



## ROAD SAFETY CAMPAIGNS WHAT THE RESEARCH TELLS US



The knowledge source for safe driving

# THE TRAFFIC INJURY RESEARCH FOUNDATION

The mission of the Traffic Injury Research Foundation (TIRF) is to reduce traffic-related deaths and injuries. TIRF is a national, independent, charitable road safety institute. Since its inception in 1964, TIRF has become internationally recognized for its accomplishments in a wide range of subject areas related to identifying the causes of road crashes and developing programs and policies to address them effectively.

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# EXECUTIVE SUMMARY

## Project overview

This report contains an overview of leading theories that provide the foundation for road safety campaigns. It is combined with a comprehensive summary of the research evidence related to the effectiveness of road safety campaigns generally, and examples of individual campaign evaluations regarding drinking and driving, distracted driving, seatbelt use, speeding and vulnerable road users. It also highlights what is known about learning styles based on educational theories and shares recommendations to help communities develop effective road safety campaigns.

This report represents the first phase of a two-phase project that has been conducted by the Traffic Injury Research Foundation (TIRF) with funding from the Canadian Automobile Association (CAA). The second phase of the work involves the development of a user-friendly, community-based toolkit for road safety campaigns that can guide community efforts to develop effective campaigns that are specifically targeted to local audiences and focused on the road safety priorities that pose the greatest concern.

## Theories of road safety campaigns

There is consensus among experts in the field of road safety that the best road safety campaigns are based on research-driven, psycho-social theories of behaviour. Some of the leading theories that have been used in this regard include behaviour change theories, theories of social persuasion, and fear-based campaigns. Examples of leading theories are briefly described below.

### Behaviour change theories

- > **Theory of Planned Behaviour (TPB).** This theory predicts that personal decisions (i.e., intentions) to carry out certain behaviours are based on a combination of: 1) attitudes toward the behaviour; 2) subjective norms; and, 3) perceived behavioural control. According to this theory, these three major factors influence a person to either engage in a specific behaviour, or to choose not to do so. For example, individuals who believe that speeding is a fun activity that most people engage in, and can do it easily without endangering others, are more likely to make decisions to engage in speeding behaviours compared to individuals with a different set of beliefs.
- > **Health Belief Model (HBM).** This theory has been widely adopted to explain human behaviour. Its underlying premise is that the main motivator for people to preserve or protect their health is to avoid negative health behaviours. Key factors include susceptibility to the consequences of action, perceived seriousness of the consequences of action, perceived barriers that decrease the likelihood of action; perceived benefits that increase the likelihood of action; confidence in the ability to take action (i.e., self-efficacy); and, internal and external cues/motivators to affect the likelihood of action. Although other motivational factors might contribute to the adoption of the specific health behaviour, HBM proposes that avoiding a negative health outcome is the most influential factor (Delhomme et al. 2009).

- > **Protective Motivation Theory (PMT).** This theory is similar to HBM in that it targets an individual's motivation to avoid actions that would be detrimental to their health. However, it more closely highlights the possible threats and vulnerability a person may feel from the idea of engaging in a negative behaviour. The concept of protection motivation stems from one's desire to protect or defend themselves against negative consequences of a behaviour based on fear and coping appraisal. In this model, self-efficacy also plays a very significant role in a person's decision to adopt the behaviour; it is the determining factor that results in change or resistance to change.
- > **Transtheoretical Model of Change (TMC).** This model acknowledges that behavioral modification is a process that must be accounted for during the development of any campaign that aims to alter road user behaviour. It addresses this process and suggests that people may be in different stages of change and must pass through the five stages of change (i.e., pre-contemplation, contemplation, preparation, action, and maintenance) before permanent behaviour change can occur. The model suggests that these stages are fluid and that it is possible for an individual to move forward and backwards between the stages.

### Theories of social persuasion

- > **Social Norms Theory.** This theory suggests behaviour is influenced by (often inaccurate) perceptions of how other members of their social group think and behave (Yanovitzky 2004). This phenomenon is similar to the 'bandwagon effect' described by McAllister & Studlar (1991) which predicted that personal beliefs are strengthened if it is believed that others share the same attitudes and perceptions towards the behaviour. It suggests that a person's social perceptions may have a more powerful effect on behaviour than the risks to health or safety.
- > **Elaboration-Likelihood Model.** According to this model, developed by Petty and Cacioppo (1986), the likelihood that a person will elaborate or change their attitude is dependent on a person's motivations and their ability to elaborate on the situation. In other words, individuals are motivated to process a message if it is viewed as personally relevant or if they feel a high level of personal or social responsibility regarding the behaviour (Wundersitz et al. 2010). This means that audiences that have prior knowledge of the issue, and possess the ability to understand the message, are more likely to use this route.

### Fear-based campaigns

This approach to road safety campaigns confronts people with depictions or associations of negative consequences of risky behaviours by capitalizing on their fears (SWOV 2009). It takes advantage of the emotions of a target audience, and may rely on graphic imagery (e.g., crash footage, injuries) to scare and shock individuals, or use messages that attempt to invoke shame or guilt. The effectiveness of such approaches is unclear and what is known is that individuals react differently to fear-based campaigns depending on their characteristics, as well as how the fear appeals are used. There is evidence that shows that fear-based approaches can work under specific circumstances. Campaigns that describe or demonstrate coping mechanisms (i.e., strategies that tell individuals how to avoid or cease a negative behaviour safely) invoke greater change than those that only use fear and shock (Cismaru et al. 2009; Tay and Watson 2002; Wundersitz et al. 2010). Ultimately, research points to the fact that behaviour change likely occurs from the willingness of individuals to adopt the recommended change and the available coping mechanisms, rather than the strength of the fear appeal itself (SWOV 2009).

## Summary

Each of these theoretical models has the potential to provide a strong foundation to create an effective road safety campaign. It should be underscored that while these theories may utilize different terminologies and underscore that some behavioural elements or features are more important than others, generally speaking they are not fundamentally that different (Delhomme et al. 2009); neither are they mutually exclusive. In essence, these theories suggest that a clear understanding of factors that shape the behaviour is essential, whether it is attitudes, intentions, social norms, perceived vulnerability, perceived barriers or consequences, or sources of social control, in order to identify how to effectively change it. To help inform decision-making, some general conclusions are briefly summarized below.

- > First, the decision to adopt a theoretical approach to guide campaign development is important and can increase the likelihood of effectiveness as compared to merely developing a campaign in an ad hoc or intuitive fashion that has no clear link to the actual behaviour of concern. Moreover, a theoretical approach will serve to guide decision-making related to each step of the campaign and help to ensure a coherent strategy is developed.
- > Second, the selection of the most appropriate theoretical model by communities should be guided by data and an understanding of the situational dynamic that is the source of the behaviour within a local context. In other words, understanding when, how frequently and why people engage in the problem behaviour can help determine what types of mechanisms should be targeted to stimulate behaviour change. This will enable communities to adopt an approach that is well-suited to the problem and incorporate messages and delivery strategies that have the potential to positively influence behaviour change.
- > Third, these theories may be more or less amenable to some road safety problems than others. For example, the use of a social norming approach is more appropriate in relation to problem behaviours that are engaged in by a relatively small percentage of the population. For instance, more than 80% of Canadians do not consume any amount of alcohol before driving; just 6.6% report driving over the legal limit while 17% report driving after consuming any amount of alcohol (Pashley et al. 2014). This means that a significant majority of drivers do not drink, thus making a social norming message compelling.

Conversely, speeding and distracted driving are more prevalent behaviours that are engaged in by a larger proportion of the population. While many people believe speeding and distracted driving are unacceptable, this generally does not preclude them from engaging in these behaviours themselves. This means that adopting a social norming approach, and communicating that a much smaller proportion of drivers avoid speeding and distractions, would be less compelling and persuasive message than it is with regard to drinking and driving where the majority is much larger. At the same time, this approach may have a greater effect on those who moderately engage in the behaviour as compared to those who often do so, and who are often the greater source of concern.

- > Finally, there is much interest in the use of fear-based appeals and these campaigns often receive significant media attention. While this approach can produce the desired results, it is important that it is used selectively and in an appropriate context for several reasons. These campaigns are not equally effective with all audiences, younger and male audiences are more difficult to influence using this approach, and the effects of fear-based appeals are often short-lived (SWOV 2009). More concerning



is that research shows that individuals that are most likely to engage in the behaviour, and most invested in it, are most likely to ignore or reject the message if it is not well-constructed. However, well-designed fear-based campaigns can be effective, as demonstrated by two compelling examples “the impossible driving and texting test” developed by Responsible Young Drivers in Belgium (<http://youtu.be/HbjSWDwJILs>) and ‘embrace life’ by Sussex Safer Roads in the United Kingdom (<http://youtu.be/h-8PBx7isoM>). These messages illustrate the negative consequences but in ways that are less graphic and confrontational and that rely upon positive emotions. These examples also contain a high degree of personal relevance to the target audience and suggest ways that drivers can protect themselves.

In conclusion, communities are encouraged to consider the various theoretical models that are available in conjunction with their own data that illustrates the nature of the problem that will be addressed, and, bearing these caveats in mind, select an appropriate theoretical foundation that is best suited to address their problem.

### **Effectiveness of road safety campaigns**

Prior research from many countries over the past three decades has investigated the effects of road safety campaigns. While individual evaluations have focused on different road safety issues, and different measures of behaviour change (e.g., crash data, observational data, self-reported changes in behaviour, perceptions and attitudes), overall many have shown a range of positive outcomes and demonstrated that road safety campaigns can change perceptions and reduce crashes. One of the most prominent studies involves a European meta-analysis of 437 effects extracted from 228 international studies conducted in 14 countries during the past 30 years. It revealed that road safety campaigns generally:

- > reduced the number of road incidents by approximately 9%;
- > increased seatbelt use by 25%;
- > reduced speeding by 16%;
- > increased yielding behaviour by 37%; and,
- > increased risk comprehension by about 16% (Phillips et al. 2009).

A subsequent European meta-analysis that examined 119 effects extracted from 67 international studies further revealed insight into the features of campaigns that contribute to effectiveness in terms of crash reductions. These features included:

- > drinking and driving campaigns;
- > shorter duration (less than one month);
- > personal communication;
- > roadside delivery, use of roadside media, or delivered in proximity to the behaviour occurring;
- > combined emotional/rational message has a stronger influence than a purely rational message;
- > accompanied by enforcement; and,



- > combined with mass media (Phillips et al. 2011).

## Limitations of the research

Although the research and evaluations discussed in the previous sections suggest that road safety campaigns can be an effective tool to raise public awareness and change the behaviours of road users, there are some important considerations that should be acknowledged in relation to estimates of the effectiveness of any program.

- > Campaigns are generally not systematically and empirically evaluated.
- > It is difficult to determine how to accurately and objectively measure the impact of a campaign on a specific population, and this is one of the leading issues surrounding the evaluation of road safety campaigns. In other words, it can be difficult to identify appropriate outcome measures that demonstrate the effectiveness of a campaign. Many evaluation measures used include surveys of attitudes, perceptions, and behaviours of road users related to the campaign and its targeted issue. While self-report data can be very useful to understand and interpret message penetration and public concern, these measures do not capture actual changes in behaviour. Observational surveys (i.e., road-side observations to detect increases/decreases of a specific behaviour) provide a solution to this problem but are expensive and time-consuming.
- > There are also a variety of methodological research design challenges that are often encountered during road safety campaign evaluations. For example, it can be difficult to identify comparable or representative control groups (i.e., similar populations who are not exposed to the campaign) whose behaviours can be compared to those who are exposed in order to measure behaviour change across the groups. Control group areas may also be exposed to other factors or campaigns that could influence behaviour in similar ways to the experimental group, as was the case demonstrated in the National Highway Traffic Safety Administration's (NHTSA's) distracted driving campaign evaluation (Chaudhary et al. 2014).
- > Similarly, many campaigns consist of multiple strategies (e.g., enforcement, TV advertisements, billboards) to ensure that the campaign message is heard and adopted. However, it becomes difficult for researchers to discern which campaign components contribute most to the effectiveness, or lack thereof, of a campaign.

## Summary

It is clear that research has proven that it is possible to influence behaviour through the delivery of well-designed and well-executed road safety campaigns. In particular, this review reveals some important lessons that can be drawn from previous campaign evaluations to guide the activities of local communities. These lessons are briefly summarized below.

1. Campaigns that are based on a solid theoretical foundation are more likely to successfully influence behaviour. Many of the campaigns discussed in this report in relation to effectiveness can be clearly linked to one of several theories discussed previously. As such, adopting a particular model can serve to guide the development of a coherent, cohesive and logical campaign that can better achieve the desired outcomes.
2. The issue addressed by the campaign may influence the level of effectiveness that can be achieved,

particularly within a given time period. Campaigns targeting drinking and driving behaviour have been shown to be more effective, however this finding should be considered with the following caveats in mind. First, there have been more evaluations, and more well-designed and current evaluations of drinking and driving campaigns relative to other types of behaviours such as distraction, pedestrians or cyclists, and fatigue. Second, there is a stronger moral imperative associated with drinking and driving than perhaps issues such as speeding and seatbelt use. In this regard, attitudes supporting the non-use of seatbelts are not viewed in the same way as attitudes that drinking and driving is acceptable. In other words, some problem behaviours (e.g., distraction) that are engaged in by a larger portion of the population, and for which the risks or consequences are less clear, may be more difficult to change as compared to other issues for which the evidence is clear and well-known (e.g., drinking and driving). Moreover, the behaviours of some individuals may be more easily changed than others. As such, with Canada's seatbelt usage rate of 93%, it may require more energy and resources to change the behaviour of the remaining 7% who have been unaffected by previous efforts. This suggests that the 'law of diminishing returns' is applicable and expectations pertaining to outcomes should be pursued with this in mind.

