Social Marketing and Behavioral Change Campaigns:

A Literature Review

Melissa Hayes

New Jersey Institute of Technology

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Behavioral change campaigns have been used to improve seat belt use, combat smoking, and fight childhood obesity. Notably, Click It or Ticket campaigns have increased seatbelt use by as much as 83 to 95 percent in one state (Wakefield, Loken, Hornik, 2010). But can social marketing also be effective in changing the behaviors that contribute to crashes, particularly those that result in pedestrian fatalities? The issue is a challenging one. Some researchers argue that technology has made driving more dangerous. As cell phone usage increases, so have distracted driving deaths across the United States, according to the National Highway Traffic Safety Administration (NHTSA). And while car manufacturers have added safety features, like lane departure warnings and automatic braking, higher-performance vehicles are encouraging speeding (Hydén, 2020). These factors led some to argue that more is needed than education to make roads safer for all travelers.

A National Problem

Each year more than 30,000 people in the United States are killed in traffic crashes. While safety improvements to vehicles have helped reduce fatalities among drivers and passengers (Mohan and O'Neil, 2020), the number of pedestrians killed in crashes annually has been steadily increasing over the past decade, according to data compiled by NHTSA. In 2009 pedestrians accounted for 12 percent of the people killed in traffic crashes. That figure increased to 17 percent in 2018.

There are numerous factors that contribute to fatal crashes and specifically pedestrian fatalities. Nationwide in 2018, the most recent year for which data is available, the leading

factors in fatal crashes included drunk driving (10,511 deaths), speeding (9,378 deaths) and distracted driving (2, 841 deaths), according to NHTSA. The federal agency has launched marketing campaigns to combat all of these. They include “Drive Sober or Get Pulled Over” and “Buzzed Driving is Drunk Driving;” “Obey the Sign or Pay the Fine” and “Stop Speeding Before Speeding Stops You;” and “U Drive. U Text. U Pay” and “Phone in One Hand, Ticket in the Other.” These media campaigns are often combined with high visibility enforcement, which is considered a best practice for behavioral change campaigns.

While distracted driving can be more challenging for law enforcement to detect than speeding, campaigns that combine behavioral change marketing and high visibility enforcement have proven to be successful (Cosgrove, Chaudhary, and Reagan, 2011). An analysis of two “Phone in One Hand, Ticket in the Other,” campaigns in Harford, Connecticut and Syracuse, New York found a significant decrease in hand-held cell phone use following the campaigns (57 percent and 32 percent, respectively). But several studies note that campaigns must be repeated and widespread in order to be effective. For example, “Click It or Ticket” campaigns are conducted annually, with about 10,000 law enforcement agencies participating, according to NHTSA. Professors Melanie A. Wakefield, Barbara Loken and Robert C. Hornik (2010), researched several mass media campaigns, including “Click It or Ticket” and attribute the frequency and law enforcement with its success. “Law enforcement and repeated cycles of short-term mass media exposure seem, therefore, to have been important components of road safety campaign effectiveness,” they wrote.

Focusing on Pedestrian Safety

The federal government launched an effort in 2004 to aggressively combat pedestrian fatalities by focusing additional resources on cities and states with the highest number of

pedestrian fatalities or fatality rates. In 2015 the "focus" designation was revised to also include cyclist fatalities. (Federal Highway Administration, 2020) New Jersey has been on the list from the onset and the state regularly ranks among the worst states in the nation when comparing the percentage of pedestrians that comprise crash victims. In 2018, nearly 31 percent of crash victims in New Jersey were pedestrians, compared to a nationwide average of 17 percent. (When looking at per-capita data, instead of percentage of pedestrians, the state drops from 3rd among all states and the District of Columbia in 2018 and 2017, to 19th in 2018 and 14th in 2017.)

In New Jersey the top contributing behaviors, based on available data from the New Jersey State Police (NJSP), are driver inattention, pedestrian violations, unsafe speeds and failure to yield the right of way. The leading pedestrian behavior at the time of crashes was crossing where prohibited. On average, pedestrians were crossing where prohibited 39 percent of the time from 2009-2018. However, it should be noted that on average, 19 percent of the time pedestrians were in a crosswalk when they were struck and killed. By comparison, during the same period, most crashes (68 percent) occurred while driver where travelling straight. In a distant second, at 10 percent, were drivers turning right when a crash occurred. Driver inattention was a factor in 29 percent of crashes, on average, according to the NJSP data.

