females. We considered these results in light of findings from a separate focus group study of young adults' reactions to six fear appeals including the two used in this study. The PSAs used in this experiment aroused only low-to-moderate levels of fear in young adults; therefore, the appeals may not have been strong enough to reach young adults on this issue.*

*As we examined our participants' responses to open-ended questions, we found some evidence concerning the possible effectiveness of distracted driving laws. The males in our study were much more likely than females to suggest using laws and legal action to discourage distracted driving. Males also were more likely than females to say that fear appeals will not change distracted driving behaviors. Females were supportive of the use of fear appeals and suggested using interviews with people who had been affected by distracted driving accidents as a tool for changing the behaviors of young adults.*

## **INTRODUCTION**

Social marketing has long been used by government and nonprofit organizations to influence the behaviors of the general public. Advertising appeals used in social marketing have included

rational/informational and emotional/fear appeals. In particular, fear appeals have been used to discourage various behaviors including drug use, drinking and driving, unsafe sexual practices, and unsafe/distracted driving. While the fear appeals literature is lengthy, questions remain about the effectiveness of fear messages.

With young adults, the ability of fear appeals to change intentions and behavior is particularly questionable. There have been several research studies which indicate that young adults recognize when fear appeal PSAs are “trying to scare us into not taking drugs or not smoking” but find the message irrelevant to them personally (Cohn, 1998; Hastings and MacFadyen, 2002; Hastings, *et al.*, 2004) or doubt the consequences would happen to them (Kempf and Harmon, 2006). In Great Britain, during the 1990s, there were a number of research projects completed to help develop HIV/AIDS campaigns. In research conducted with Scottish teenagers, it was found that they recognized the advertising was intended to frighten “people in general” or “others,” but they did not identify with it. The teenagers felt that shock approaches would work for others but not for “me” (Hastings, *et al.*, 1990). Furthermore, with the prevalence of graphic and violent images in video games, movies, and even newscasts, it is perhaps even more uncertain today whether people are affected by fear messages. This may be particularly true for appeals targeted at young adults because today’s youth have had much greater exposure than previous generations to graphic images and other fear messages.

This paper examines a current issue in society: discouraging young adults from engaging in distracted driving behaviors. The focus of the paper is on the effectiveness of fear appeals in changing young adults' beliefs about distracted driving behaviors and their intentions to drive while distracted. We also consider the role that distracted driving laws might play in reducing distracted driving.

## **REVIEW OF THE LITERATURE AND DEVELOPMENT OF HYPOTHESES**

### **Social Marketing**

The beginning of social marketing is credited to Kotler and Levy (1969) and Kotler and Zaltman (1971). Social marketing concepts are used to encourage the public to behave in socially desirable ways (e.g., wearing seat belts, not drinking and driving, not smoking, and not driving while distracted). Governmental organizations, particularly the U.S. federal government, are prominent users of social marketing. Examples of social marketing efforts by governmental entities include the U.S. Department of Agriculture’s “5-a-Day” program and a number of advertising campaigns by the Centers for Disease Control and Prevention (see examples at [www.social-marketing.org](http://www.social-marketing.org)). The idea behind social marketing is to link the socially desired behavior to something that is of value to the individual, thus encouraging the individual to behave in the desired manner.

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Social marketing efforts can appeal to a person's intellect (e.g., through informational or rational appeals) or to a person's emotions (e.g., through fear messages). However, Terblanche-Smit & Terblanche (2010) noted that informational and rational appeals are not effective with many social problems and, consequently, advertising practitioners often rely on emotional appeals to the public. Dillard and Peck (2000) found that effectiveness of emotional appeal PSAs was influenced by (1) fluctuating attitudes, (2) changes in affective responses, and (3) cognitive reactions for both positive and negative appeals. While several studies have examined the effectiveness of negative versus positive emotional appeals (Wheatley and Oshikawa, 1970; Robberson and Rogers, 1988; Block and Keller, 1995; Frazer et al., 2002), the findings have been inconclusive.