- 3.** A well-designed campaign is based upon three important factors. The first factor is an analysis of local data to quantify the extent of the road safety problem and its characteristics; an element that is common across the studies highlighted in this section. These data are essential to ensure that there is a need to address the road safety issue and that the campaign can be appropriately targeted to the relevant audience. For example, local data may show that distracted driving is in fact significant contributor to road crashes in the community, and both male and female drivers aged 25 to 45 often engage in this behaviour. This would suggest that a distracted driving campaign targeted towards this audience would be an appropriate strategy for this community.

The second factor involves understanding why people are engaging in the behaviour. This may be due to misinformation or misperceptions about the problem, local attitudes towards the behaviour in terms of its acceptability, misunderstanding of the risks, or because the problem behaviour is easier and more attractive than safer alternatives. Recognizing why people engage in the behaviour is necessary in order to identify what types of messages can best influence it (e.g., fact-based, fear-based, persuasive, social norming). The third factor relates to the messaging and design of a campaign. The tone and content of the message as well as its visual presentation and imagery must resonate with the personal experiences of drivers whose behaviour is targeted. These messages should be compelling or persuasive, interesting, attractive, evoke an emotional response, and suggest alternative behaviours that are easy to adopt to help ensure that drivers are not only aware of messages, but likely to accept them.

- 4.** Well-executed campaigns are those that carefully consider the use of various campaign tools and strategically select those that are most accessible, practical, and likely to reach the target audience, particularly if budgets are limited. While there is often a desire to utilize a broad spectrum of tools in diverse locations to maximize reach and penetration, and cost is always a factor, the guiding strategy should not lose sight of the characteristics of the target audience and where the behaviour is most likely to occur. Hence it may be more feasible and efficient to deliver posters in places of business frequented by the target population, to place billboards on the roads where they are likely to drive or at high crash locations, or to utilize radio public service announcements during peak driving periods when the behaviour is likely to occur. Similarly, if the target audience spends less time watching TV or online, these may not be the most efficient strategies to reach them, and they are unlikely to be

engaged in the problem behaviour during these moments.

5. The duration of the program is linked to its effectiveness. To this end, positive outcomes can be achieved with campaigns that are delivered for fairly short periods of just one month and it is not necessary to sustain such campaigns over a longer period if it is neither practical nor feasible to do so. Having said that, it is also possible to utilize a campaign over a much longer period of a few years by intermittently refreshing it with new messages, but using the same theme and topic, to reinforce behaviour change on a larger scale. This can help to keep the issue ‘top of mind’ without expending significant resources, and serves the larger purpose of re-shaping attitudes and social norms related to an issue. To illustrate, repeated and continuous messaging conveying that drinking and driving is risky and has serious consequences has produced widespread consensus that drinking and driving is unacceptable. Similarly, campaigns underscoring the importance of wearing a seatbelt has resulted some 93% of Canadians wearing their seatbelt in a vehicle. Neither of these changes happened quickly or in a short time frame, but were instead achieved over a much longer period, resulting in widespread social change.
6. Social norms should not be overlooked in the development of campaign as this is an important factor that influences behaviour. Social norms vary across road safety issues, and communities should be sensitive to the existence of social norms when developing a campaign. In particular, if prevailing attitudes towards a particular problem behaviour suggest that it is acceptable (either explicitly or implicitly) than the use of a social norming approach is probably not the best strategy for a campaign.
7. Fear-based appeals can have value if used appropriately. As such, if communities desire to use this approach, there are some important caveats to keep in mind. Hastings et al. (2004) underscores that these types of messages may be more culturally appropriate in some jurisdictions than others due to differences in general styles of communication and acceptable ways that information is shared. So while such appeals were effective in Australia and New Zealand, these messages may not have the same effect in North America or Europe. These messages should be conveyed in a way that makes it difficult for the target audience to discount or ignore the consequences (i.e., to minimize defensive avoidance), and should be accompanied by actions that the audience can easily rely upon to protect themselves from such consequences. Of equal importance, if communities do opt to pursue a fear-based approach, they are encouraged to first focus group test the message with the target audience to ensure that it will not be rejected or discounted. They should also consider other strategies to convey the same message. To this end, ‘whether fear-based appeals are effective is less important than whether this type of information works better than others’ (SWOV 2009; p.3).
8. There are a variety of external and environmental factors that shape behaviour. In addition to the attitudes of peers and social norms, people are also influenced by the presence of social controls and barriers to the behaviour. It is also easier to change behaviour when messages are delivered in close proximity to it. This means that a core objective should be to reach drivers when they are in their vehicle, and the use of enforcement strategies to augment the delivery of campaigns if practical and feasible, can strengthen barriers to the behaviour and increase controls to help prevent it.
9. Perhaps most importantly, this knowledge and learning is available because jurisdictions chose to pursue the evaluation of their respective campaigns. While important lessons have been learned from previous campaign evaluations, there is still a considerable need to develop and adopt better and more rigorous approaches to evaluations. In particular, evaluations based upon observational or crash report data could provide greater insight into the impact of campaigns have on overall road safety

and behaviours. As such, communities should also not overlook the importance of evaluation in relation to their own campaigns, and incorporate this into the planning process.

## Learning styles

Education is an important and often under-rated component of effective road safety campaigns. While the ability of a campaign message to capture and engage the attention of an audience is essential to increase awareness about an issue, the true success of a campaign is gauging what people have learned and how they have acted upon that new knowledge. It is for this reason that understanding the process of learning, and the various ways in which people retain information can provide local governments and community partners with an important advantage to inform campaign development.

Neil Fleming's *VAK (visual, auditory, kinesthetic)* model is described as one of the most commonly used representations of the ways in which people receive information. According to this theory, certain individuals are better able to learn new information depending on how it is disseminated (i.e., seeing it, hearing it, or touching it). Therefore, in order to reach and appeal to as many people as possible, campaigns should include resources and materials that incorporate multiple paths to learning.

## Recommendations for community-based road safety campaign development

The following recommendations are intended to provide local governments and community partners with guidelines regarding the development, implementation and evaluation of effective road safety campaigns. These recommendations are drawn from available research from the disciplines of road safety and health, as well as the knowledge and expertise of experienced professionals in the field.

### *Target audience:*

- > Establish a specific target population through objective measures and evaluations.
- > Identify underlying factors (e.g., motivation, social norms) contributing to perceptions, attitudes, and behaviours in the local context.
- > Consider secondary populations that may be influential to the primary target audience.

### *Stakeholder engagement:*

- > Identify natural partners who can contribute to and assist with the development and implementation of these campaigns.
- > Understand the mission, goals, and activities of each partner to determine how road safety campaigns can complement and/or benefit their respective organizations to build buy-in.
- > Learn more about the day-to-day operational practices of partners so that tasks can be matched with their natural abilities or the ease with which they can do things. Matching creates a sense of satisfaction that is valued and that keeps stakeholders engaged.
- > Understanding the membership, and the types of communication mechanisms or tools each partner uses for dissemination and outreach can provide important insight into opportunities to strengthen campaign penetration and reach.

- > Partners are more likely to remain active throughout the process if progress is continuously achieved and goals are met.
- > Timely and regular communication keeps stakeholders engaged.

#### *Message:*

- > Messages should be tailored and relevant to the target audience.
- > Message development should rely on effective social and educational theories and principles.
- > Campaigns should adopt a direct and easily-understood messaging approach that includes both informational and persuasive messages.
- > Positively-framed messages that target social norms should be used.

#### *Means of communication:*

- > The type of media used should ideally be determined by the context in which the behaviour occurs, as well as the demographic characteristics of the local context.
- > Pros and cons of each message strategy option should be considered, including those most feasible and appropriate to the community.
- > Where possible, multiple means of communication should be used to reach the target audience.

#### *Designing the campaign:*

- > Campaign branding should be easily recognizable and developed with the target audience in mind.
- > Campaign design should be unique, identifiable, engaging, and incorporate local resources or figures.
- > Positively-framed messaging approaches are preferred over fear-based appeals.

#### *Enforcement*

- > Campaign dissemination should be coordinated and reinforced by increased and targeted local law enforcement actions and initiatives.

#### *Evaluation:*

- > Campaign evaluation is essential and an evaluation plan should be included in the development of any road safety campaign.

Evaluations should strive to incorporate as many types of data as possible (e.g., collision data, observational survey data, and self-report survey or focus group data).



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# INTRODUCTION

Campaigns are one of the most widely-used tools to promote and improve road safety, and are an important component of road safety strategies in jurisdictions around the world. These initiatives have long been used as a means to increase awareness of traffic laws and new legislation, safe driving practices, as well as to educate the public about issues related to road safety. The popularity of campaigns may be a result of the fact that they are scalable in size and can be used for a period of weeks, months or years in either an intermittent or sustained fashion. Campaigns can also be tailored to different audiences, and are easily adapted to various road safety priorities. They often combine media-related advertising and education with increased enforcement efforts of some kind, although this is not always the case. Recently, with the advent of social media marketing and new technologies, road safety campaigns have also begun to incorporate new approaches to raising awareness and communicating messages. For these reasons, campaigns appeal to a variety of audiences and can be used to satisfy various objectives related to road safety.

Despite the wide variation across campaigns, many of them are designed to achieve one or more key goals. In the *Manual for Designing, Implementing and Evaluating Road Safety Communication Campaigns*, Delhomme et al. (2009) identify five main goals of road safety campaigns which include:

- > providing information about new or modified laws (e.g., new penalties for provincial territorial offences with a blood alcohol concentration (BAC) of .05);
- > improving knowledge and/or awareness of new in-vehicle systems, risk, and appropriate preventative behaviours (winter tires, crash risk, wearing a seatbelt)
- > changing underlying factors known to influence road-user behaviour (e.g., emphasizing that most people do not drink and drive; perceptions about speeding);
- > modifying problem behaviours or maintaining safety-conscious behaviours (e.g., challenging misperceptions that it is safe to use the phone while driving); and,
- > decreasing the frequency and severity of crashes (e.g., lower speeds reduce risk of injury).

Furthermore, the effectiveness of road safety campaigns hinges on several factors, including:

- > the types of tools used in the campaign (e.g., posters, TV, radio, social media);
- > program duration (e.g., weeks, months, years);
- > social norms underlying the target audience (e.g., perceptions about the acceptability of a behaviour); and,
- > the external influences and environment in which the issue takes place (e.g., barriers to the behaviour, social control mechanisms, features of the road).

Effective campaigns are more frequently built upon recognized psycho-social and educational theoretical foundations which are used to guide program development and increase understanding of the factors that contribute to the issue at hand.

Although there have been many successful national and provincial road safety campaigns implemented over the past several decades, these initiatives have been more limited and challenging to deliver in a local context. This may be due to the fact that national and provincial campaigns can be difficult to adapt at a community level. Indeed, the nuances and facets of issues in individual communities may be different from those identified at national or provincial levels. Hence, communities may find that the design or messages of a campaign are not relevant to their community, particularly if the driving force behind a problematic behaviour is a function of local attitudes, perceptions, or experiences which are not addressed by the campaign. There may also be specific community features that are not acknowledged as part of existing campaigns such as rural road issues, or local types of wildlife that are involved in collisions with vehicles. As a consequence, communities may prefer to design a new campaign from scratch, although they rarely have access to the same resources or expertise that are available as part of larger campaigns.

For this reason, the Traffic Injury Research Foundation (TIRF), with funding from the Canadian Automobile Association (CAA), undertook to develop a community-based toolkit for road safety campaigns. It is designed to assist local communities by guiding and informing the development and implementation of an effective road safety campaign. The first phase of this project involved a systematic review of relevant sources and studies to identify relevant theories that provide a foundation for campaigns, as well as research related to the effectiveness of road safety campaigns. These resources included peer-reviewed journal articles, search engines, conference proceedings, as well as publications from both government and non-governmental traffic safety organizations. The search parameters included any and all publications and evaluations from existing or discontinued road safety campaigns from 1970 onward, refined using keyword searches (e.g., “campaign”, “marketing”, “communication”) to further focus this review. From this, a comprehensive synthesis of relevant resources was reviewed and is summarized within this report.

This report, a key feature of the toolkit, provides local governments and community partners with an overview of some of the leading theoretical foundations that guide the development of road safety campaigns, combined with a comprehensive summary of the research on road safety campaigns. This report also integrates findings emerging from important education-based learning theories and frameworks to help strengthen the development of effective road safety campaigns. Finally, the report shares recommendations and best practices drawn from existing research and experience in the road safety field that can be considered during the development of community-based road safety campaigns.

# THEORIES OF EFFECTIVE ROAD SAFETY CAMPAIGNS

Well-researched psychological and social theories of behavioural change can provide a solid foundation to develop an effective road safety campaign. Indeed, research shows that campaigns that are based on well-developed theoretical foundations are more effective than those that are not (Elliot 1993). Not only does a strong theoretical foundation provide much-needed guidance to inform knowledge and understanding of behaviours and attitudes, it can also guide the development of a campaign. This means it is possible to better target the intended audience in ways that are most likely to result in the desired change.