New Jersey has taken many steps to address its high pedestrian fatality rate, including developing a Pedestrian Safety Action Plan and providing funding to police departments to increase enforcement. The state also partnered with the North Jersey Transportation Planning Authority when it launched a pilot pedestrian safety education campaign in 2013. The Street Smart NJ campaign, funded with a federal grant, analyzed data to develop a marketing campaign that aimed to change the behaviors that contribute to crashes. The public education campaign is

combined with enforcement, following the national model NHTSA uses with Click it or Ticket. While analysis of campaigns conducted in 2013-2014, 2016 and 2018-2019 show the campaign was successful in changing behaviors in participating communities, there is no research on the long-term effectiveness. Observations are conducted within a month following the campaign, which provides only short-term data. Some communities participate in Street Smart NJ campaigns annually to reinforce the campaign's messaging, while others participate more sporadically (Street Smart NJ, n.d.).

Using Fear to Change Behaviors

Several studies explore the use of fear in marketing campaigns aimed at changing behaviors. Fear appeals have been used to encourage people to get vaccinated, quit smoking, practice safe sex, and improve safety of young drivers, among other things. A meta-analysis of 248 samples found that fear appeals can be effective, but it can depend on the campaign's messaging and the behaviors being targeted (Tannenbaum, Hepler, Zimmerman, Saul, Jacobs, Wilson and Albarracin, 2015). The study did not find any instances where fear appeals backfired to produce worse outcomes. However, there are several factors that can enhance the effectiveness of fear appeals, including using higher amounts of fear and stressing susceptibility and severity of the issue being addressed. The research also notes that fear appeals were most effective when targeting one-time behaviors, like getting a vaccine, as opposed to behaviors that must be repeated over a long period of time, like dieting and exercising to improve health.

Studies have also explored whether fear could be used to change the behavior of young drivers, who are often overrepresented in crashes. One study that used a survey to gauge the effectiveness of two anti-speeding public service announcements, found that evoked fear and threat had a positive impact on attitudes toward speeding and anti-speeding intention among

young drivers (Cauberghe, DePelsmacker, Janssens and Dens, 2008). They also note that message involvement is key in these types of campaigns. “The conclusion could be that the main objective of a threat strategy should be to involve people with the message, as a prerequisite to positively affecting coping outcomes,” they wrote. They also note that fear levels must be high in order to be effective.

Another study on anti-speeding campaigns, this one targeting drivers age 18 to 25 in Australia, found that messages that conveyed severity and vulnerability were the most effective (Glendon and Walker, 2013). For example, participants responded more favorable to the messages “Kill your speed, not yourself,” “Kill your speed, not your passengers,” and “Don’t kill your mates,” compared to “Every K over is a killer,” “Speeding wrecks lives,” and “Don’t fool yourself—speed kills.”

A study of young drivers that targeted distracted driving also concluded that there need to be high levels of fear to effectively change behaviors. The study surveyed students at four college campuses before and after they watched two public service announcements (Lennon, Rentfro and O’Leary, 2010). The study focused on four behaviors: talking on the phone, texting, eating and playing music while driving. Respondents reported that they were more likely to engage in distracting behaviors after viewing the videos, so researchers concluded that the videos had a boomerang effect. However, some participants said they would be less likely to drive distracted if there were enforceable laws that prohibited it. (Note that since 2010, many states have enacted laws to address distracted driving – and in some cases distracted walking – which could also affect driver behaviors.) The researchers also note that the study was limited in that it used two videos from the Los Angeles Department of Transportation “Watch the Road”

program, which they describe at low- to moderate-strength PSAs. “Participants said using real crashes, or more graphic crashes, may be more effective in changing behaviors,” the study notes.

New York City has used fear to market its Vision Zero program. The initial marketing campaign, “Your Choices Matter,” which ran from 2014 to 2017, used graphic images to convey the consequences of speeding and other actions (New York City, n.d.). One example is an image of a broken bicycle in a crosswalk, implying a crash, that reads, “He wasn’t racing. The driver was.” This was replaced with the more positive “Signs” campaign in 2018, which showed people holding different road signs (yield and 25 mph) to convey the campaign’s tagline, “Driving isn’t easy, but saving a life is.” However, in the summer of 2019, the city rebranded and again used fear and threat of consequences. The latest campaign, “Was it Worth It?,” targets young male drivers to highlight the consequences of unsafe driving. One advertisement shows a broken walker in a crosswalk and a young male distraught driver in the foreground. It reads, “Was it Worth It? Turn slowly.”