### **Fear Appeals**

"Fear appeals motive attitude, intention and behavior changes—especially fear appeals accompanied by high-efficacy messages" (Witte & Allen, 2000:605). Consequently, fear appeals can be quite useful to practitioners, and the use of fear appeals continues to be prevalent in the design of PSAs. A fear appeal is a persuasive communication attempting to arouse fear, promoting precautionary motivation and self-protective action (Rogers and Deckner, 1975; Rogers, 1983; Tanner et al., 1989). Fear appeals typically provide two types of information. First, an attempt is made to arouse fear by presenting a threat (e.g., "serious painful injury") to which the recipient is susceptible (e.g. "car accident") and which is severe (e.g., "people die from car accidents"). Secondly, a search for "safety conditions" is prompted by recommending specific action (e.g. "by not texting and driving, you are less likely to have an accident"). Such action may be presented as effective in neutralizing the threat (e.g. "don't text and drive") and easy to execute ("drive safely"). Fear appeal studies have focused on these aspects (Witte, 1992; Eagly and Chaiken, 1993).

A long stream of fear appeals research in various disciplines has provided mixed evidence of their effectiveness (Ray & Wilkie, 1970; Wheatley and Oshikawa, 1970; Rotfeld, 1988; Burnett & Lunsford, 1994; Latour & Rotfeld, 1997; Witte & Allen 2000; Laroche et al., 2001; Ruiters, et al., 2001; Hastings et al. 2004, Mowen et al., 2004; Rossiter & Thornton, 2004; Meneses, 2010; Brennan & Binney, 2010). In the Extended Parallel Process Model (EPPM), Witte (1992) argues that the success or failure of a fear appeal depends on the target audience's evaluation of the two aspects of the message: perceived threat and perceived efficacy. Perceived threat includes the susceptibility of the individual to the threat as well as the severity of the threat. Perceived efficacy refers not only to the efficacy of the recommended response but also the ability of an individual to perform the advocated action. Fear appeals are mostly likely to change behavior when an individual perceives both threat and efficacy as high. However, according to EPPM, a fear appeal may have an unintended effect when perceived threat is high and the perceived efficacy is low. In that case, the EPPM predicts that an individual will do the opposite of what is advocated in the appeal. This

“boomerang effect,” is thought to occur because people in this situation will deny the threat or react against the message (Witte, 1992).

Several studies have documented the boomerang effect. For example, when studying the effects of an anti-smoking campaign aimed at college students, Wolburg (2006) found that for this audience, the response was anger and defiance. While anti-smoking campaigns reinforced the non-smokers decision, the smokers in the study reported wanting a cigarette after viewing the ad. Similarly, Feingold and Knapp (1977) found that an anti-drug campaign actually decreased negative attitudes towards dangerous drugs, and Bushman and Stack (1996) found people were more, not less, attracted to TV shows that had warnings of violence in them.

Miller and Rollnick (1991) theorized that when people are faced with the necessity to change their behavior, they feel that their personal freedom is threatened. This makes the behavior more attractive to them than before. In a comprehensive study (Wechsler et al., 2003) of colleges that had social marketing campaigns to try to reduce heavy drinking, no significant decrease in drinking was found. In fact, a pattern of increased drinking emerged.

There are a number of factors which may influence how a person will perceive and respond to a threat. These include the threshold at which the person will respond to the threat, their demographics, and the social implications of the behavior. The threshold at which a person responds to a threat is dynamic. Thresholds tend to change over time as a person matures, or the response to the perceived threat may lessen or increase due to lifestyle changes. Several studies have looked at responses to the threshold of the threat issued (e.g., Stuteville, 1970 and LaTour & Tanner, 2003). Demographics also may play a role in a person’s response. For example, LaTour and Tanner found that ads about Radon in the home were viewed as more threatening by families with children. Finally, studies have also found that the impact of the behavior on social interactions may be more threatening than physical harm. For example, Ho (1998) found the social aspects of anti-smoking ads were more effective. In another study of anti-smoking ads, social approval messages were more effective with teenagers. Ads concentrating on bad breath and stained teeth tested higher than ads about cancer (Uusitalo and Niemela-Nyrhinen, 2008).