The following section briefly describes several common theories that generally form the foundation for road safety campaigns including behaviour change theories, theories of social persuasion, and fear-based campaigns. It also provides some general guidance to inform the selection of appropriate theoretical models that can inform strategies to develop and implement campaigns to ensure that they reach their fullest potential.

## Behaviour change theories

**Theory of Planned Behaviour (TPB).** This theory predicts that personal decisions (i.e., intentions) to carry out certain behaviours are based on a combination of: 1) attitudes toward the behaviour; 2) subjective norms; and, 3) perceived behavioural control; these factors are briefly described below (Delhomme et al. 2009).

- > Attitudes toward the behaviour can be thought of as personal beliefs, or the estimated outcomes of the behaviour that an individual believes will occur. For example, an individual may perceive that engaging in speeding behaviours is either scary or fun.
- > Subjective norms deal with the social factors surrounding an issue (i.e., how an individual believes that others view the behaviour). Subjective norms among teens, for instance, might be the perception that most teens use their cell phone while driving, and therefore they believe that it is a typical behaviour of other teens that are similar to themselves. Subjective norms are often greatly influenced by internal and external motivational factors that can either prevent or encourage individuals to engage in the behaviour.
- > Perceived behaviour control is comparable to an individual's view of how easy or difficult it will be to perform or accomplish certain goals or behaviours (the degree of self-efficacy). For example, when considering the decision to drive home after drinking individuals may find it very feasible to find a designated driver or to take public transportation, whereas others may perceive these barriers as more difficult to overcome.

According to this theory, these three major factors influence a person to either engage in a specific behaviour, or to choose not to do so. Using the first example, individuals who believe that speeding is a fun activity that most people engage in, and can do it easily without endangering others, are more likely to make decisions to engage in speeding behaviours compared to individuals with a different set of beliefs.

One example of a campaign based on the TPB philosophy is the *Foolsspeed* campaign implemented in Scotland. Foolsspeed was a five-year road safety campaign conducted by Road Safety Scotland. It aimed to reduce the instances of inappropriate and excessive speeding on Scottish roadways. TPB was used to develop several television advertisements, each of which addressed a different component of the theory (i.e., attitudes, norms, and behavioural control). An evaluation of the program concluded that while some ads based on the TPB components were less effective and more difficult to apply to advertisements than others, the outcomes of the campaign demonstrated that it was possible to design convincing and effective campaign materials using this theoretical model (Stead and Eadie 2007).

**Health Belief Model (HBM).** Another approach that has been widely adopted to explain human behaviour is the Health Belief Model which was originally developed as a means to predict the uptake (or usage) of specific health services and behaviours. The underlying premise of this approach is that the main motivator for people to preserve or protect their health is to avoid negative health behaviours. Although other motivational factors might contribute to the adoption of the specific health behaviour, HBM proposes that avoiding a negative health outcome is the most influential factor (Delhomme et al. 2009).

The HBM includes several theoretical constructs that are said to contribute to an individual's behaviour. Variations of this model exist and have been adapted over time, but generally behavioural outcomes are thought to be influenced by the following concepts:

- > susceptibility to the consequences of action (e.g., how does an individual perceive the likelihood of crashing when speeding?);
- > perceived seriousness of the consequences of action (e.g., do the consequences of a behaviour involve something less substantial such as a small fine or a more substantial outcome such as a criminal conviction or a jail sentence?);
- > perceived barriers that decrease the likelihood of action;
- > perceived benefits that increase the likelihood of action;
- > confidence in the ability to take action (i.e., self-efficacy); and,
- > internal and external cues/motivators to affect the likelihood of action.

The perceived susceptibility and seriousness of an action at combined to form the concept of the "perceived threat" that is then associated with a behaviour. Furthermore, the barriers and benefits of engaging in the behaviour counteract each other, much like pros and cons, to further influence an individual's decision. A meta-analysis of 18 studies of health communication campaigns, conducted by Carpenter (2010), found that the perceived benefits and barriers to action were the greatest predictor of behaviour outcomes. All of these factors are combined to determine whether or not an individual will feel that the negative consequences of engaging in a behaviour (e.g., being injured while drinking and driving) are too risky to warrant taking action to avoid the negative consequences (Delhomme et al 2009).

Road safety campaigns based on this model seek to shift the perceptions of the target audience to the point where individuals feel that the negative consequences of a specific action are enough to warrant avoiding the behaviour. To summarize, the objective of these campaigns is to raise awareness of the risks and consequences of the targeted issue. For instance, a drinking and driving campaign may choose to highlight the increased enforcement efforts and the increased likelihood of detection by police in order to show people that people are more likely to be stopped by police if they choose to drink and drive. It should be noted, however, that while the tactics used in the HBM model target the negative risks and consequences of the behaviour, this approach is not the same as fear-based approaches which are discussed in the following section. In other words, while campaigns based upon HBM theories highlight the possible negative outcomes of risky road behaviours, they do not necessarily use shocking or fear-inducing approaches to communicate the negative risks.

**Protective Motivation Theory (PMT).** This theory is similar to HBM in that it targets an individual's motivation to avoid actions that would be detrimental to their health. However, this theory more closely highlights the possible threats and vulnerability a person may feel from the idea of engaging in a negative behaviour. The concept of protection motivation stems from one's desire to protect or defend themselves against negative consequences of a behaviour based on fear and coping appraisal. According to Rogers (1983), protection motivation is maximized when:

- > the threat to health is severe (high perceived severity);
- > the person feels vulnerable (high perceived vulnerability);
- > the behaviour to avoid or avert the threat (adaptive response) is believed to be effective (high response efficacy);
- > the costs associated with the adaptive response are small (low costs); and,
- > the person is confident in his or her abilities to complete successfully the adaptive response (high self-efficacy).

Research has demonstrated that the perceived vulnerability to and the perceived severity of the consequences of actions are powerful enough to change behaviour. Moreover, the behaviour change may not occur if a minimum level of threat to one's health is not present (Cismaru et al. 2009). In other words, PMT predicts that change is more likely to occur if the factors described by Rogers are targeted to produce protection motivation. In this model, self-efficacy also plays a very significant role in a person's decision to adopt the behaviour; it is the determining factor that results in change or resistance to change.

PMT has been effectively used in social marketing campaigns in the past within a variety of health contexts (Adamos et al. 2009; Cismaru et al. 2009). Examples of this approach include campaigns to influence lifestyle changes (e.g., smoking cessation or adopting safe sex practices) or changes in healthcare practices (e.g., receiving a flu shot), as well as road safety campaigns such as the *Tie One On For Safety* campaign targeting drinking and driving. The development of campaigns based on this philosophy involves designing

messages that show people that they are susceptible to the negative consequences of the road safety issue and to demonstrate that there are easy and effective ways to adopt safer practices.

**Transtheoretical Model of Change (TMC).** Behavioral modification is a process that does not occur instantaneously. This process must be accounted for during the development of any campaign that aims to alter road user behaviour. As described in earlier sections of this report, road safety campaigns have been shown to influence behaviour in different ways depending on the individual's beliefs and characteristics. Thus, local governments and community partners must consider the possibility that certain audiences or individuals may be more ready to accept change than others. The Transtheoretical Model of Change, developed by James Prochaska in the 1970s, addresses these differences and suggests that people may be in different stages of change. In particular, the five stages of change include:

- > pre-contemplation (awareness or acceptance of the need to change has not occurred; individual may not be aware of the need or benefits of change);
- > contemplation (recognition of a problem);
- > preparation (decision to change has been made);
- > action (taking steps to change behavior); and,
- > maintenance (change has become permanent and efforts are need to avoid relapse and sustain the new behaviour).

According to this theory, before permanent behaviour change can occur, individuals must pass through each of the prior stages successfully and completely. It should also be noted that the stages in these models are fluid. That is, it is possible for an individual to move forward and backwards between the stages.

Designing a campaign based on the TMC means campaign messages and advertising approaches should acknowledge and target these different stages to ensure that the full adoption of the behaviour occurs. Pre-testing messages prior to campaign development would be useful to allow local governments and community partners to better understand the stage of change that is appropriate to a majority of the target audience. For example, if a pre-campaign survey demonstrates that individuals are aware of the dangers associated with speeding but continue to drive over the speed limit despite their awareness of the issue, campaign development could directly address the contemplation stage by encouraging self-reflection among individuals about speeding in relation to their own behaviour. From there, other campaign elements could be developed to guide individuals along the path to full acceptance and maintenance of the behaviour. It is essential that campaigns based on this model are able to address every stage in some way to prevent relapse or regression to previous stages.

## Theories of social persuasion

Many of the theories previously discussed seek to explain the process of changing individual perceptions about the risks and consequences associated with road user behaviours. Other popular psycho-social theories underlying road safety campaigns focus on addressing the existing and perceived social norms of a



population. Two such theories, Social Norms Theory and the Elaboration-Likelihood Model, are highlighted below.

**Social Norms Theory.** This theory suggests that people tend to act in accordance with group expectations and behaviours based on affiliation needs and social comparison processes, social pressure toward group conformity and the formation of reference group norms. In other words, behaviour is influenced by (often inaccurate) perceptions of how other members of their social group think and behave (Yanovitzky 2004). This phenomenon is similar to the 'bandwagon effect' described by McAllister & Studlar (1991) which predicted that personal beliefs are strengthened if it is believed that others share the same attitudes and perceptions towards the behaviour.

This is an important concept to consider when developing road safety campaigns because it suggests that a person's social perceptions may have a more powerful effect on behaviour than the risks to health or safety. The research findings from Linkenbach and Perkins (2005), which revealed the tendency of young drivers to engage in risky behaviours because they thought others were doing so as well, clearly demonstrated this phenomenon. Thus, developing a campaign that aims to change the way behaviours are perceived in relation to others may be a very important strategy.

**Elaboration-Likelihood Model.** This model, developed by Petty and Cacioppo (1986), describes how people form and change attitudes as a dual process model. According to this model, the likelihood that a person will elaborate or change their attitude is dependent on a person's motivations and their ability to elaborate on the situation. The central route (i.e., high-elaboration) to changing attitudes requires that an individual has both the motivation and ability to think about the message of a campaign. In other words, individuals are motivated to process a message if it is viewed as personally relevant or if they feel a high level of personal or social responsibility regarding the behaviour (Wundersitz et al. 2010). This means that audiences that have prior knowledge of the issue, and possess the ability to understand the message, are more likely to use this route.

On the other hand, the peripheral route (i.e., low-elaboration) is taken when an individual has little to no interest or awareness of the campaign message. In this case, attitudes are more likely to be altered by the impressions gained from the message (e.g., message attractiveness, message believability), rather than personal judgment and logical reasoning. However, peripheral attitude changes are more likely to be short-term and more easily swayed by other factors (e.g., perception of the behaviour of others). For this reason, it is important for local governments and community partners to have a good understanding of the current attitudes of the target audience prior to the campaign so that they can design messages that are most likely to instill change.

## **Fear-based campaigns**

As described by many social and psychological theories, individual motivation is highly related to perceptions of the negative consequences associated with engaging in various behaviours on the road.

While there are ways to positively address the negative consequences of a behaviour, a common approach among road safety campaigns has been to use fear-based appeals. This approach to road safety campaigns confronts people with depictions or associations of negative consequences of risky behaviours by capitalizing on their fears (SWOV 2009).

Fear-based road safety campaign approaches work by taking advantage of the emotions of a target audience. Road safety campaigns using these types of approaches may rely on graphic imagery (e.g., crash footage, injuries) to scare and shock individuals, or use messages that attempt to invoke shame or guilt. The THINK! campaign by the Department for Transport in Great Britain, is one example of the use of fear-based approaches in advertising (<http://think.direct.gov.uk/drink-driving.html>). For example, their drinking and driving campaign uses fear-inducing messages such as, "Get caught drink driving and you'll be processed like any other criminal", along with images of prison fingerprinting and a criminal record. Similarly, the Transport Accident Commission in Australia has utilized graphic crash imagery as part of their messaging (<http://youtu.be/Z2mf8DtWWd8>).

Although commonly used in road safety campaigns, the effectiveness of such approaches is unclear. The available research has demonstrated that individuals react differently to fear-based campaigns depending on their characteristics, as well as how the fear appeals are used. A review of road safety campaign materials in Australia determined that positive emotional appeals (e.g., those using humor) may be more persuasive for males than fear appeals, whereas the opposite was found to be true for females (Wundersitz et al. 2010). As well, fear-based approaches have been shown to be less effective on individuals who do not feel vulnerable or susceptible to the issue in the first place (Cismaru et al. 2009). This has implications for the estimated effectiveness of campaigns where the target audience does not feel the need to change, or believes the issue is not relevant to their own behaviour.

There is evidence that shows that fear-based approaches can work under specific circumstances. Campaigns that describe or demonstrate coping mechanisms (i.e., strategies that tell individuals how to avoid or cease a negative behaviour safely) invoke greater change than those that only use fear and shock (Cismaru et al. 2009; Tay and Watson 2002; Wundersitz et al. 2010). In fact, a meta-analysis of fear-appeal campaigns that evaluated 98 studies reported that the strongest reductions in risky behaviours were associated with campaigns that used a lot of evoked fear and recommended feasible and effective behaviours; conversely messages that induced fear but whose recommendations were not feasible and effective had the strongest opposite effects (i.e., rejection and resistance to the message; Witte & Allen 2000). Additionally, fear-based approaches have proven successful in raising awareness about risky behaviours through shock and surprise, which can be valuable to campaigns that aim to capture the focus of the target audience (Lewis et al. 2007).