New York does not appear to provide data on why it switched to more positive messaging in 2018 and went back to a more fear-based emotional campaign in 2019, however a press release notes that the previous two campaigns focused on the victims, while this one targets drivers (New York City DOT, 2019). “We know that drivers involved in fatal crashes feel enormously deep regret – often coupled with guilt, fear, and emotional pain,” DOT Commissioner Polly Trottenberg said in the press release announcing the new branding. “With this new campaign, we are trying to capture that deeply scarring moment — with the goal of preventing motorists from ever having to endure one.”

Social marketing is just one component of New York City’s Vision Zero program, which uses data to determine which driver behaviors to target, identify the top crash sites and develop

strategies for addressing them (New York City, n.d.). The program includes infrastructure improvements, such as bicycle lanes and raised crosswalks; technology upgrades, such as signals that give pedestrians a dedicated crossing cycle, and tracking software on city buses that monitors for crashes and safe driving; as well as high-visibility enforcement. In addition, a key component to the program's success was the implementation of a 2014 law that reduced the speed limit on unsigned roads from 30 mph to 25 mph. There was a notable decline in crashes two years after the law changed (Mammen, Shim, and Weber, 2020).

It is unclear what role social marketing has played in the city's effort to make streets safer. The city has used surveys to measures campaign awareness and gather self-reported input on its effect on changing behaviors, however the city does not appear to conduct observational analysis to determine what if any behaviors improved. A study of the program's performance metrics from 2015-2018 found that of the 1,000 New Yorkers surveyed, 79 percent of drivers were aware of Vision Zero (Kaucic, 2019). In addition, 82 percent identified driver behavior as the primary cause of fatal crashes and 86 percent said they knew they were required to yield to pedestrians in crosswalks.

Evaluating Campaigns

In Florida, the state Department of Transportation sponsored a pilot public education campaign on the University of South Florida's Tampa campus in 2012 aimed at improving pedestrian and bicyclist safety (Zhanga, Gawadea, Linb, and McPherson, 2013). The campaign included a press conference; walking tour; workshops on driving, walking and biking safely; and a bicycle celebration. The campaign also used posters and pamphlets to educate students. Data was used to identify target locations for outreach.

The one-week campaign was conducted at the start of the fall semester to engage students who were new to campus and returning students and faculty during a period when there is a lot of activity and events happening (Zhanga et al., 2013). A two-pronged approach was used to analyze the campaign's effectiveness. Observations were conducted at the target intersections before and after the week-long campaign to record the behavior of pedestrians, cyclists and drivers. This included:

- Crossing behavior of pedestrians
- Alertness of pedestrians while walking on streets
- Use of sidewalks
- Direction of riding a bicycle (for bicyclists only)
- Use of safety gear while riding bicycles
- Yielding behavior of drivers for waiting or crossing pedestrians

A comparison of pre- and post-campaign observations found that overall road user behavior improved to some extent following the campaign. The most significant results were at the intersection closest to the student center, where most of the educational events were held (Zhanga et al., 2013).

In addition, surveys were distributed to collect data on participants' knowledge of pedestrian and bicyclist laws and their perception of driver, pedestrian and cyclist behavior. The survey found the campaign slightly increased awareness of the laws and that the campaign made people feel that the campus was pedestrian- and bicyclist-friendly, even though most respondents said infrastructure improvements, like sidewalks and bike lanes, were needed. A larger-scale

campaign could be more effective in increasing the awareness of risk to pedestrians, the researchers note.

The North Jersey Transportation Planning Authority used a similar model to Florida when piloting Street Smart NJ in 2013 (North Jersey Transportation Planning Authority, 2013). Data was used to identify the behaviors that contribute to crashes and identify pilot communities to participate in the campaign. Messaging was developed to target four behaviors, Stop for Pedestrians and Obey Speed Limits for drivers, and Use Crosswalks and Wait for the Walk for pedestrians. The public education campaign included paid and earned media, posters, outdoor signs, pamphlets and social media messaging. The grassroots outreach campaign was combined with high-visibility enforcement. Observations were conducted at intersections before and after the campaigns in each of the pilot communities and surveys were used to gather information on participants' familiarity with New Jersey's pedestrian-related laws and their perception of driver and pedestrian behaviors. Both the intersection observations and surveys showed that overall, the campaign helped improve compliance with and awareness of pedestrian-related laws. (North Jersey Transportation Planning Authority, 2015.)

