Measuring the Effectiveness of Distracted Driving Road Safety Campaigns

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Introduction

Distracted driving isn't just dangerous, it can be deadly. Over the past decade the number of people killed in distracted driving-related crashes has declined from a high of 5,917 fatalities in 2007, to 3,450 fatalities in 2016 (National Highway Traffic Safety Administration, 2010 and 2018). While this number has dropped significantly, in recent years the fatality rate has been slowly climbing again. What's even more startling is that the number of non-occupants killed in distraction-related crashes – predominately people walking and cycling – has risen and surpassed a high point that was set in 2012 (National Highway Traffic Safety Administration, 2014).

National surveys and research studies show that drivers know that using a cellphone while operating a vehicle is risky. However, they continue to put themselves and those around them in danger by driving while distracted. This problem is not unique to young drivers who grew up using cellphones; drivers of all ages are involved in distraction-related crashes. Phones are not the only thing distracting drivers. Car radios, GPS devices, vehicle technology, food and passengers can all distract someone who is operating a vehicle.

Background and Significance

The federal government, many states and numerous non-profit organizations and advocacy groups are working toward a common goal of reducing the number of distraction-related crashes.

However, many of these entities have their own approach for tackling this issue. The purpose of this proposed research study is to determine what factors are distracting drivers of different age groups and what types of campaigns are the most effective in changing the behaviors that lead to crashes.

The findings of this proposed research could help create best practices for developing and deploying behavioral change campaigns. This proposed research could also help fill a gap in the available data. While there have been a number of studies that address distraction among young or new drivers, there is not as much data available about distraction among older, more experienced drivers. In order to best determine what messages to use in behavioral change campaigns, research must be conducted to explore what is leading to distraction among drivers of all age groups.

Although some drivers may think there are certain conditions under which it is safe to talk or text on a cellphone while driving, data obtained through federal studies and reports illustrates that looking away from the road for even a few seconds can be dangerous. In their 2018 national survey on distracted driving, Schroeder, Wilbur and Peña note, "Every time drivers take their eyes off the road to use a cell phone, they increase the chance of putting their lives and the lives of others in danger."

Literature Review

Younger drivers appear to be more at risk of being in a crash in which distraction is a contributing factor. While 15 to 19-year-old drivers only account for 6 percent of the driving population, they represent 9 percent of the drivers involved in fatal distraction-affected crashes (Schroeder, Wilbur, and Peña, 2018). There are a lot of things that can distract someone behind the wheel, particularly if the driver is young and inexperienced. Distractions can be split into two categories, things inside the vehicle – cell phones, GPS, in-car technology and passengers – and external factors, such as wildlife and emergency responders. Some states have taken steps to address at least some of these distractions, including enacting laws that limit the number of passengers a new driver can have in a vehicle. While

many states have laws against cell phone use while driving, a large number of young people still allow themselves to be distracted by mobile devices. A study of drivers ages 18 to 30 found that 92 percent of participants read texts while driving, 81 percent reply to text messages while driving, and 70 percent initiate text messages while driving (Atchley, Atwood, and Boulton, 2011).

There is research that shows novice drivers are less adept at multi-tasking behind the wheel than more experienced drivers. In two 18-month studies of driving behaviors – one focused on teen drivers and the other adults – researchers found that the act of reaching for a cell phone or another object, eating, texting or dialing a phone significantly increased the risk of crash or near-crash among new drivers (Klauer, et al., 2014). All of these tasks required the young driver to take his or her eyes off the road for a few seconds. Only the act of dialing a cell phone was associated with an increased risk of crash or near-crash among adult drivers (Klauer, et al., 2014). However, it must be noted that the adult study was conducted in 2003 and 2004 before text messaging became significantly more popular. The study of teenage drivers was conducted a few years later when texting was more prevalent.

When asked in another study to rate the risk of texting while driving, young drivers ranked it a 5.06 on a scale of 1 to 7, with 7 being the most dangerous (Atchley, Atwood, Boulton, 2011). While younger drivers know that texting and driving is dangerous, research shows that they think it is safe to briefly look away from the road. According to Schroeder, Wilbur and Peña's (2018) national survey on distracted driving, the average respondent said a driver could take his or her eyes of the road for up to two seconds before it becomes significantly more dangerous. However, nearly a third of drivers ages 16 to 20 and 21 to 24 who responded to the survey said it didn't become significantly more dangerous until 3 to 6 seconds had passed. Surprisingly, 11 percent of drivers ages 16 to 20 said it only becomes more dangerous after 7 seconds has passed (Schroeder, Wilbur, and Peña, 2018). To put this into perspective, a car travelling 55 miles per hour can cover the length of a football field in 5 seconds.