However, several studies have also highlighted drawbacks to using fear-based approaches in campaign design and there are many theories demonstrating the potential effects of using fear tactics. Defensive processing, which occurs when people are pre-disposed to shame or guilt, has been associated with

causing individuals to reject a message through denial, ridicule or neutralizing the message, in order to cope with their guilt (Agrawal and Duachek 2009; SWOV 2009). Similarly, the Extended Parallel Process model dictates that there are three possible outcomes resulting from fear appeals: 1) danger control response meaning individuals take action to avert a threat; 2) fear control response meaning individuals are too fearful to take action; and, 3) ignoring the message because the threat is perceived as irrelevant or insignificant. In summary, in the absence of understanding how people may react to fear, campaigns using fear-based approaches may be subject to strong resistance to the behaviour. Fear approaches may also backfire because they may increase feelings of helplessness in the face of an injury that is considered unpredictable and unpreventable (Aldoory and Bonzo 2005).

Ultimately, research points to the fact that behaviour change likely occurs from the willingness of individuals to adopt the recommended change and the coping mechanisms that are available, rather than the strength of the fear appeal itself (SWOV 2009). If fear appeals are to be adopted by road safety campaigns, it is imperative that they dictate easy and feasible coping strategies as part of that message to ensure the desired behaviour is adopted.

## Summary

Each of the theoretical models described in this section has the potential to provide a strong foundation to create an effective road safety campaign. It should be underscored that while these theories may utilize different terminologies and underscore that some behavioural elements or features are more important than others, generally speaking they are not fundamentally that different (Delhomme et al. 2009); neither are they mutually exclusive. In essence, these theories suggest that a clear understanding of factors that shape the behaviour is essential, whether it is attitudes, intentions, social norms, perceived vulnerability, perceived barriers or consequences, or sources of behaviour control, in order to identify how to effectively change it. To help inform decision-making, some of the main conclusions that can be drawn from this section are briefly summarized below.

- > First, the decision to adopt a theoretical approach to guide campaign development is important and can increase the likelihood of effectiveness as compared to merely developing a campaign in an ad hoc or intuitive fashion that has no clear link to the actual behaviour of concern. Moreover, a theoretical approach will serve to guide decision-making related to each step of the campaign and help to ensure a coherent strategy is developed.
- > Second, the selection of the most appropriate theoretical model by communities should be guided by data and an understanding of the situational dynamic that is the source of the behaviour within a local context. In other words, understanding when, how frequently and why people engage in the problem behaviour can help determine what types of mechanisms should be targeted to stimulate behaviour change. This will enable communities to adopt an approach that is well-suited to the problem and incorporate messages and delivery strategies that have the potential to positively influence behaviour change.
- > Third, these theories may be more or less amenable to some road safety problems than others. For example, the use of a social norming approach is more appropriate in relation to problem behaviours

that are engaged in by a relatively small percentage of the population. For instance, more than 80% of Canadians do not consume any amount of alcohol before driving, and just 6.6% report driving over the legal limit while 17% report driving after consuming any amount of alcohol (Pashley et al. 2014). This means that a significant majority of drivers do not drink, thus making a social norming message compelling. Conversely, speeding and distracted driving are more prevalent behaviours that are engaged in by a somewhat larger proportion of the population. While many people believe that speeding and distracted driving are unacceptable, this generally does not preclude them from engaging in these behaviours themselves. This means that adopting a social norming approach, and communicating that a much smaller portion of drivers avoid speeding and distractions, would be less compelling and persuasive message than it is with regard to drinking and driving where the majority is much larger. At the same time, this approach may have a greater effect on those who moderately engage in the behaviour as compared to those who often do so, which are often the greater source of concern.

- > Finally, there is much interest in the use of fear-based appeals and these campaigns often receive significant media attention. While this approach can produce the desired results, it is important that it is used selectively and in an appropriate context for several reasons. These campaigns are not equally effective with all audiences, younger and male audiences are more difficult to influence using this approach, and the effects of fear-based appeals are often short-lived (SWOV 2009). More concerning is that research shows that individuals that are most likely to engage in the behaviour, and most invested in it, are most likely to ignore or reject the message if it is not well-constructed. However, if well-designed fear-based campaigns can be effective, as demonstrated by two compelling examples “the impossible driving and texting test” developed by Responsible Young Drivers in Belgium (<http://youtu.be/HbjSwdwJILs>) and ‘embrace life’ by Sussex Safer Roads in the United Kingdom (<http://youtu.be/h-8PBx7isoM>). These messages illustrate the negative consequences but in ways that are less graphic and confrontational and that rely upon positive emotions. These examples also contain a high degree of personal relevance to the target audience and suggest ways that drivers can protect themselves.

In conclusion, communities are encouraged to consider the various theoretical models that are available in conjunction with their own data that illustrates the nature of the problem that will be addressed, and, bearing these caveats in mind, make a selection that is best suited to address their problem.

# RESEARCH ON CAMPAIGN EFFECTIVENESS

Research to evaluate road safety campaigns is vital to increase our understanding of their effects on a target audience, as well as the general population. Findings can help guide research, policy, and social marketing strategies at national, provincial/state, and local levels. More importantly, research enables communities to better recognize the ability, or lack thereof, of campaigns to change public knowledge, attitudes and behaviours, and ultimately, improve road safety.

This section examines the overall effectiveness of campaigns generally and explores effectiveness specifically in relation to a range of priority road safety issues. A broad cross-section of campaigns conducted in different countries, and that have been based upon different evaluation methods are described in this section. Each of these studies has added important findings to the body of knowledge surrounding campaigns. These campaigns also reflect the different theoretical models described in the previous section and help to illustrate the importance of reliance on a theoretical foundation to increase campaign effectiveness.

## Overall effectiveness

Prior research has demonstrated that road safety campaigns can change perceptions and reduce crashes. For instance, a European meta-analysis of 437 effects extracted from 228 international studies conducted in 14 countries during the past 30 years revealed that road safety campaigns generally:

- > reduced the number of road incidents by approximately 9%;
- > increased seatbelt use by 25%;
- > reduced speeding by 16%;
- > increased yielding behaviour by 37%; and,
- > increased risk comprehension by about 16% (Phillips et al. 2009).

Other evaluations, such as the study of a basic education campaign in Italy to raise awareness of the hazards of driving (including drinking and driving and distracted driving), have revealed that, while campaigns may be somewhat effective at reducing injuries, the reductions may not be a direct consequence of road safety education or marketing. Instead, these outcomes may be a consequence of associated enforcement efforts (Zampeeti et al. 2013). Nevertheless, campaigns serve an important function of raising awareness about specific road safety behaviours and their associated risks and a broader body of research has demonstrated their effectiveness in the absence of an enhanced enforcement component.

A subsequent European meta-analysis that examined 119 effects extracted from 67 international studies further revealed insight into the features of campaigns that contribute to effectiveness in terms of crash reductions. These features included:

- > drinking and driving campaigns;
- > shorter duration (less than one month);
- > personal communication;
- > roadside delivery, use of roadside media, or delivered in proximity to the behaviour occurring;
- > combined emotional/rational message has a stronger influence than a purely rational message;
- > accompanied by enforcement; and,
- > combined with mass media (Phillips et al. 2011).

It is important to understand the potential effect that different types of road safety campaigns can have on the attitudes and behaviours of road users, as well as the influential factors that make campaigns successful or not. This is necessary in order to be able to realistically conceive the potential effectiveness of a new campaign during its development. The following section discusses the effectiveness of specific types of road safety campaigns including those focused on drinking and driving, distracted driving, seat belt use, speeding, and vulnerable road users. Each section highlights some of the main research studies and evaluations that have been conducted on related campaigns from North American jurisdictions (beginning with the most recent evaluations), followed by international studies. A discussion of factors that were shown to influence the effectiveness of each type of campaign are presented subsequently as well as some of the barriers associated with each of these topics. Collectively, these findings can serve as a basis for local governments and community partners to begin to develop effective road safety communication campaigns.

## **Drinking and driving campaigns**

Significant reductions in the number of alcohol-related fatalities have occurred during the past two decades. In Canada, the number of deaths in crashes that involved a drinking driver declined from 1,296 deaths in 1995 to 744 in 2010, representing a decline in the percentage of alcohol-related fatalities from 38.8% in 1995 to 33.6% in 2010 (Brown et al. 2013). Despite these reductions, drinking and driving continues to be of significant concern for more than 70% of Canadians (Pashley et al. 2014), indicating the need for increased awareness and efforts to continue to reduce alcohol-impaired driving on roadways.

Drinking and driving campaigns, especially those combined with enforcement activity, have shown positive results based on existing evaluations. Indeed, mass media campaigns have been shown to be most effective in reducing drinking and driving if their messages are reinforced by other initiatives such as grassroots activities, law enforcement efforts, or other media messages (Boulanger 2007; Wundersitz et al. 2010). In fact, a 2003 road-side survey evaluation of Connecticut's impaired-driving high visibility enforcement (HVE) campaign, which targeted males ages 21-34, reported significant reductions in the proportion of drivers found to have a positive blood alcohol concentration (BAC) compared to the previous year (Zwicker et al. 2007). It was estimated that the campaign reduced overall fatalities by 2.6 deaths per month in Connecticut over an 18-month period (1.6 deaths per months for males ages 21-34). It was estimated

that if the campaign had not been implemented there would have been an additional 47 alcohol-related fatalities.

A comprehensive review of several international studies undertaken, conducted in the 1980s and 1990s, by the Centers for Disease Control and Prevention revealed that the median decrease in alcohol-related crashes resulting from drinking and driving campaigns was 13% (Elder et al. 2004). Even more encouraging, economic analyses have found that the societal benefits of drinking and driving campaigns are greater than the costs, and that these campaigns are considered effective in reducing alcohol impaired driving and alcohol-related crashes. The authors suggest that this was likely due to the fact that the campaigns reviewed were well-planned and executed, that they gained adequate audience exposure, and were implemented in conjunction with other ongoing prevention efforts, such as high visibility enforcement.

Combined campaign and enforcement efforts have also shown positive results in other countries. Anti-drinking and driving advertising and enforcement campaigns in Victoria, Australia were found to have a significant effect and reduced the number of serious crashes during periods of the week which typically experienced high alcohol consumption (Tay 2005). Similarly, in New Zealand, compulsory breath testing and enhanced media campaigns produced bigger benefit-cost ratios compared to compulsory breath testing alone (Miller et al. 2004).

A meta-analysis, conducted in Sweden, on road safety campaign effectiveness on road incidents found a statistically significant 14.4% decrease in road safety incidents as a result of drink driving campaigns (Vaa et al. 2004).

The decision to drink and drive can be influenced by many different factors. Unfortunately, public perceptions about road safety problems and common behaviours can be misguided by due to a lack of knowledge and awareness; misperceptions about social norms (i.e., beliefs and perceptions held by a group about how people behave in a given situation) have been shown to have an important influence on behaviour. Research has found that these perceptions and misperceptions significantly contribute to the reasons that individuals choose to drink and drive. For example, a study examining Montana's MOST of Us Don't Drink and Drive campaign found that among the minority of young adults who choose to drink and drive, most of those individuals did because they believed that they are no different from other young adults their age (Linkenbach & Perkins 2005). This

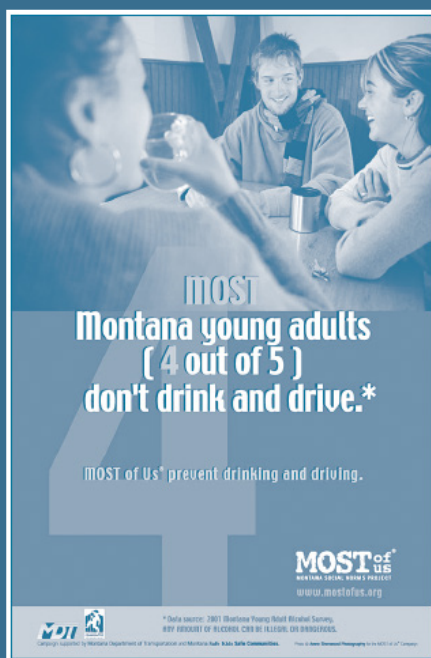
### Example 1:

- > Fear-based appeals were used extensively in Australia (1990-1995) and New Zealand (1995- 1999).
- > Campaign theme in Australia and New Zealand was "if you drink then drive, you're a bloody idiot" using graphic images of physical consequences.
- > Television was the primary medium for the message.
- > Target audience was primarily young males aged 18-24. Most crash reduction effects were found with young females and middle-aged males.
- > Cost in Australia was \$70 million (AUD) and \$50 million (NZD).



## Example 2:

- > Social norming campaign delivered in Western Montana.
- > Tagline was 4 out of 5 young adults don't drink and drive.
- > Campaign involved high dosage paid media including TV and radio PSAs, newspapers, billboards and movie slide ads. Control counties received low dosage exposure to free radio and TV PSAs and paid newspaper ads. Promotional items with message were distributed statewide.
- > Targeted audience 21 to 34 year olds.
- > Campaign lasted 15 months and cost \$500,000 USD.
- > It successfully changed perceptions about drinking and driving behaviour among peers in target communities.
- > Web link: [www.mostofus.org](http://www.mostofus.org)



implies that many individuals make the decision to drink and drive because they feel that a majority of their peers do, and therefore that the behaviour is 'normal', when in reality it is not.