Our study examined whether PSAs influenced young adults’ perceptions of distracted driving behaviors and altered their intentions to engage in such behaviors. The four behaviors examined were: talking on a cell phone, texting, eating, and playing music while driving. All of these behaviors have been portrayed in distracted driving PSAs. The above literature suggests that PSAs will prompt young adults to see the behaviors depicted in the videos as more distracting than they previously believed. However, the literature does not provide sufficient evidence to predict how the PSAs will affect the intentions of young adults to engage in the behaviors in the future. Therefore, we tested the following hypotheses:

*H1a. The PSAs will increase the perception that talking on a cell phone while driving is distracting.*

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- H1b. The PSAs will increase the perception that texting while driving is distracting.*
- H1c. The PSAs will increase the perception that eating while driving is distracting.*
- H1d. The PSAs will increase the perception that playing music while driving is distracting.*
- H2a. The PSAs will change the likelihood that young adults will talk on cell phones while driving in the future.*
- H2b. The PSAs will change the likelihood that young adults will text while driving in the future.*
- H2c. The PSAs will change the likelihood that young adults will eat while driving in the future.*
- H2d. The PSAs will change the likelihood that young adults will play music while driving in the future.*

### **Individual Differences and Responses to Fear Appeals**

Witte and Allen's (2000) meta-analysis of public health fear appeal studies concludes that individual differences have little influence over how people respond to fear appeals. However, Watson, et al. (2007) state that recent studies of fear appeals relating to road safety and safe driving suggest that "demographic characteristics such as age and gender influence the effectiveness of threatening messages" (208). They conclude that this inconsistency in the literature is due to the complex nature of the fear-persuasion relationship.

Our study examines the effect of PSAs on the likelihood that young adults will engage in distracted driving behaviors. Given this, the Watson et al. (2007) finding is particularly relevant and worthy of consideration. The narrow age range in our study suggests that we are unlikely to find differences in responses due to differences in ages. However, we should consider whether males and females may respond differently to distracted driving fear appeals.

Rotfeld (1999) contends that an optimal type of threat must be used for a fear appeal to be effective, and LaTour and Rotfeld (1997) argue that "no threat evokes the same response from all people" (45). Despite this, safe driving fear appeals rely heavily on threats of injury or death (Tay and Watson, 2002). However, Watson et al. (2007) conclude that "young males appear to be less persuaded by appeals involving physical threats" and state that there is increasing evidence that

young males are more affected by threats of legal sanctions (e.g., loss of license) or social threats (e.g., the social stigma associated with loss of license). These findings suggest that young males may be less influenced than young females by distracted driving PSAs which focus on the threat of physical harm.

Lewis et al. (2007), found a significant gender difference in reported intentions not to speed and not to drink and drive after participants viewed two 60-second fear appeals television advertisements. The study found that females report lower intentions to engage in both behaviors than their male counterparts. Similarly, in a study of the effectiveness of a safe driving advertising campaign in reducing the number of fatal accidents, Tay and Ozanne (2002) found that the fear appeals are effective for young female drivers but not for young male drivers.

Studies examining other behaviors (e.g., smoking) have also found gender differences. Smith and Stutts (2003) examined the effects of anti-smoking fear appeals on high school students. They found that females are more influenced than males by fear appeals stressing threats to long-term health. Males, however, respond more than females to fear appeals that focus on negative social consequences of smoking. Similarly, Quinn et al. (1992) found that females experience more fear arousal than males from fear appeals based on the health consequences of smoking. In de Meyrick's (2010) study of fear appeals campaigns in Australia, it was found that the campaigns had a different effect on males and on females. This indicated that differentiated, tailored campaign strategies targeting males and females separately are needed.

Because our study focuses on distracted driving behaviors, we considered whether males and females may respond differently to the fear appeal PSAs in our study. Based on the literature cited above, the following hypothesis is tested:

*H3: Young adult females will be more influenced than young adult males by distracted driving fear appeal PSAs.*

## METHODOLOGY

### **Distracted Driving PSAs**

We viewed 20 distracted driving PSAs we found through searches of the U.S. Department of Transportation website, state transportation department websites, and on other websites such as YouTube. We selected two PSAs that were representative of distracted driving fear appeals targeted at young adults. Both PSAs were produced by the Los Angeles Department of Transportation as a part of their "Watch the Road" program.

The distracted driving PSAs used in this experiment previously had been tested in a separate focus group study. Lennon and Rentfro (2010) examined young adults' ratings of the effectiveness of six fear appeal PSAs on four social issues: distracted driving, smoking, drug use, and unprotected

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sex. Focus group participants watched all six PSAs (two distracted driving, two smoking, one drug use, and one HIV) and rated each message on the following dimensions: graphic content, fear arousal, likelihood of consequences, severity of consequences, self-efficacy, response-efficacy, and overall effectiveness. Based on the focus group participants' ratings, Lennon and Rentfro classified the fear messages in the distracted driving PSAs as low-to-moderate strength fear appeals. Although we searched for a stronger fear appeal to use in the current study, we were unable to identify one. Consequently, this study was limited to examining the effects of low-to-moderate strength fear appeals.