A Perception Problem

In addition to gathering information on driver behavior, Atchley, Atwood, and Boulton also asked participants in their 2011 study to classify roadway conditions as either intense, normal or calm. The participants who admitted to making the choice to initiate a text said they did so only when roadway conditions were normal or calm. The safer roadway conditions appear to be a justification for the risky behavior. They concluded,

The driver initiating a text made the choice to engage in a risky behavior, so they unknowingly attempt to reclassify the context of the behavior as being safer than it is, while the driver that responds to a text with a text of their own can make the sender of the original text responsible for their behavior.

One thing the study did not consider is the role social norms play in a driver's decision to choose to text while behind the wheel. However, Atchley explores this issue with other researchers in another study.

Interestingly, young drivers rank drinking and driving as more serious than texting while driving (Atchley, Hadlock, and Lane, 2012). When presented with car crash scenarios as part of this study, young drivers were unwilling to punish drivers who were talking or texting as severely as drivers who had been drinking. This could be in part due to the prevalence of campaigns to combat drunk driving, efforts that have been underway for decades. In addition, drunk driving is cited as a factor in more fatal crashes than distracted driving; 10,497 fatalities in 2016, compared to the 3,450 attributed to distraction that year (National Highway Traffic Safety Administration, 2018).

National campaigns to combat drunk driving have been successful in changing perceptions. The Ad Council launched its "Friends Don't Let Friends Drive Drunk" campaign in 1983. Since that time, it has become socially acceptable to stop a friend from getting behind the wheel when he or she has been drinking. The Ad Council reports that, since the campaign's inception, 68 percent of Americans have said that they tried to prevent someone from driving while drunk. There is at least some evidence that passengers are willing to ask a friend not to text and drive while they're in the car (Wang, 2016). However, changing the overall opinion of distracted driving, as was done with drunk driving, is proving to be difficult.

Using Fear Tactics

Some campaigns have turned to fear tactics to try and dissuade drivers from using a cell phone while driving, but research shows that those efforts can have unintended consequences. A study of two public service announcements that used fear appeals found the videos helped raise awareness about the dangers of distraction, but participants said they were more likely to engage in risky behaviors after watching the videos (Lennon, Rentfro, and O'Leary, 2010). However, the researchers note that fear messaging in the selected public service announcements may not have been strong enough because they only generated low-to-moderate levels of fear. Some participants said fear tactics could be used to dissuade them if the messaging were stronger (Lennon, Rentfro, and O'Leary, 2010).

There are other studies that show fear tactics can be successful in changing behaviors through road safety campaigns. A study of male drivers and speeding found that fear tactics were effective in getting participants to reduce their speeds (Cary and Sarma, 2016). However, the same study found that anger can negatively impact a male driver's reaction to an anti-speeding campaign. When developing a marketing campaign, it is important to know the audience and consider how it will react to different types of messaging.

It is worth noting that in Lennon, Rentfro and O'Leary's (2010) study, male survey participants said that they would be less likely to drive distracted if there was stronger enforcement of the laws prohibiting cellphone use behind the wheel. A number of campaigns have seen success in linking mass media public education efforts with increased enforcement efforts (Wundersitz, Hutchinson, and Woolley, 2010).

States across the country recognize the dangers that distracted drivers pose. All but three states have laws that ban texting while driving, according to the Governor's Highway Safety Association. However, only 16 states prohibit hand-held cell phone use while operating a vehicle. Washington, D.C. bans both. While there are no states that ban all cell phone use for all drivers, 38 states and Washington, D.C. ban cell phone use for novice drivers (Governor's Highway Safety Association, 2018).

Integrating Law Enforcement into Behavior Change Campaigns

High-visibility enforcement efforts appear to be key when trying to change behaviors. The National Highway Traffic Safety Administration developed the "Phone in One Hand, Ticket in the Other," campaign to combat distracted driving. The campaign is modeled after the agency's successful and widely recognized "Click It or Ticket" initiative that aims to increase seatbelt use. Both have become national models for effectively using high visibility enforcement along with public education – in this case through paid advertisements and media coverage – to raise awareness and change behaviors. The distracted driving initiative relies on site observations and public awareness surveys to measure its effectiveness in communities where it is deployed. An analysis of campaigns in Hartford, Connecticut and Syracuse, New York found a significant decrease in hand-held cell phone use following the media campaigns and enforcement efforts; a 57 percent reduction in Hartford and 32 percent reduction in Syracuse (Cosgrove, Chaudhary, and Reagan, 2011).