Research has also shown that the effectiveness of messages using social norms that target drinking drivers is dependent on the general drinking behaviours of the target audience. A study from a Northeastern U.S. university concluded that non-drinkers were unaffected by messages about social norms, moderate-drinkers were positively affected, but heavy-drinkers rejected the messages and increased their drinking behaviours after being exposed to the messages (Yanovitzky 2004). A similar study found that individuals that are male, binge drink, consume large quantities of alcohol, drink and drive frequently, and are passengers with intoxicated drivers are more likely to make excuses to justify their actions than those not engaging in these behaviours. From these results it was concluded that, in order to be effective, campaign Public Service Announcements (PSAs) must account for these factors (Gotthoffer 2001). This creates a dilemma for the development of campaign messages targeting drinking drivers, as it demonstrates that messages conveying social norms may actually be rejected by certain subgroups of drivers. In other words, social norms messages may be counterproductive to reduce drinking and driving among those who most often engage in this behaviour if they are not carefully constructed in the following ways. First, messages should increase awareness of the risks and consequences of a behaviour. Second, messages should highlight the susceptibility of the target audience to those risks. Finally, messages should emphasize the consequences that are of greatest concern to the audience so that they easily recognize how these consequences would directly affect them in their local context.

## Distraction campaigns

Distracted driving behaviours, such as using cell phones or electronics while driving, have also garnered a growing amount of attention in the road safety field in recent years. In 2011, a survey conducted by TIRF revealed that approximately 36% of Canadians had used their cell phone while driving during the previous seven days, demonstrating the prevalence of this behaviour on roadways (Marcoux et al. 2012). An evaluation of the Phone in One Hand, Ticket in the Other campaign conducted by NHTSA revealed that campaigns using HVE and advertising are effective to increase public awareness of enforcement efforts, as well as to reduce the prevalence of certain distracted driving behaviours (Chaudhary et al. 2014). The results of the evaluation, which examined the awareness of the campaign and observed cell phone use in two experimental cities (Hartford, CT and Syracuse, NY) and two control sites (Bridgeport/Standford, CT and Albany, NY) showed that the increase in the percentage of people who had heard, read, or seen enforcement in Connecticut and New York was greater in the sites that were exposed to the campaign messages. In the Connecticut sites, observed cell phone use dropped 57% in the experimental site (Hartford) compared to only 15% at the control sites, representing a statistically significant difference. However, although both sites reported decreases in observed cell phone use after the campaign, the differences were not found to be significantly different between the New York sites. Researchers postulated that the reason for the lack of difference in the control site could be due to a separate campaign that ran in the Albany area around the same time as the campaign in Syracuse, which elicited similar reductions in cell phone use.

## Seat belt campaigns

The dangers of not wearing a seat belt while driving or riding in a moving vehicle are well-known. According to Transport Canada, in 2007 “the 7% of Canadians not wearing seat belts accounted

### Example 3:

- > High visibility enforcement campaign in Syracuse, New York and Hartford, Connecticut that underscored penalties and consequences.
- > Tagline was ‘Phone in one hand, ticket in the other’.
- > Campaign delivered in English and Spanish with heavy media coverage and support from stakeholders.
- > Target audience was drivers aged 18-45 based on data analysis to identify crash problem.
- > Delivered 4 waves of enforcement between April 2010 and April 2011. The first wave was 2 weeks, the other phases were 1 week.
- > Campaign cost \$559,161 USD.
- > Driver surveys showed increased awareness that laws were being enforced, and recognition of slogan.
- > Web link: [www.distraction.gov](http://www.distraction.gov)



for almost 40% of fatalities in vehicle collisions". Since the 1980s, seat belt use has been on the rise

worldwide and these increases have been credited, in part, to effective seat belt campaigns.

#### Example 4:

- > Quebec utilized a fear-based appeal seatbelt campaign in the late 1980s and early 1990s.
- > The tagline was "be smart, stay alive, buckle up". Visuals equated a 40km/hr crash with a fall off of a 3-storey building by a man with a loaf of bread in one hand and quart of milk in the other, suggesting short trips close to home where most crashes occurred; follow up campaign targeted back seat passengers.
- > Campaign challenged myth that low speed crashes are not dangerous and illustrated negative consequences but made it difficult for the audience to reject the message.
- > Delivered using mass media (TV and radio) and collateral materials.
- > Campaign cost was \$1 million CAD for first phase and \$1.2 million CAD for second phase.
- > It raised usage rates from 67% (one of lowest levels in Canada) to over 93% and changed behaviour among young males who were least likely to buckle up. Longevity and persistence combined with powerful message were keys to success.



In the United States, one of the most successfully implemented and recognized seat belt campaigns, *Click It or Ticket*, began in North Carolina during 1993. The campaign consisted of short duration, high-visibility enforcement and advertising of seat belt laws. Soon other states began using the campaign either partially or fully, and an evaluation in 2002 revealed that the greatest increases in belt use occurred in states that had implemented the full campaign program, compared to those with partial or no implementation (Solomon et al. 2004). Shortly thereafter, the program was implemented nationally and delivered on an annual basis. Subsequent evaluations showed that the campaign continued to create positive outcomes among drivers (Solomon et al. 2009). Not only did awareness of the campaign and enforcement efforts continue to increase between the years 2002-2006, but self-reported rates of seat belt use increased from 75% in 2002 to 82% in 2006. Even more encouraging, studies found that this campaign had also been effective in increasing seat belt use in states with secondary enforcement seat belt laws, or those laws that only allowed police officers to write tickets for not wearing seat belts during a traffic stop when the driver was stopped for a different violation or offence (Vasudevan et al. 2009).

There are also other campaign efforts in North America that have proved effective in promoting seat belt use. A nighttime seat belt enforcement campaign using PSAs, press releases and media coverage as part of a campaign in Reading, Pennsylvania showed significant increases (from 50% to 56%) in seat belt use among front seat occupants after the initiative (Chaudhary et al. 2005). Quebec's *Buckle Up* campaign was

conducted in two separate campaign efforts from 1986 to 1990. The first involved media depictions of non-use of seat belts at 40km/hr as being equivalent to falling from a three-story building. The illustration of this was a man running off the edge of a three-storey building with a loaf of bread in one hand and a quart of milk in the other, illustrating the often-made short trip to the local corner store for necessities. This message was a means to shock people into realising the dangers associated with not wearing a seat belt, but in a way that was personally relevant but not shocking or threatening. The second effort involved a media campaign to increase awareness of the consequences of failing to wear a seat belt for back seat passengers. It equated the unbelted backseat passenger with the force of a flying object 35 times its weight. Evaluation results from this campaign showed increases in seat belt rates from one of the lowest rates in Canada at 67.7% to 93.5% overall (Meunier et al. 1993). Furthermore, the Societe de l'Assurance Automobile Quebec (SAAQ) estimated that approximately 24 lives were saved as a result of the campaign, and 1,510 additional injuries in road incidents per year in Quebec were avoided. Similar results were seen from a three-week enforcement and publicity campaign in Elmira, NY in 1985 in which belt use rose from 49% before to 77% directly after the campaign; it declined to 66% two months after the campaign had been delivered (Williams et al. 1987).

International evaluations have shown comparable outcomes from seat belt campaign evaluations. In Belgium, the difference between direct and indirect seat belt campaign materials was investigated (Brijs et al. 2009). Three study groups (i.e., attentive/direct, inattentive/indirect, and control group) were assessed using a questionnaire survey about participant attitudes, behaviours and awareness of campaign materials. Participants subjected to the direct marketing strategy of the campaign were significantly different from the indirect and control groups in terms of certain variables including motivation and behavioural

### Example 5:

- > Belgian seatbelt campaign designed to increase belt use. Focus on lower speed crashes in urban areas based on crash analysis. Campaign utilized theory of planned behaviour.
- > Tagline was “the safety belt. one second changes everything” or “la ceinture, une seconde qui change tout”.
- > National campaign in 2008; effects on high school and university students were studied.
- > Campaign consisted of a mix of campaign materials including TV spots, posters, bumper stickers, website, leaflets, billboards on roadways, television programs.
- > Target audience was drivers and passengers.
- > Campaign cost was
- > Study revealed that being exposed does not guarantee an effect and that awareness of exposure is important; visual interest and message placement influence awareness.



attention. However, it was found that the groups exposed to the indirect campaign strategy did not differ significantly from the control group. This means that there is a difference between exposure to the message and actual awareness of it, and suggested that where and how a message is presented to the target audience is just as important as the message itself. Another evaluation of a Dutch campaign in The Netherlands revealed increased seat belt use, particularly among front and rear seat passengers, from 68% before the campaign to between 82.7-94.9% after the campaign (Tamis 2009).

Countries that have traditionally had very low seat belt usage rates have also benefitted from communication and educational campaigns. For instance, in Jordan, belt use increased from 19% to 28% four months after an educational seat belt campaign was introduced (Tarawneh et al. 2001). Interestingly, the study found that the campaign had a greater effect on males than females.

Studies have also examined the characteristics of specific groups of road users that may make them more or less influenced by a seat belt campaign, as well as the reasons behind this motivation. Research has shown that non-users who believe it is less important to wear a seatbelt are less motivated to protect their own safety, are less likely to agree with seatbelt laws, and their seatbelt use is more motivated by the desire to avoid sanctions than self-protection. Conversely, those who do wear a seatbelt are more motivated by safety concerns and are more likely to agree with seatbelt laws and agree seatbelt usage is important (Tamis 2009). As such, the message that is most likely to produce a behavior change in each of these groups is different. A national telephone survey conducted in the U.S. to monitor changes in public awareness and perceptions revealed that lower self-reported belt use rates occur among males; persons aged 18-34; persons with lower income; persons with lower education levels; persons living in rural areas; and, persons who live in states without a primary seatbelt law (i.e., police officer can stop a driver solely for a seatbelt violation with no other violation; Milano et al. 2004). Other research has hypothesized that failed safety belt campaign and enforcement efforts may be due to lack of coordinated efforts, effective campaign management, or failure to link public information and education to consequences of a specific behaviour (Kaye et al. 1995).

## **Speeding and aggressive driving campaigns**

According to the Canadian Council of Motor Transport Administrators (CCMTA 2007), over 20% of collisions involve excessive speeding or situations where the speed of a vehicle is too fast for the driving conditions. In addition, public concern about speeding is highly ranked with respect to traffic safety issues; more than two-thirds of Canadians (67.9%) reported that they view excessive speeding as a very important road safety issue (Vanlaar et al. 2008). This is compounded by the fact that just over 80% of respondents reported that they often see others exceeding the speed limit.

Speeding and aggressive driving behaviours tend to go hand in hand. Aggressive driving behaviours include: running red lights; speeding up to get through a light before it changes; street racing; excessive speeding; swearing or making rude signs at other drivers; using the horn when being annoyed; and, taking risks just for fun (Vanlaar et al. 2008). The Smooth Operator Program, founded in 1997 by the U.S.



National Highway Traffic Safety Administration (NHTSA), has continued to target attitudes and actions towards speeding and aggressive driving in Maryland, the District of Columbia, and Northern Virginia for more than a decade with the slogan, “Speeding is Aggressive Driving and It Stops Here”. The social marketing campaign was combined with law enforcement efforts and has proven effective in changing attitudes and behaviours surrounding speeding and aggressive driving. A pre and post-campaign evaluation found that the perceived likelihood of receiving an aggressive driving ticket increased 22% between 2009 and 2011. This demonstrated that the campaign was effective in raising awareness about the consequences of aggressive driving behaviours (Smooth Operator Program, unknown date).

In Florida, an aggressive driving campaign called the Better Driver Campaign was launched from 2004 to 2008. The campaign focused on increasing awareness about the hazards of aggressive driving through public education and providing tips to deal with those types of situations. The campaign slogan “Aggressive Driving Gets You Nowhere Fast” was featured on billboard advertising, a campaign website, and used in public outreach activities. A before-after survey evaluation of the campaign showed that it was effective in increasing knowledge and awareness of aggressive driving among drivers (Lee et al. 2010). It also revealed that there was a disparity between the behaviours that the public perceived as aggressive driving versus behaviours that were recognized as aggressive driving according to Florida law. This difference was likely due to the ambiguity associated with the term aggressive driving and demonstrates the importance of defining behaviours that are targeted by campaigns, an delivering clear and informed messages that portray the objective reality of an issue.

### Example 6:

- > Jordanian seatbelt campaign (1999) designed to increase belt use. Campaign incorporated protection motivation theory.
- > Tagline was “seatbelts may not be comfortable at first, with use you get used to it” and emphasized the benefits of seatbelts using positive images.
- > Delivered over four month period through mosques/churches, TV and radio, newspapers and televised educational programs with experts.
- > Target audience was general public.
- > Observational survey and in-person interviews showed increased usage rates and revealed that mosques/ churches were an effective way to reach the target audience.

Results from an evaluation of the Slovenian anti-speeding campaign Speeding is Worth Regretting!, showed that the campaign was effective in changing participants’ normative beliefs, personal norms, behavioural intentions, and self-reported speeding behaviours (Divjak and Zabukovec 2009). The 2008 campaign used messages that associated speeding with negative emotions such as regret and grief that implied consequential death or severe injury, but did not contain content that was overtly shocking or highly fear-evoking. The campaign relied on television, radio and outdoor advertising in combination with heightened police enforcement efforts. Following the campaign, participants assessed their personal

responsibility to respect speed limits, and their intentions not to speed as more positive; they also reported speeding less frequently.