### **Data collection and sample**

The experiment was conducted on four campuses of three southeastern universities in the United States. One university is a publicly-supported university, while the other two are privately-supported. Students were asked to voluntarily participate in this research study, and no one declined to participate.

Participants completed a pre-test questionnaire in which they rated the level of distraction caused by four behaviors (talking on a cell phone, texting, eating, and playing music while driving) and indicated how frequently they currently engage in the behaviors. The participants then viewed two fear appeal PSAs and completed a post-test questionnaire. In the post-test questionnaire, the participants once again rated the level of distraction caused by the four behaviors, indicated their likelihood of engaging in the behaviors in the future, responded to two open-ended questions about the PSAs and ways to reach young adults on this issue, and provided demographic information.

## **MAJOR FINDINGS**

### **Participants**

The experiment was completed by 840 young adults. Based on the demographic data provided by the participants, we excluded from our analyses the responses from 22 participants who stated that they do not drive a vehicle. Of the remaining 818 participants, we excluded responses from anyone who did not provide an age and anyone who was over 30 years old. Therefore, our results are based on the responses from 673 young adults with an average age of 21.6 years. Table 1 provides other demographics for the participants.

### **Current Distracted Driving Behaviors**

In the pre-test questionnaire, we asked participants to state how frequently they engaged in four distracted driving behaviors: (1) talking on a cell while driving; (2) texting while driving; (3)

eating while driving; and (4) playing music while driving. Participants indicated their responses using a 7-point Likert with the endpoints: 1 = Never; 7 = Always.

<b>Demographic Group</b>	<b>n</b>
<b>Gender</b>	
Males	339
Females	334
<b>Age</b>	
Age ≤ 20	269
21 ≤ Age ≤ 24	308
25 ≤ Age ≤ 30	96
<b>Marital Status</b>	
Single	601
Married / Partnered	63
Divorced	8
<b>Children</b>	
Have children	26
No children	647
<b>Taken a safe driving course</b>	
Have taken	440
Have not taken	232
<b>Had an accident while driving distracted</b>	
Yes	80
No	592

The reported current driving behaviors for all 673 participants and for each demographic group are presented in Table 2. The two most frequent distracted driving behaviors among all participants were playing music while driving with a mean of 6.56 and talking on a cell phone while driving with a mean of 4.31. The participants engaged less frequently in texting while driving and eating while driving, but the means of 3.44 and 3.37, respectively, still indicated that the behaviors were fairly common for this participant group.



<b>Table 2: Current Behaviors Means</b> (1 = Never ... 7 = Always) *statistically significant difference at .05 level					
	<b>n</b>	<b>Talk on cell phone</b>	<b>Text</b>	<b>Eat</b>	<b>Play Music</b>
<b>Overall</b>	673	4.31	3.44	3.37	6.56
<b>Gender</b>					
Males	339	4.07*	3.27*	3.10*	6.55
Females	334	4.54*	3.61*	3.66*	6.57
<b>Age</b>					
Age ≤ 20	269	4.31	3.60*	3.45	6.64
21 ≤ Age ≤ 24	308	4.31	3.51*	3.36	6.53
Age ≥ 25	96	4.27	2.75*	3.20	6.42
<b>Marital Status</b>					
Single	601	4.31	3.54*	3.38	6.59
Married / Partnered	63	4.27	2.41*	3.35	6.33
Divorced	8	4.13	4.13*	3.75	5.88
<b>Children</b>					
Have children	26	4.46	2.77*	3.65	6.08*
No children	647	4.30	3.47*	3.36	6.58*
<b>Driving Course Taken</b>					
Have taken	440	4.37	3.51	3.46	6.62*
Have not taken	232	4.18	3.31	3.22	6.45*
<b>Had an accident while driving distracted</b>					
Yes	80	4.59*	3.81*	3.63	6.62
No	672	4.26*	3.38*	3.34	6.55

We used one-way ANOVAs to test whether the current distracted driving behaviors differed among demographic groups. We found the following differences statistically significant at the .05 level. Females reported that they engaged in talking on a cell phone, texting, and eating while driving more frequently than males. Participants younger than 25 years old were more likely to text while driving than participants between 25 and 30 years of age. Single and divorced participants were more likely to text than married drivers, and participants without children were more likely to text than participants with children. Participants who had completed a safe driving course were more

likely to play music than those who had not taken a course. Interestingly, participants who had been involved in accidents while driving distracted reported that they were more likely to talk on a cell phone and text while driving than participants who had not been involved in an accident.