The North Jersey Transportation Planning Authority uses a similar model of observations and surveys to evaluate the effectiveness of its Street Smart NJ pedestrian safety campaign. The campaign combines increased enforcement with public education, paid advertising and a public relations campaign aimed at garnering media coverage to raise awareness. The goal of the campaign is to get drivers and pedestrians to change behaviors that contribute to crashes. While the campaign has messaging to combat distracted driving and walking, currently it does not have a way to measure the effectiveness of those messages. Observation teams check for three proxies: Pedestrians crossing outside of a crosswalk or against the signal; failure of turning motorists to yield to pedestrians crossing parallel to their vehicles' approach; and failure of motorists turning right on red or passing stop signs to properly yield to pedestrians (North Jersey Transportation Planning Authority, 2017). Observations of eight campaign sites in 2016 found a 28 percent reduction in pedestrians crossing outside of a crosswalk or against the signal and a 40 percent reduction in motorists failing to yield to pedestrians crossing parallel to their vehicles' approach. The change in the third proxy was statistically insignificant (North Jersey Transportation Planning Authority, 2017).

While the North Jersey Transportation Planning Authority and National Highway Traffic Safety Administration used observations and surveys to measure the effectiveness of their campaigns, many traffic safety campaigns fail to evaluate themselves (Hoekstra, Tamara, and Wegman, 2011). Evaluations are necessary to ensure effective tactics are being deployed and that ineffective strategies are discontinued.

Challenges to Enforcement

Detecting distracted driving can be more challenging than stopping a driver for speeding or failing to stop for a pedestrian. While it is easy to use radar to detect when a vehicle is speeding and police decoys to catch drivers who fail to stop for pedestrians, it can be more difficult to clearly see a driver texting while behind the wheel. Police participating in the National Highway Traffic Safety Administration's campaigns in Hartford and Syracuse reported that sports utility vehicles provided a better vantage point and, in some cases, spotters were stationed at high elevations like overpasses to alert officers on patrol to distracted drivers. The goal of the campaign was not to issue tickets, but to use the threat of fines to persuade drivers to change their behaviors (Cosgrove, Chaudhary, and Reagan, 2011).

Several safety advocates, including the National Safety Council, believe that distraction is often underreported as a cause of crashes. For example, if police didn't witness the crash-and therefore did not see the driver on his or her cellphone, they could be less likely to list distraction among the possible contributing factors in the report. According to the National Safety Council's analysis of 180 fatal crash reports in 2013, reports in some states lack fields related to distraction. According to a 2017 white paper the council published, "NSC found that driver cell phone use was recorded as a factor in fatal crashes only about half the time, even when drivers admitted phone use to police." The National Safety Council and other safety advocates have called for better reporting standards and technology upgrades that could improve reporting accuracy (National Safety Council, 2017).

In the future, it may be possible for law enforcement to use technology to determine if a cell phone or other device was in use at the time of the crash, similarly to how Breathalyzers can detect drunk driving.

Strategies Worth Further Investigation

One interesting tactic that deserves further exploration is whether people would be less likely to engage in distracted driving if they had a plan to deal with distractions when they arise. This is a topic that researchers from the Institute of Transport Economics in Oslo, Norway, attempted to examine. However, their study was inconclusive, in part because survey participants did not report high levels of distraction at the onset of the research. Surveys following the experiment did show that there was an overall decline in reporting of distracted driving, but it is unclear whether the decrease is a result of the experiment or the survey itself. The researchers note that the survey could have contributed to raising awareness, but there were no survey questions to determine whether it did. Another area that warrants further investigation is whether a marketing campaign could be developed to encourage passengers to intervene and prevent distracted driving. A researcher at Rochester Institute of Technology used an online survey of undergraduate students to explore whether passengers would be willing to ask a driver to stop texting and the reasons for why they would or would not do so (Wang, 2016). The study considered the roles of anticipated guilt and value-expressive function, empathic concern and self-esteem, and self-efficacy and social norms. The study found that safety was one of the primary reasons that participants would be willing to ask a friend not to text while driving and anticipated guilt also played a role (Wang, 2016). These findings could be used to develop and pilot messaging aimed at encouraging passengers to take a more active role in combatting distracted driving.