In New Zealand, a study was conducted to determine whether public safety messages, using ‘shock ads’ (i.e., those showing adverse or shocking outcomes of bad driving behaviour) were effective in reaching their target audience (Walton and McKeown 2001). Similar to the results seen from evaluations of other types of road safety campaigns, speeding campaigns were been found to be more or less effective depending on the specific characteristics of the audience. For example, people who had a biased perception of their own speed relative to others were more likely to ignore advertising campaigns related to speeding. Moreover, people who believed they drove faster than the average driver were found to be more likely to accept the campaign message, whereas those who believed that they drove slower than the average driver assumed the message was aimed at others, even if their perception was incorrect with respect to the average. This again highlights the need to understand social norms underlying campaign issues in order to develop effective campaign messages.

### **Vulnerable road users**

Although drinking and driving, seat belt use, and speeding are three of the most recognized road safety issues that have traditionally been a focus of campaigns, there are a range of other topics that have also been addressed using communication campaign strategies. In recent years, issues related to vulnerable road users (i.e., pedestrians, cyclists and motorcyclists) have also gained greater visibility and become sources of concern.

In the past decade, *Share the Road* campaigns have increasingly been implemented worldwide. These campaigns, which target vulnerable road users, rely upon a variety of approaches including mass media and social media to improve public knowledge and awareness about this issue and to encourage all road users to “share the road”. A review of 70 *Share the Road* campaigns implemented across Canada, the United States, Australia, and New Zealand was undertaken to determine the impact of these campaigns on road safety and to identify opportunities to improve the safety of all road users (Baglo et al. 2013). The review revealed common themes among these campaigns, including:

- > the largely-adopted use of positive emotional messages, as well as non-traditional approaches;
- > the promotion of the idea that road use is a shared responsibility; and,
- > the dissemination of messages through advertisements on buses, bus stops, brochures, and radio.

### **Limitations of the research**

Although the research and evaluations discussed in the previous sections suggest that road safety campaigns can be an effective tool to raise public awareness and change the behaviours of road users, there are some important considerations that should be acknowledged in relation to estimates of the effectiveness of any program.

- > Campaigns are generally not systematically and empirically evaluated. Many campaigns, especially those implemented at the community-level, are not evaluated at all, and oftentimes if campaigns are evaluated, the evaluation plan is not developed in conjunction with the campaign. As a consequence, adequate measures or data may not be readily available which can undermine the rigor of the evaluation.
- > It is difficult to determine how to accurately and objectively measure the impact of a campaign on a specific population, and this is one of the leading issues surrounding the evaluation of road safety campaigns. In other words, it can be difficult to identify appropriate outcome measures that demonstrate the effectiveness of a campaign. Many evaluation measures used include surveys of attitudes, perceptions, and behaviours of road users related to the campaign and its targeted issue. While self-report data can be very useful to understand and interpret message penetration and public concern, these measures do not capture actual changes in behaviour, meaning that data could potentially suffer from issues related to response bias. In other words, it is difficult to gauge if the reported behaviours reflect actual behaviour, making it difficult to definitively conclude that the campaign improved safety on the roads. Observational surveys (i.e., road-side observations to detect increases/decreases of a specific behaviour) provide a solution to this problem but are expensive and time-consuming. Hence, such surveys are not often practical or feasible in a local context.
- > There are also a variety of methodological research design challenges that are often encountered during road safety campaign evaluations. For example, it can be difficult to identify comparable or representative control groups (i.e., similar populations who are not exposed to the campaign) whose behaviours can be compared to those who are exposed in order to measure behaviour change across the groups. Often, neighboring cities or jurisdictions where the campaign is not disseminated are used as control groups. However, this approach does not always result in truly similar control populations (i.e., demographic characteristics and distributions may differ), and researchers cannot be sure that members of the control group are not exposed to the campaign in some way or another. Control group areas may also be exposed to other factors or campaigns that could influence behaviour in similar ways to the experimental group, as was the case demonstrated in NHTSA's distracted driving campaign evaluation (Chaudhary et al. 2014).
- > Similarly, considering that many campaigns consist of multiple strategies (e.g., enforcement, TV advertisements, billboards) to ensure that the campaign message is heard and adopted, it becomes difficult for researchers to discern which campaign components contribute most to the effectiveness, or lack thereof, of a campaign.

## Summary

It is clear that research has proven that it is possible to influence behaviour through the delivery of well-designed and well-executed road safety campaigns. In particular, this review reveals some important lessons that can be drawn from the research to guide the activities of local communities. These lessons are briefly summarized below.

1. Campaigns that are based on a solid theoretical foundation are more likely to successfully influence behaviour. Many of the campaigns discussed in this section in relation to effectiveness can be clearly linked to one of several theories discussed in the previous section. As such, adopting a particular model can serve to guide the development of a coherent, cohesive and logical campaign that can better achieve the desired outcomes.



- 2.** The issue addressed by the campaign may influence the level of effectiveness that can be achieved, particularly within a given time period. Campaigns targeting drinking and driving behaviour have been shown to be more effective, however this finding should be considered with the following caveats in mind. First, there have been more evaluations, and more well-designed and current evaluations of drinking and driving campaigns relative to other types of behaviours such as distraction, pedestrians or cyclists, and fatigue. Second, there is a stronger moral imperative associated with drinking and driving than perhaps issues such as speeding and seatbelt use. In this regard, attitudes supporting the non-use of seatbelts are not viewed in the same way as attitudes that drinking and driving is acceptable. In other words, some problem behaviours (e.g., distraction) that are engaged in by a larger portion of the population, and for which the risks or consequences are less clear, may be more difficult to change as compared to other issues for which the evidence is clear and well-known (e.g., drinking and driving). Moreover, the behaviours of some individuals may be more easily changed than others. As such, with Canada's seatbelt usage rate of 93%, it may require more energy and resources to change the behaviour of the remaining 7% who have been unaffected by previous efforts. This suggests that the 'law of diminishing returns' is applicable and expectations pertaining to outcomes should be pursued with this in mind.
- 3.** A well-designed campaign is based upon three important factors. The first factor is an analysis of local data to quantify the extent of the road safety problem and its characteristics; an element that is common across the studies highlighted in this section. These data are essential to ensure that there is a need to address the road safety issue and that the campaign can be appropriately targeted to the relevant audience. For example, local data may show that distracted driving is in fact significant contributor to road crashes in the community, and both male and female drivers aged 25 to 45 often engage in this behaviour. This would suggest that a distracted driving campaign targeted towards this audience would be an appropriate strategy for this community.

The second factor involves understanding why people are engaging in the behaviour. This may be due to misinformation or misperceptions about the problem, local attitudes towards the behaviour in terms of its acceptability, misunderstanding of the risks, or because the problem behaviour is easier and more attractive than safer alternatives. Recognizing why people engage in the behaviour is necessary in order to identify what types of messages can best influence it (e.g., fact-based, fear-based, persuasive, social norming). The third factor relates to the messaging and design of a campaign. The tone and content of the message as well as its visual presentation and imagery must resonate with the personal experiences of drivers whose behaviour is targeted. These messages should be compelling or persuasive, interesting, attractive, and evoke an emotional response to help ensure that drivers are not only aware of messages, but likely to accept them.

- 4.** Well-executed campaigns are those that carefully consider the use of various campaign tools and strategically select those that are most accessible, practical, and likely to reach the target audience, particularly if budgets are limited. While there is often a desire to utilize a broad spectrum of tools in diverse locations to maximize reach and penetration, and cost is always a factor, the guiding strategy should not lose sight of the characteristics of the target audience and where the behaviour is most likely to occur. Hence it may be more feasible and efficient to deliver posters in places of business frequented by the target population, to place billboards on the roads where they are likely to drive or at high crash locations, or to utilize radio public service announcements during peak driving periods

when the behaviour is likely to occur. Similarly, if the target audience spends less time watching TV or online, these may not be the most efficient strategies to reach them, and they are unlikely to be engaged in the problem behaviour during these moments.

- 5.** The duration of the program is linked to its effectiveness. To this end, positive outcomes can be achieved with campaigns that are delivered for fairly short periods of just one month and it is not necessary to sustain such campaigns over a longer period if it is neither practical nor feasible to do so. Having said that, it is also possible to utilize a campaign over a much longer period of a few years by intermittently refreshing it with new messages, but using the same theme and topic, to reinforce behaviour change on a larger scale. This can help to keep the issue ‘top of mind’ without expending significant resources, and serves the larger purpose of re-shaping attitudes and social norms related to an issue. To illustrate, repeated and continuous messaging conveying that drinking and driving is risky and has serious consequences has produced widespread consensus that drinking and driving is unacceptable. Similarly, campaigns underscoring the importance of wearing a seatbelt has resulted some 93% of Canadians wearing their seatbelt in a vehicle. Neither of these changes happened quickly or in a short time frame, but were instead achieved over a much longer period, resulting in widespread social change.
- 6.** Social norms should not be overlooked in the development of campaign as this is an important factor that influences behaviour. Social norms vary across road safety issues, and communities should be sensitive to the existence of social norms when developing a campaign. In particular, if prevailing attitudes towards a particular problem behaviour suggest that it is acceptable (either explicitly or implicitly) than the use of a social norming approach is probably not the best strategy for a campaign.
- 7.** Fear-based appeals can have value if used appropriately. As such, if communities desire to use this approach, there are some important caveats to keep in mind. Hastings et al. (2004) underscores that these types of messages may be more culturally appropriate in some jurisdictions than others due to differences in general styles of communication and acceptable ways that information is shared. So while such appeals were effective in Australia and New Zealand, these messages may not have the same effect in North America or Europe. These messages should be conveyed in a way that makes it difficult for the target audience to discount or ignore the consequences (i.e., to minimize defensive avoidance), and should be accompanied by actions that the audience can easily rely upon to protect themselves from such consequences. Of equal importance, if communities do opt to pursue a fear-based approach, they are encouraged to first focus group test the message with the target audience to ensure that it will not be rejected or discounted. They should also consider other strategies to convey the same message. To this end, ‘whether fear-based appeals are effective is less important than whether this type of information works better than others’ (SWOV 2009; p.3).
- 8.** There are a variety of external and environmental factors that shape behaviour. In addition to the attitudes of peers and social norms, people are also influenced by the presence of social controls and barriers to the behaviour. It is also easier to change behaviour when messages are delivered in close proximity to it. This means that a core objective should be to reach drivers when they are in their vehicle, and the use of enforcement strategies to augment the delivery of campaigns if practical and feasible, can strengthen barriers to the behaviour and increase controls to help prevent it.
- 9.** Perhaps most importantly, this knowledge and learning is available because jurisdictions chose to pursue the evaluation of their respective campaigns. While important lessons have been learned from previous campaign evaluations, there is still a considerable need to develop and adopt better and

more rigorous approaches to evaluations. In particular, evaluations based upon observational or crash report data could provide greater insight into the impact of campaigns have on overall road safety and behaviours. As such, communities should also not overlook the importance of evaluation in relation to their own campaigns, and incorporate this into the planning process.

# LEARNING STYLES AND EDUCATIONAL THEORY

Road safety campaigns have the potential to be enhanced by incorporating effective learning theories from the field of education. Many campaigns aim to increase knowledge, understanding and affect attitudes of specific audiences, and incorporating effective learning strategies can help further optimize behaviour and perceptual changes.

Learning is largely believed to be the process of acquiring, understanding, and absorbing of new information, attitudes, and perceptions. However, the application of knowledge is required to truly complete the process. In other words, teaching and learning is obsolete if the acquired knowledge is not transferred into an action of one kind or another (Pfeffer and Sutton 2000). This applies heavily to communication and marketing campaigns, especially those targeting road user behaviours, because the message of the campaign must not only educate the target population but evoke a desired change in practice and behaviour to make roads safer.

The field of education hosts a plethora of different theories about how individuals learn and adapt. Similarly, there are many variations of learning styles (i.e., the situation in which learning occurs) and it is generally agreed that most people respond best to a combination of approaches. It is for this reason that campaigns should attempt to appeal to as many types of learners as possible. For the purposes of this report, the three most commonly used learning styles are discussed, acknowledging the possibility of other theoretical styles and approaches. These three learning styles are based on Neil Fleming's VAK (visual, auditory, kinesthetic) model.

The VAK model discussed above hypothesizes that there are three different situations in which individuals learn and process new information. It further proposes that some people learn better using one approach over another. Visual learners learn best through imagery and visual presentation of information. Additionally, visual learners are able to remember information more easily when it is associated with an image or written word. To appeal to the visual learner, campaign messages and branding should be associated with distinct and specific imagery in order to instill a memorable impact on the audience.

Auditory learners, on the other hand, learn and retain information through hearing and speaking. Auditory learners are often identified as needing to repeat words and phrases out loud as a means of reinforcing new knowledge and information recall. Creating easily identifiable and catchy slogans or theme songs/jingles, increases the likelihood that a campaign message will be remembered by this type of learner.

The last style of learning in the VAK model is kinesthetic learning. According to the theory, kinesthetic learners best acquire knowledge through hands-on learning and exploration. Individuals are better at demonstrating and applying information acquisition than explaining it. For instance, one may often find that these individuals struggle to verbalize an idea, but have no trouble showing how it can be done. This last learning style is very important to address within a mass media communication campaign because it requires that the desired behaviour be demonstrated in some way. Furthermore, campaigns should

encourage their audience to “try it for themselves” as a means of reinforcing the desired outcome for these learners.