### Distraction Ratings

The pre-test and post-test questionnaires asked the participants to rate the level of distraction caused by the four behaviors using a 7-point Likert scale with the endpoints: 1 = Very distracting, 7 = Not at all distracting. The participants recorded their prior beliefs in the pre-test questionnaire. After viewing the PSAs, the participants again rated the level of distraction for each behavior. We tested whether the participants rated the behaviors as more distracting after viewing the videos (lower means indicate a higher level of distraction) using paired samples t-tests. The results of the t-tests are reported in Table 3. After viewing the PSAs, the participants rated all four behaviors as statistically significantly more distracting than their prior beliefs. These results support H1a – H1d.

<b>Behavior</b>	<b>Pre-test mean</b>	<b>Post-test mean</b>	<b>t</b>	<b>Df</b>	<b>Significance (one tail)</b>
Talk on cell phone	4.54	4.06	8.162	671	p < .001
Text	2.62	2.39	4.371	672	p < .001
Eat	4.53	4.06	8.793	672	p < .001
Play music	6.40	6.31	2.235	670	p < .014

### Current Behaviors v. Future Intentions

After viewing the PSAs, participants indicated their intentions of engaging in the distracted driving behaviors in the future using the same 7-point Likert scale (endpoints: 1 = Never; 7 = Always) used in the pre-test to indicate current behaviors. We used paired samples t-tests to determine if their future intentions differed from their current behaviors. The results are reported in Table 4. For all four behaviors, the participants indicated a statistically significant higher likelihood of engaging in the behavior in the future than they currently do. In other words, we observed a boomerang effect. Although H2a – H2d did not predict the direction of change, the hypotheses predicted that the participants' future intentions would differ from their current behaviors. Thus, our results provide support for H2a – H2d.

**Table 4: Paired Samples Tests**  
**Current Behaviors (pre-test) v. Future Intentions (post-test)**  
 (1 = never ... 7 = always)

<b>Behavior</b>	<b>Current Behavior mean</b>	<b>Future Intention mean</b>	<b>t</b>	<b>Df</b>	<b>Significance (two tail)</b>
Talk on cell phone	4.31	5.15	-15.850	671	p < .001
Text	3.44	3.54	-1.979	672	p < .049
Eat	3.37	4.02	-11.579	668	p < .001
Play music	6.56	6.66	-3.005	671	p < .004

### Gender Differences

Given the prior literature on road safety fear appeals, we hypothesized that females would be more affected by the PSAs than males. We tested H3 a number of ways. First of all, we asked the participants to rate the effectiveness of the PSAs in changing the behavior of young drivers. The participants rated the effectiveness using a 7-point Likert scale with endpoints: 1 = Not at all effective; 7 = Very effective. The mean effectiveness rating by females was 3.79, and the mean rating by males was 3.35. Using a Oneway ANOVA, we found that the ratings were statistically significantly different (df = 1, F = 13.940, p < .001). Thus, females thought the PSAs were more effective than the males thought they were.

We then performed a series of repeated measures ANCOVAs to see if there were gender differences in the other responses (pre-test v. post-test distraction ratings and current behaviors v. future intentions). In the ANCOVAs, we included children as a covariate because gender was significantly correlated with having children at .01 level; the proportion of females in our sample who have children was more than twice the proportion of males with children. Gender was not correlated with any other demographic variable, and therefore, we did not include any other demographic variable as a covariate. We then ran repeated measures ANOVAs using only gender in the model. All of the results were essentially the same as the results from the ANCOVAs; therefore, for simplicity we report results from the ANOVAs here.

Table 5 reports the pre-test and post-test distraction rating means by gender, and Table 6 reports the current behavior and future intention means by gender. With the exception of the males' distraction ratings for playing music, both males and females rated the behaviors as more distracting after viewing the PSAs than their pre-test ratings. Despite this, males responded that they were more likely in the future to talk on a cell phone, text, eat, and play music while driving. However, females reported higher likelihoods of talking on a cell phone, eating, and playing music; females reported that they were less likely to text while driving in the future than they currently do. These results reflect a boomerang effect.