In 2018, the campaign's branding was updated. Focus groups were used to gather feedback on the original "Check Your Vital Signs" theme and to develop a new theme that sought to humanize the campaign by including images of actual people, rather than graphics (Kivvit, 2019). The slogan was changed to "Drive Smart. Walk Smart. Be Street Smart." to emphasize the role everyone can play in making streets safer. An observational analysis and survey were used to measure the effectiveness of eight Street Smart NJ campaigns conducted in 2018 and 2019. A comparison of pre- and post-campaign observations found that following campaigns there was a 60 percent improvement in drivers stopping for people crossing before

turning right at a red light or stop sign; a 45 percent reduction in drivers running a red light or stop sign; a 40 percent improvement in drivers turning on a green light stopping for people crossing; and a 21 percent increase in people crossing safely with the signal or inside a crosswalk. (Jalayer, Szary, Patel and Khaki, 2019).

Evaluations are key to testing interventions and helping develop best practices. Despite the high number of road safety campaigns, few conduct evaluations. This can lead campaigns to reuse ineffective messages and strategies (Hoekstra and Wegman, 2011).

Best Practices

While there can be a lack of data on the efficacy of road safety campaigns, those that have conducted evaluations provide insights into best practices. The World Health Organization found that it was able to change behaviors by combining education campaigns with enforcement and legislation (Hoekstra and Wegman, 2011). As noted above, education and marketing were also employed successfully to combat distracted driving in two cities in Connecticut and New York (Cosgrove et al. 2013). New Jersey also had positive results by combining education and enforcement.

Hoekstra and Wegman offer several strategies for effectively changing behaviors. Among them are priming, which gets people to exhibit a certain behavior my presenting them with images and text of the desired behavior. To get people to model the intended behaviors, the campaigns must show what should be done, rather than focuses on what people should not do, which Hoekstra and Wegman note is more common. One other strategy they recommend is framing the campaign in terms of potential loses or gains. They site as an example a doctor

telling a patient that 90 of 100 people will still be alive five years after a surgery instead of focusing on the 10 people who will die within that time period.

Two other key components to successful behavior change campaigns are personal contact and community involvement. A study of 20 behavior change campaigns conducted in the European Union from 2009 to 2009 found that while campaign design can vary widely, those that had staff interact with community members and were implemented at the local level, with a network of stakeholders and enhanced community involvement, are more effective (Davies, 2012).

It's also important to consider the target audience. A campaign geared toward adults will likely not have the same effect if used on children. Researchers analyzed various studies of behavioral interventions aimed at improving child pedestrian safety and considered the effectiveness of different types of programs (Schwebel, Barton, Shen, Wells, Bogar, Heath and McCullough, 2014). They found that educational programs were generally effective. They also found that individualized or small-group training was the most effective in changing behaviors. However, these programs tend to be the mostly costly and labor intensive, they note. Videos, while more appealing to produce because they can be reused and less costly, were less effective. The researchers note that peer-group, board games and computer or virtual reality interventions have shown some effectiveness and could be developed for wider use at a lower cost.

Conclusion

While research shows it can be difficult to use social marketing campaigns to change ongoing behaviors, there are several examples of how it can be used effectively to improve road safety. There is evidence that incorporating fear into campaign messaging can amplify results,

when implemented well (Tannenbaum et al.,2015). It's also critical that campaigns be widespread and are repeated regularly to reinforce the intended behaviors (Wakefield et al., 2010). When developing a campaign, it's importance to consider the audience as results vary depending on the age, and even the gender, of the target audience.

But an argument can be made that education does not go far enough. As seen with the Florida example, the education campaign only slightly improved behaviors. But other campaigns, have found more success when combining education with high-visibility enforcement. While there are several examples of enforcement and education working in tandem to change behaviors, many campaigns, including Street Smart NJ, fail to explore the long-term effectiveness of their initiatives. There is a need for more campaign evaluations (Hoekstra and Wegman, 2011).

Even though there are several success stories, Hydén (2020) contends that education doesn't go far enough. He argues that reduced speeds are proven to save lives and infrastructure improvements and vehicle technology are more effective in lowering speeds than education campaigns. "Authorities must stop using education and other campaigns as their main tools to reduce injuries and deaths on roads, and instead accept that other much stricter measures have to form a basis for any strategy," he concludes. However, Hydén acknowledges that infrastructure improvements and technology upgrades are costly. He suggests that car manufacturers should limit vehicle speeds, however, while some include this technology all allow users to disable it. Another measure government can take is lower posted speed limits, which New York City has proven to be successful in reducing fatalities.

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