In addition to learning styles, there are some overall considerations that should be taken into account when designing any kind of road safety campaign. As stated earlier, learning is not a passive event but rather an experience that requires an individual to act upon new knowledge. In the theory of Active Learning, individuals are encouraged to take control over their actions by putting the onus on them to recognize what they do or do not know, and to reflect upon their own behaviours rationally to determine if change is needed. Campaigns should strive to promote self-reflection and stress individual responsibility to make the necessary change.

Motivation (i.e., the internal state that guides and sustains behaviour and intentions) also plays an important role in the desire or willingness to learn. If there is no motivation to consider a desired change, it is unlikely that individuals will respond to a campaign. Messages should identify and address both intrinsic (innate factors) and extrinsic (external factors) motivators in a campaign. Examples of intrinsic motivational factors can include encouraging individuals to identify and set personal goals, or relating road safety issues to real life situations that may affect them. Conversely, extrinsic motivators could include giving incentives for changing behaviour or highlighting the consequences of failing to make the proposed change.

# RECOMMENDATIONS TO GUIDE ROAD SAFETY CAMPAIGNS

The following section is intended to provide local governments and community partners with guidelines to inform the development, implementation and evaluation of effective road safety campaigns. These recommendations are based on existing research drawn from the fields of road safety and health, as well as the knowledge and expertise of experienced professionals. It is underscored that knowledge about road safety campaign effectiveness continues to evolve and grow.

## Target audience

The first step to create a road safety campaign is to acquire data and information to better understand the audience that engages in the problem behaviour to be targeted by the campaign. Whereas provincial and national campaigns may aim to reach a broad audience, community-based campaigns may have a very specific audience, or focus on a much smaller population. Regardless of audience size, the segmentation of the audience can help focus the campaign on the distinct characteristics of a specific group.

As such, data about road users, factors that contribute to the problem and the context in which the targeted behaviour occurs can be useful. Any analyses about the target audience or information about related campaigns (Delhomme et al. 2009) can further increase understanding of the target audience. In other words, local governments and community partners are encouraged to develop a solid understanding of the characteristics, knowledge, beliefs and behaviours of the at-risk population that is data-driven and systematic. At a minimum, this may include pre-testing about issues to gather baseline measurements prior to the campaign and an analysis of available traffic data. It could also include behavioural observations, surveys, interviews or focus groups (Boulanger et al. 2007; Wundersitz et al. 2010). These pre-campaign measures can be invaluable to inform the design and dissemination of a road safety campaign. For instance, a focus group conducted in Nova Scotia revealed that more Nova Scotians were on Facebook as compared to those who watched TV or read the newspaper. This suggested that their Share the Road campaign may have better reached the audience through social media channels as compared to other media formats (Baglo et al. 2013).

Understanding a target audience goes beyond simply collecting information about the typical behaviours and attitudes of a specific population. In order to influence individuals, one must have a solid understanding of the context and motives in which the targeted behaviour or attitude occurs. This can be a very telling factor, especially in the local context where very specific factors (e.g., limited access to public transportation or cultural attitudes) can play a role in shaping why individuals choose to behave a certain way, or perceive a road behaviour as appropriate. Linkenbach and Perkins (2005) postulate that understanding existing social norms is imperative to a successful road safety communications campaign. For example, their research demonstrated that young adults who choose to drink and drive typically believe they act the same as most young people their age, and that the majority of others engage in the

same behaviours. Similarly, it is important to remember that audiences are not passive receivers. Audience motivation must be taken into account in order to make sure that the message is developed to appeal directly to a particular audience (Wundersitz et al. 2010). Consequently, understanding existing underlying factors can allow local governments and community partners to design a campaign in terms of messaging and delivery to address very specific influences.

Lastly, while it is essential to concentrate the development of a campaign on the target audience, it is also important to consider other audiences who could potentially help influence the primary population (Delhomme et al. 2009). For instance, a campaign that targets distracted driving behaviours among teens may also benefit from materials or messages that resonate with parents of teen drivers. This would potentially allow a campaign to influence the target audience on multiple fronts, as the behaviour of parents can shape the behaviour of teens. Understanding the environment and socio-demographic variables that are present in the local context can help to identify all populations, including those that could assist in developing effective campaigns.

#### **Recommendations:**

- > Establish a specific target population through objective measures and evaluations.
- > Identify underlying factors (e.g., motivation, social norms) that contribute to perceptions, attitudes, and behaviours in the local-context.
- > Consider secondary populations that could also influence the primary target audience.

### **Stakeholder engagement**

The development and implementation of road safety campaigns requires a team effort. Hence it is important to identify natural partners who can contribute to and assist with the development and implementation of these campaigns. In every community, the composition of stakeholders may vary. However, some of the potential partners to consider include police, public health officers, local transportation departments, automobile clubs, local businesses and advocacy organizations.

To build effective partnerships with these stakeholders, it is essential to understand the mission, goals, and activities of each partner to determine how road safety campaigns can complement and/or benefit their respective organizations. This can help build much needed buy-in from partners. At the same time, knowledge about the politics that influence each organization and their abilities to engage in certain tasks (e.g., fundraising) or to work with others can help ensure that the roles and responsibilities of each partner are clearly defined and appropriate, and that expectations are consistent with these qualities.

In addition, taking time to learn more about the day-to-day operational practices of partners is useful so that tasks can be matched with their natural abilities or the ease with which they can do things. Recognizing agency strengths in terms of what they do well, and which partners may have access to relevant skillsets such as communications, marketing and design, fundraising, and influential partnerships

can also ensure that the right persons are engaged in various tasks. Not only does this make it more efficient for partners to complete these tasks, but it also enables them to make an important contribution to the campaign. Hence, this matching creates a sense of satisfaction that is valued and that keeps stakeholders engaged. Similarly, understanding the membership, and the types of communication mechanisms or tools each partner uses for dissemination and outreach can provide important insight into opportunities to strengthen campaign penetration and reach.

To ensure that partners continue to remain engaged throughout the process, it is important that committees and meetings have clear agendas, assignment of responsibility for tasks and action items, as well as clear timelines to ensure the work is completed. Partners are more likely to remain active throughout the process if progress is continuously achieved and goals are met. At the same time, it must be acknowledged that partners are volunteering their time and resources to this activity, and efforts are also needed to accommodate schedules and competing demands.

Finally, and most importantly, regular and timely communication with partners about work plans, timelines, obstacles and how they are being addressed, responsibilities and outcomes is essential to ensure ongoing interest in and support for the campaign.

#### **Recommendations:**

- > Identify natural partners who can contribute to and assist with the development and implementation of these campaigns.
- > Understand the mission, goals, and activities of each partner to determine how road safety campaigns can complement and/or benefit their respective organizations to build buy-in.
- > Learn more about the day-to-day operational practices of partners so that tasks can be matched with their natural abilities or the ease with which they can do things. Matching creates a sense of satisfaction that is valued and that keeps stakeholders engaged.
- > Understanding the membership, and the types of communication mechanisms or tools each partner uses for dissemination and outreach can provide important insight into opportunities to strengthen campaign penetration and reach.
- > Partners are more likely to remain active throughout the process if progress is continuously achieved and goals are met.
- > Timely and regular communication keeps stakeholders engaged.

## **Message**

Once a target audience has been identified and the necessary stakeholders established, the next step is to develop a campaign message. Developing an effective and attractive campaign message is crucial to capturing an audience's attention and convincing them to consider the desired outcome in any context,



including local communities. Educational and behaviour change principles, discussed in previous sections, provide a basis to guide campaign development.

Message development often relies on several key players that are involved in campaigns. While local governments and community partners may have the expertise and content knowledge about the target issue, they may lack a creative design perspective that others can provide. If the stakeholders among the target audience do not have access to a creative department of some kind, it may be worthwhile to consider seeking outside resources (e.g. marketing firms to donate time, university students in marketing programs) to help develop attractive and appealing campaign messages. If resources are limited, which is often the case, it may be useful to pursue and rely on in-kind donations, particularly from businesses that undertake marketing campaigns.

The core objectives, as well as the desired outcomes, of the campaign must be clearly articulated and conveyed to the target audience in a way that interests and engages them. Most messages fit into one of two categories: those that are informational; and, those that are persuasive (Atkins and Rice 2013).

- > Informational messages are designed to provide direct and comprehensive information to individuals.
- > Persuasive messages aim to encourage people to change their attitudes or behaviours.

It is also important to consider messages that are specifically tailored to the target population. Community-based campaigns that are tailored to the unique needs of the target population (e.g., socio-economic status) are more effective than generic campaigns (Klassen et al. 2000). In other words, what may be appealing to one population may be ineffective for another. Messages should focus on (Aldoory and Bonzo 2005):

- > simple, minor, and easy prevention techniques;
- > encouraging confidence to make a change;
- > emphasizing benefits over risks;
- > addressing and reducing constraints or barriers to action; and,
- > considering mediating factors in message design (e.g., age, sex).

Since community-based communication campaigns typically have a relatively small window of opportunity to address an audience, it is important to ensure that it creates an impact and is specific rather than broad in its objectives. Messages also need to be credible, persuasive, relevant, appealing, and communicate that the desired outcome is easily achievable (Delhomme et al. 2009). To this end, local governments and community partners should consider positively-framed advertising messages, as opposed to those that are negative or fear-evoking, as research has shown that they can be just as, or even more, effective in influencing road behaviour (Sibley and Harre 2009; Cismaru et al. 2009). Additionally, messages that target social norms have also been shown to be effective at changing attitudes, perceptions, and reported behaviours (Linkenbach and Perkins 2005). For this reason, it may be necessary and important to develop

multiple messages as opposed to a single slogan. However, each message should center on the overall objectives of the campaign and be clearly identifiable as part of the overarching campaign.

Lastly, messages should account for any foreseen obstacles or hesitations that the target audience within the community might encounter. Behaviour rationalization is one of the factors impacting the decision to change. Research has demonstrated that people's inability to accept a message as necessary or relevant to their own behaviour stems from four factors:

- > low perceived susceptibility to the negative consequences of the behaviour;
- > a failure to believe in the seriousness of the problem;
- > a lack of perceived risk; and,
- > the belief that behaviour change costs more than the benefits of performing the behaviour (Gotthoffer 2001).

Messages should attempt to challenge these four areas in order to ensure that individuals do not misperceive the risks associated with the issue, or ignore them.

#### **Recommendations:**

- > Messages should be tailored and relevant to the target audience.
- > Message development should rely on effective social and educational theories and principles.
- > Campaigns should adopt a direct and understandable messaging approach that includes both informational and persuasive messages.
- > Positively-framed messages, targeting social norms, should be used.

## **Means of communication**

Decisions related to where, when, and how to communicate a campaign message can be just as important as decisions about the message itself. Local governments and community partners must determine the best and most appropriate means to reach the target audience, as well as gauge the feasibility of these means in the context of the community. This means considering a wide variety of available media and resources as part of the dissemination strategy for the campaign.

Today, there are many more mechanisms that can be used to advertise, distribute, and display campaign messages including, social media, print ads, PSAs, television and internet ads, to name a few. Each type of communication has its advantages and disadvantages. For example, Delhomme et al. (2009) found that TV is the most cost effective means to reach a large audience and can easily disseminate complex messages. However, TV media campaigns can also have high production costs and tend to be short-lived in duration compared to other means. For this reason, TV advertising may not be as appropriate in community-based campaign dissemination as other means that are more cost-effective for a smaller audience. On the

other hand, outdoor media was found to have high exposure, long lifespans, and low costs but also low information capacity. Communities using these approaches should choose locations with high traffic flow among the target audience. Social media has also been touted as a free and effective means of delivering campaign messages that can reach a wide audience; this option may be preferable for communities with limited budgets for advertising and publicity. However, this approach also requires access to a computer or internet-capable device, and may be less effective for older audiences (Baglo et al. 2013) who may be less likely to use these tools. Determining the appropriateness and estimated effectiveness of a particular method of communication relies on several factors. Such factors can include:

- > consideration of the social and behavioural characteristics of the target audience (e.g., younger audiences may be more receptive to social media communication than older adults);
- > complexity of the message;
- > time and location in which the targeted behaviour takes place; and,
- > the cost of implementation.

Moreover, community-based road safety campaigns require specific considerations that differ from other communication strategies. These types of campaigns allow for a unique opportunity to target behaviours at the source. Radio and outdoor advertising, such as signs along roadways, would be particularly relevant to local road safety messages since they provide the best opportunity to deliver messages as the targeted behaviour (i.e., driving) occurs (Wundersitz et al. 2010). However, the target population should always be taken into account when considering a means of communication. A campaign encouraging safe behaviours among pedestrians, for example, may not benefit from radio advertisements in the same way as a seat belt campaign. In other words, although drivers often observe road signs while driving, when pedestrians are walking they may not.

Campaign administrators should also be aware of the potential effects of overexposure resulting in campaign fatigue (i.e., people get tired of the campaign and begin to ignore it). Studies have shown that repeated and sustained exposure to a message is ideal for campaign effectiveness, but that overexposure can lead to fatigue. Unfortunately, there is little consensus relating to the optimal number of times an audience needs to be exposed to a message to be effective (Wundersitz et al. 2010). More research into this phenomenon is necessary to make claims about the ideal amount of exposure that a campaign should strive to achieve.

**Recommendations:**

- > The type of media used should ideally be determined by the context in which the behaviour occurs, as well as the demographic characteristics of the local context.
- > Pros and cons of each message strategy option should be considered, including those that are most feasible in the context of the community.
- > Where possible, multiple means of communication should be used to reach the target audience.