Research Methods and Design

This research will explore the factors that lead to distracted driving among drivers in different age groups (young drivers, experienced drivers and senior citizens). This study would also examine the effectiveness of different behavioral change campaigns in combatting distraction, including whether fear tactics or campaigns aimed at encouraging passengers to deter distracted driving could be successful counter measures.

The proposed research methods for this study are surveys and focus groups. The survey would serve a dual purpose of gathering information on what drivers list as distractions when behind the wheel and how participants view different campaigns to combat distracted driving. The survey would show examples of campaigns from around the country. Different types of messaging would be incorporated to gauge what type drivers find most compelling. This would include fear tactics, positive messages, social norming messaging and messages aimed at encouraging passengers to play an active role in ending distracted driving by encouraging drivers to practice safer behaviors. If there is no messaging aimed at passengers, advertising would be developed for this survey. Survey participants would also be asked a series of demographic questions to help establish whether there are patterns among certain age groups, income levels and ethnic groups. The focus groups would address many of the same questions in the surveys, however this format would allow for deeper discussion on what types of behavior change campaigns are most effective and what leads people to succumb to distraction when behind the wheel.

The goal for this research would be to collect 1,500 surveys (500 each from drivers ages 16 to 25, drivers ages 26 through 65, and those older than 65). Social media could be used to recruit younger survey participants. Organizations that work with older residents, such as AARP, could be solicited to assist with recruitment among populations who do not regularly use social media or computers.

The focus groups would consist of the same age brackets. However, each group discussion would be limited to 20 participants. Some of the survey questions would serve as a starting point for open ended discussion.

I am proposing a nine-month timeline to complete this study. The first two months would be used to fine tune the survey and focus group questions and to recruit focus group participants. The survey would be posted online for three months to ensure there is adequate time to reach the target numbers in each of the age brackets. While the survey is being circulated, I would convene the focus groups. The final three months would be used to analyze the findings and develop the final report.

Ideally, I would like to conduct this research on a volunteer basis, however I understand that it may be necessary to offer financial incentives to bolster participation. I am proposing a budget of \$650 for the surveys – \$500 for online advertising and \$150 for three \$50 gift cards that would be awarded to randomly selected survey participants. For the focus groups I am proposing a budget of \$3,500. This includes \$500 in case it is necessary to rent meeting space and \$50 for each of the 60 focus group participants. My total proposed budget for this research is \$4,150.

Preliminary Suppositions and Implications

This research calls for a two-pronged approach because surveys can only go so far in data collection. Focus groups provide a medium for participants to delve deeper into the topic, offering an explanation for why they drive distracted and what distracts them. In addition, gathering in-person research into existing behavior change campaigns will allow the researchers to physically see how participants react to certain messages.

I believe that this research may reveal that there are different factors distracting the various age groups. Determining what is distracting people will help government and non-government organizations develop campaigns to combat the behaviors that lead to distracted driving.

Conclusion

Over the past 15 years there have been several studies that explore perceptions of distracted driving and the campaigns that attempt to curb this dangerous behavior. As technology and trends are constantly evolving, additional studies to explore their impact on drivers and road safety are required. In the last decade there has been an increase in the use of text messaging, which causes drivers to take their eyes off the road even longer than dialing a phone number. Virtual assistants like Siri and Alexa make it easier than ever to search the internet, place a call or send a text. Even though this technology is hands-free, it still causes cognitive distractions that make it dangerous to use while driving. Studies that focused on drivers placing calls before cell phones became handheld computers, are no longer as relevant. In addition, many studies focus on one type of anti-distraction messaging rather than asking respondents to compare and contrast different methods of changing driver behaviors. This study proposes a more comprehensive approach to reviewing messaging.

The transportation sector and safety advocates realize the increasing danger that distraction poses, whether it is caused by a mobile device or other technology being built into new vehicles. There have been a number of campaigns aimed at getting drivers to avoid distractions and focus on the road. Some use fear tactics in a "scared straight" attempt, others appeal to emotions, and some threaten legal consequences like traffic tickets and fines. As noted earlier, research shows that coupling behavior change campaigns with increased law enforcement makes the biggest impact (Cosgrove, Chaudhary & Reagan, 2011). However, more work needs to be done to determine what types of messages are most effective in changing drivers' behaviors to combat this growing safety concern. My proposed research would help develop a set of best practices for behavioral change campaigns focused on distracted driving by considering which messages resonate the most with drivers of all ages. The research would also explore whether passengers could play a role in reducing the prevalence of distracted driving, which would allow for the creation of targeting campaigns geared toward this demographic.

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