<b>Behavior</b>	<b>Males Pre-test mean</b>	<b>Males Post-test mean</b>	<b>Females Pre-test mean</b>	<b>Females Post-test mean</b>
Talk on cell phone	4.45	4.09	4.63	4.03
Text	2.65	2.45	2.59	2.32
Eat	4.41	4.03	4.66	4.09
Play music	6.34	6.37	6.46	6.26

<b>Behavior</b>	<b>Males Pre-test mean</b>	<b>Males Post-test mean</b>	<b>Females Pre-test mean</b>	<b>Females Post-test mean</b>
Talk on cell phone	4.07	5.13	4.54	5.16
Text	3.27	3.61	3.61	3.47
Eat	3.10	3.94	3.66	4.11
Play music	6.55	6.70	6.57	6.61

Table 7 and Table 8 report the results of the repeated measures ANOVAs. Our results revealed no gender differences in the reaction to the PSAs when participants were asked to rate the level of distraction caused by each behavior. However, we did find gender differences for two of the behaviors (talking on a cell phone and eating while driving) when we compared current behaviors with the likelihood that the participants would engage in the behaviors in the future. While both males and females exhibited the boomerang effect, males increased their future intentions of talking on a cell phone and eating while driving by more than females. It appears that for these two behaviors the boomerang effect was stronger for males. Based on all of these results, we find modest support for H3.

### **Freeform comments**

In the post-test questionnaire, we asked participants to: (1) describe a video that would change the behavior of younger drivers and (2) identify a good way to reach young adults on the issue of distracted driving. Responses were free form; therefore, we coded the comments into common categories.

**Table 7: Repeated Measures ANOVAS  
Significance of Main Effect for Gender  
Pre-test Distraction Rating v. Post-test Distraction Rating**

<b>Behavior</b>	<b>Df</b>	<b>F-statistic</b>	<b>Significance (two-tail)</b>
Talk on cell phone	1	1.402	p < .554
Text	1	.611	p < .435
Eat	1	1.804	p < .180
Play music	1	.022	p < .961

**Table 8: Repeated Measures ANOVAS  
Significance of Main Effect for Gender  
Current Behaviors (pre-test) v. Future Intentions (post-test)**

<b>Behavior</b>	<b>Df</b>	<b>F-statistic</b>	<b>Significance (two-tail)</b>
Talk on cell phone	1	5.886	p < .016
Text	1	.549	p < .459
Eat	1	9.098	p < .003
Play music	1	.248	p < .618

In describing a video that would change behavior, the most frequent comments were that the video should show real life accidents (35% of the comments received) and show very graphic content (18%). 14% of the comments received said that no video would change behavior, and 8% supported the use of videos like the ones used in the experiment.

In identifying a good way to reach young adults on the issue of driving while distracted, the most frequent responses were: take legal action by arresting, ticketing, and fining anyone who is driving distracted (15%); have young adults watch videos of accidents, videos from cameras in cars showing unsafe driving while engaging in distracting behaviors, or videos of accident recreations (13%); put ads on TV and billboards (10%); have classes in school where young adults are presented with statistics and photos from actual accidents (9%); and have young adults listen to live people who have been affected by distracted driving including drivers involved in accidents, survivors of accidents, and people who have lost friends or family members in distracted driving accidents (9%).

Crosstabs of the comments by gender revealed that the percentages of comments in each category were fairly similar across both genders. However, there were a few differences worth noting. When we asked participants to describe videos that would change the behavior of young adults, males more frequently commented that no video would change behavior while females more frequently noted that the videos used in the experiment would change behavior. Males more

frequently stated that graphic content was important, while females made more comments about using interviews with drivers who had been in accidents caused by distracted driving. When we asked how to reach young adults on the issue of distracted driving, females once again stressed having young adults watch video interviews of people affected by distracted driving while males more frequently called for taking legal action.

## CONCLUSIONS AND IMPLICATIONS

### **The role of fear appeals**

There have been several studies of fear appeals and their effectiveness over the past 40+ years, and our study adds to this stream of research by providing additional insight into young adults and their responses to fear messages. Our findings provide caution to advertising professionals as they design distracted driving fear appeals targeted to young adults. Based on our results, these fear appeal PSAs may cause young adults to behave in the opposite way than what is advocated in the message. In addition, our results suggest that young adult males may respond differently to fear appeals than young adult females, at least when it comes to messages about road safety.