## Designing the campaign

Following decisions about how messages will be disseminated, the next stage of campaign development is design. This stage allows for the most flexibility and creativity, and involves several steps that include:

- > developing any campaign taglines and logos for branding purposes;
- > identifying spokespeople/mascots; and,
- > determining the length of time that the campaign will run.

With the plethora of technologies and media available these days, campaign design at the community level can take a variety of forms. Research has found that campaigns that incorporate interpersonal, mass media and printed sources of information are more effective than campaigns that put all available resources into one single channel (Aldoory & Bonzo 2005). Thus, it is important for campaign designers to prepare resources and advertising that can be adapted to several media, yet that are easily identifiable as stemming from a single road safety campaign. It is important to develop campaign identifiers (i.e., visuals or audio) that make a campaign consistent and recognizable (Delhomme et al. 2009). This could include using local figureheads as spokespersons for the campaign, or designing branding and imagery that are incorporated throughout all campaign materials to tie them together.

Furthermore, campaigns should be developed to appeal to local audiences, target populations, and sub-populations, taking into account different learning styles and motivational influences. For instance, a road safety campaign that targets elderly drivers could decide to use background music in a radio advertisement that appeals to an older age group. A strong aesthetic appeal is important to get audience attention and create a lasting impression. Designs that incorporate local resources or concepts may be more appealing to the community populations. Social marketing techniques could be utilized to attractively package the campaign resources to be relevant and interesting to the targeted audience (Atkin & Rice 2013). Positively-framed messages are preferred over fear-based approaches, and development should be based upon psycho-social and educational theories of change. If used, fear-appeals should ensure that practical and easy to adopt coping strategies are demonstrated to avoid message rejection.

Campaigns should also strive to be interactive to better engage the audience in the issue, as well as to gain traction where visual or audio reception of a message may fail. Community-based campaigns do have an advantage in that they are better able to engage directly with their audience, compared to national campaigns that would require significantly more resources. The interactive component could be developed in the form of a game, a contest, an activity, or other incentives that encourage the target audience to participate. Evaluation of a community-based booster seat campaign in Norristown, Pennsylvania, *Boosting Restraint Norms*, found that using community organizations with established audiences to disseminate information/education is an effective social marketing strategy (Stephens et al. 2013). In other words, community campaigns should attempt to rely on existing and established resources to bolster their campaign and provide further outreach for the cause.

Although using unique or unconventional approaches may be considered risky with unknown outcomes, many campaigns using new and novel approaches have been successful at capturing audience attention and increasing awareness. Additionally, unique approaches have 'viral' potential, increasing promotional reach and awareness (Baglo et al. 2013). An example of a community-based road safety campaign that gained a lot of awareness in Wellington, New Zealand was the *Red and Green People Pedestrian Project*. The campaign hired a street theatre team, whose members were painted entirely red or green, to disperse through the city and distribute campaign brochures and materials. The unique and intriguing approach was considered a success. A post-campaign survey revealed that 66% of participants had seen the campaign, with 93% of those individuals believing it was very effective (Land Transport New Zealand 2006). This, or similar ideas, could be a particularly appealing strategy for community-based programs that have very specific goals and are seeking to reach a significant portion of the target audience in a short amount of time.

#### **Recommendations:**

- > Campaign branding should be easily recognizable and developed with the target audience in mind.
- > Campaign design should be unique, identifiable, engaging, and incorporate local resources or figures.
- > Positively-framed messaging approaches are preferred over fear-based appeals.

## **Enforcement**

The research discussed in previous sections demonstrated that it is essential to combine road safety campaigns with enforcement activity. In fact, studies have demonstrated that road safety campaigns that incorporate publicity and enforcement components, especially high-visibility enforcement, are more effective than either approach alone (Boulanger et al. 2007; Elliot 1993; Wundersitz et al. 2010). Enforcement efforts contribute to road safety campaign effects by reinforcing the messages of the campaign and the potential negative consequences of engaging in the targeted behaviour.

With respect to the underlying theories associated with road safety campaigns, enforcement efforts can help to increase the perception that individuals are susceptible to the consequences of an action. In other words, enforcement efforts attempt to persuade individuals to cease risky behaviour in order to avoid potential consequences (e.g., fines, demerit points).

Campaign administrators should be sure to coordinate with local authorities and enforcement agencies prior to campaign implementation. In order to support the campaign, enforcement efforts should be significantly increased and publicized with respect to targeting the road safety issue that is the basis for the campaign. Where possible, campaigns should promote and describe enforcement activities within the

campaign materials and vice versa. A clear example of this type of campaign is found in the national *Click It or Ticket* campaigns described in earlier sections of this report (Solomon et al. 2004), where the campaign message directly highlights the law enforcement consequences of failing to wear a seat belt (i.e., receiving a ticket).

#### **Recommendations:**

- > Campaign dissemination should be coordinated and reinforced by increased and targeted local law enforcement actions and initiatives.

## **Evaluation**

Evaluation of a communication campaign can be easily overlooked and the importance of evaluation is often forgotten, especially as part of smaller, short-duration campaigns. Evaluating campaign effectiveness, as well as individual components of the strategy, allows local governments and community partners, as well as researchers and social marketing experts, to understand and enhance existing campaigns, as well as to incorporate new and better practices into future efforts.

There are several possible evaluation methods that can be considered depending on the type of outcomes that are of interest. These can include process evaluations (i.e., to determine why the campaign was effective); summative or outcome evaluations (i.e., to determine if the campaign resulted in change); and studies of campaign effectiveness (Atkin and Rice 2013). Additionally, evaluations should include the overall acceptance and impact of a campaign, as well as cost-effectiveness using objective data. Different types of data collection should be considered in order to obtain a complete picture of the campaign effectiveness. Self-report data (e.g., surveys, focus groups), for example, can provide valuable insight into changes in the attitudes and perceptions of an audience. On the other hand, collecting collision or police report data can help to determine actual changes in road safety behaviour that resulted from campaigns. However, using this type of data at the community level may pose certain difficulties for evaluations. This is due to the fact that the number of crashes that occur within individual communities is often small, making it difficult to measure if a significant change in the number of crashes occurred as a result of the campaign.

Data and evaluations should ideally be based on some form of before and after comparison, with or without separate control groups (i.e., an audience that is not exposed to the campaign) or treatment groups (i.e., audiences that are exposed to the campaign) when possible (Wundersitz 2010). This allows researchers to establish a basis for comparison in order to determine the effects of the campaign. However, these types of evaluations have proven difficult to achieve as finding objective sources of data and ensuring a representative cross-section of the target population is studied can be challenging when it comes to media campaigns, especially those conducted in a community context (Boulanger et al. 2007). Furthermore, it can be difficult to separate the estimated campaign effectiveness from other components involved (e.g., the impact of enforcement efforts). This is why it is often difficult for researchers and policy

makers to estimate which components or combination of components within a campaign will be effective or not.

**Recommendations:**

- > Campaign evaluation is essential and should be included in the development of any road safety campaign.
- > Evaluations should strive to incorporate as many types of data as possible (e.g., collision, observational surveys, self-report).

# DISCUSSION AND SUMMARY

## What does the research on road safety campaigns tell us?

The research on road safety communication campaigns summarized in this report has demonstrated that these programs are generally effective at reducing road incidents, and are also effective at raising awareness and changing self-reported attitudes and perceptions. Studies and evaluations of drinking and driving, distraction, seat belt, speeding and other campaigns across the globe have demonstrated the potential benefits of implementing well-planned, effective road safety campaigns.

However, it is clear that the effectiveness of road safety campaigns is influenced by some key factors. These include:

- > careful consideration of the target population;
- > development based on well-researched social and educational theories;
- > strategies used to disseminate the campaign; and,
- > increased enforcement efforts.

Furthermore, the use of social norms and fear-based approaches to affect behaviour among higher-risk individuals (e.g., those who do not perceive their risky behaviours to be different from the behaviour of others), may be less likely to achieve the intended outcomes if not carefully designed in ways that minimize defensive avoidance and the likelihood that the audience will reject or dismiss the message. Conversely, campaigns using positive messaging and those that include easy and feasible coping strategies may be more appropriate for higher-risk populations.

Additionally, there are some important lessons that have been learned from previous road safety campaign evaluations. For instance, social norms were found to greatly influence decision-making and perceptions in many different campaigns, suggesting that communities should be aware of these factors when developing a campaign. The perceived actions of people in relation to the general population are also an important element that can determine whether or not they will accept a message. This underscores the importance of relying on theoretical foundations to understand social and learning behaviours.

There is also evidence that shows that campaign messages are not equally absorbed by all individuals. Communities must be careful that campaigns do not cause more harm than good (i.e., unintentionally causing individuals to reject a message and continue to engage in the behaviour). Informational messages based on educational theories of learning are important to ensure people understand the risks and rules surrounding the issue. Equally as important, however, are persuasive messages that provide the audience with easy and feasible strategies to adapt their behaviour and attitudes to the desired outcomes of the campaigns.



## **What is needed to improve road safety campaigns?**

There are some key steps and best practices that have emerged from the research to guide the development of road safety campaigns. First, it must be underscored that it is difficult to change behaviour, and for people to maintain these behaviour changes over a longer period of time. Not only are people more likely to change their attitudes and beliefs as opposed to their behaviour, but there are a host of individual as well as social and environmental factors that shape behaviour. Different people are also either more or less influenced by various factors which make it imperative to understand why people engage in the behaviour and why they avoid it. Messages that incorporate persuasive elements and positive emotion to change attitudes, perceptions and knowledge, that leverage social norms, and that include self-efficacy so people can adopt easily achievable strategies to protect themselves hold much promise to improve road safety campaigns. Fear-based appeals can also play a role but may be better suited to some audiences than others, and should be used with caution. Efforts to create road safety campaigns that are not only well-designed, but also well-executed can contribute to behaviour change. Finally, combining campaigns with other approaches such as enforcement, when it is practical and achievable to do so, can help to increase effectiveness.

While much has been learned from previous road safety campaigns and evaluations, resulting in significant progress in the field of road safety, there is much more to be done with respect to these campaigns in the future. There is a great need to conduct more meticulous campaign evaluations in order to objectively assess their impact and their individual components (i.e., advertising, enforcement). As well, evaluations that investigate behavioural outcomes based on collision data or observational surveys, in addition to self-report data, should become the norm for evaluating the effectiveness of any road safety campaign.

If the past is any indication of the future, it is also likely that the future will bring a plethora of new and innovative technologies and resources that could serve to improve road safety campaign development and dissemination. While it is encouraging that local governments and community partners embrace new changes and pilot new strategies to increase the effectiveness of campaigns, it is important to weigh the possible drawbacks of any strategy and ensure that careful planning, execution, and evaluation is undertaken during every stage of the process.

## **What is needed to develop effective campaigns at the community level?**

Effective road safety campaign development, implementation, and assessment can be difficult at any level. Local governments and community partners seeking to develop a road safety campaign in the local or community-context are presented with a different set of barriers than those developed at the provincial or national level. For instance, local communities may lack adequate resources or data related to their unique situation, and may lack the knowledge and expertise required to conduct solid process and outcome evaluations.

For these reasons, local communities are encouraged to obtain as much information as they can about the road safety problem in their specific area, as well as the target audience that they hope to influence. Understanding these two elements prior to any other steps in the development process are essential, as this information can make it much easier for campaign partners to know exactly when, where, and on who they must focus their efforts in order to affect change. This also requires understanding of learning and behaviour change through research-based theories and philosophies. Once these components have been realised, the remainder of campaign development can be built upon this strong foundation.

In the community context, the message and means of disseminating campaign messages can be quite dependent on the specific circumstances in that area. Local campaigns should strive to make road safety campaign messages relatable, comprehensible, and engaging to individuals within the community. Campaign partners should always have the interests and motivations of the target audience in mind when developing a road safety campaign. Depending on the resources available, campaign partners may choose from a vast array of communication strategies (e.g., radio, outdoor media, and social media) and should rely on multiple methods to attract a greater audience and appeal to different learning styles within the population.

Additionally, campaign design should incorporate recognizable themes and/or identifiers (e.g., spokespersons, logos) to create a recognizable initiative that is understood. Local initiatives and, more importantly, enforcement agencies should be relied upon to help reinforce campaign messages and strategies. This requires that campaign partners make a concerted effort to reach out to local agencies and organizations within the community to coordinate a joint and planned effort.

Finally, rigorous and objective outcome and process evaluations should be incorporated into any road safety campaign initiative. Evaluation is important for local governments and community partners, as well as researchers, to understand the impact that the campaign had on the attitudes, perceptions, and behaviours of road users, both before and after the campaign. Furthermore, campaign evaluation at the community level allows for valuable insights to be gained into campaign effectiveness that other communities can use this knowledge to develop similar initiatives.

## **Next steps**

This report is the result of the first phase of a two-phase project. It was designed to increase knowledge and understanding of the features of effective road safety campaigns, and strategies to increase their effectiveness by better targeting audiences with appropriate messages.

The second phase of the project involves the development of a toolkit for communities to guide the development and implementation of their own road safety campaigns. In addition to this report, it will include resources to help communities make important decisions regarding messaging, branding, data analysis and evaluation. As a package, these two resources are intended to provide communities with a

complete strategy to address their respective road safety problems and make local roads safer for all road users. It is expected that the toolkit will become available in Summer 2015.

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