Our study documents that young adults frequently talk on their cell phones and play music while driving, and they text and eat while driving on a fairly regular basis. They do this even though they recognize that these behaviors are distracting. Furthermore, our results suggest that current distracted driving PSAs are not effective with this target audience. Based on the findings of Lennon and Rentfro (2010) this may be due to the low-to-moderate strength of the fear messages in the distracted driving PSAs used in this experiment. To be effective with young adults, future PSAs may need to invoke stronger fear messages.

Our participants' responses to open-ended questions provide interesting insights into the thinking of young adults. Many participants stated that PSAs should feature scenes of real life accidents and include graphic content. Even with this content, however, young adult males frequently said that videos would not change distracted driving behaviors. Males expressed support for using legal means (e.g., arrests and tickets) rather than PSAs to deter distracted driving. Young adult females appear to be more receptive to PSAs, and, therefore, it may be wise to target future PSAs at females rather than males. In addition, advertising practitioners should consider developing PSAs that employ interviews with people affected by distracted driving accidents as suggested by the females in our study.

### **Legislation related to distracted driving**

As of February 2010, nineteen states, various local governments, and the District of Columbia have enacted legislation that bans texting while driving and twenty-one states and the

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District of Columbia ban all cell-phone use while driving for novice (generally young adult) drivers (Governors Highway Safety Association, 2010).

Recent research has shown that cell phone bans can be effective in reducing distracted driving accidents. Nikolaev et al. (2010) completed research on the use of hand-held cell phone usage in areas where there was legislation prohibiting it which had been in place for several years. They found that after banning hand-held cell phone use while driving, that the areas had lower personal injury accident rates overall. However, they also found that the ban has a bigger impact in high-density urban areas rather than in lower-density rural areas.

But, the Insurance Institute for Highway Safety (2008) found that for teenagers in North Carolina, cell phone usage actually increased after a cell phone ban was placed on under-18 drivers. In addition, Anne McCartt, one of the authors of the study stated “Cell phone bans for teen drivers are difficult to enforce...and aren’t effective, based on what we saw in North Carolina” (Insurance Institute for Highway Safety 2008).

Part of the problem with enforcement is whether enforcement is primary or secondary. Primary means that a police officer can pull over someone simply for talking on his/her cell phone, while secondary refers to only ticketing someone for cell phone usage if they are in violation of another law (like speeding). Of the 21 states and D.C. that have cell phone bans and the 19 states and D.C. that have texting bans only, only 15 have primary enforcement of those bans (Governors Highway Safety Association 2010).

The US federal government has given the issue of distracted driving a great deal of attention. The Department of Transportation (DOT) launched the website called D!straction.gov ([www.distraction.gov](http://www.distraction.gov)) to serve as a resource and catalyst for action on this issue. In addition, the DOT held a distracted driving summit in the fall of 2009 to discuss distracted driving and to explore courses of action. Shortly after the summit, Secretary of Transportation Ray LaHood testified before the U.S. Senate Committee on Commerce, Science and Transportation about ways to discourage distracted driving. He noted the importance of laws banning the use of cell phones and texting. He then added, “Education, awareness and outreach programs are also essential elements of our action plan. These measures include targeted outreach campaigns to inform key audiences about the dangers of distracted driving” (LaHood, 2009:3). His testimony suggests a continuing role for social marketing as laws, enforcement, and social marketing become complementary tools in efforts to reduce distracted driving.

### **Potential future research**

Our study suggests several avenues for future research. Our study employed two low-to-moderate strength PSAs because, at the time of our data collection, we were unable to locate distracted driving PSAs with strong fear messages. Recently, at least one very graphic PSA has been produced, (by Gwent police department, Gwent, UK) which would allow a future study to

compare the effects of low, moderate and high strength fear appeals on young adults' intentions of engaging in distracted driving.

Future research also could examine the effectiveness of combining legal and social marketing approaches to decrease distracted driving accidents. These studies might compare the effectiveness of using fear appeals with using informational (rational) appeals in locations where cell phone and texting bans have been passed. While prior research has shown that appeals to a person's intellect are not effective with many social issues, it may be possible that the combination of laws and informational appeals may be more effective than combining laws and fear appeals in this context.

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