

Promoting a more positive traffic safety culture in Australia: lessons learnt and future directions

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Abstract

Adopting a traffic safety culture approach, this paper identifies and discusses the ongoing challenge of promoting the road safety message in Australia. It is widely acknowledged that mass media and public education initiatives have played a critical role in the significant positive changes witnessed in community attitudes to road safety in the last three to four decades. It could be argued that mass media and education have had a direct influence on behaviours and attitudes, as well as an indirect influence through signposting and awareness raising functions in conjunction with enforcement. Great achievements have been made in reducing fatalities on Australia's roads; a concept which is well understood among the international road safety fraternity. How well these achievements are appreciated by the general Australian community however, is not clear. This paper explores the lessons that can be learnt from successes in attitudinal and behaviour change in regard to seatbelt use and drink driving in Australia. It also identifies and discusses key challenges associated with achieving further positive changes in community attitudes and behaviours, particularly in relation to behaviours that may not be perceived by the community as dangerous, such as speeding and mobile phone use while driving. Potential strategies for future mass media and public education campaigns to target these challenges are suggested, including ways of harnessing the power of contemporary traffic law enforcement techniques, such as point-to-point speed enforcement and in-vehicle technologies, to help spread the road safety message.

Keywords

Community attitudes, Road safety, Speeding, Public awareness, Traffic safety culture

Introduction

Australia has experienced remarkable success in reducing the number of people killed in road traffic crashes since the highest peak in fatalities in 1970 [9]. This reduction was achieved at the same time as a 50% increase in population and a two-fold increase in vehicle numbers [3]. This success is well recognised by the international road safety

community and has involved a wide range of Australian stakeholders including policy makers, road users, police and the media. It is widely acknowledged that mass media and public education initiatives have played a critical role in the significant positive changes witnessed in community attitudes to road safety and road user behaviours [51]. It could be argued that mass media and education have had a direct influence on behaviours and attitudes, as well as an indirect influence through signposting and awareness raising functions in conjunction with enforcement [11]. The relationship between attitudes and behaviour is a complex one [30]. Theoretical evidence supports both perspectives in terms of changes in behaviour prompting changes in attitudes (i.e., cognitive dissonance; [13]) and vice versa (i.e., Theory of Planned Behaviour; [1]). Two approaches to education/awareness raising can be considered. Firstly, a reinforcing approach is one where messages are used to reinforce the purpose of enforcement (e.g., influencing perceptions of the likelihood of detection) in order to educate about enforcement practices. Secondly, a transformative approach is one that attempts to modify community-wide values, attitudes and perceptions in order to change cultural beliefs about offending behaviour and to increase moral attachment to the law [52, 55]. In practice, therefore, public education can play an important role in directly encouraging changes in the beliefs, values, and norms within a society. However, it can also indirectly encourage change by reinforcing enforcement activities which may have changed behaviour in the first instance. Indeed, the temporal order of change (i.e., whether behaviour or attitudes change first) is not always clear. In regard to drink driving in Australia, it has been argued that behaviour change occurred first as a result of enforcement (i.e., random breath testing) and that attitudinal change followed [25].

Two risky road user behaviours, in particular, have witnessed significant positive changes in Australia: drink driving and the non-use of seat belts. It is acknowledged that the contemporary traffic safety culture surrounding these two behaviours has changed dramatically and is different to what it was several decades ago. Traffic safety culture has been conceptualised in a number of ways and can be considered as a continuum (i.e., positive to negative). For instance, Ward, Linkenbach, Keller and Otto

[52] described it as inclusive of virtues valued by society, beliefs about what is normal, expectations associated with violations, attitudes about individual behaviours, and the influence of these factors on decision making by individuals. With these concepts in mind, this conceptual paper draws upon the changes that have occurred in Australia's traffic safety culture relating to drink driving and seat belt use in order to explore potential strategies that might be useful in changing the culture surrounding other behaviours that have not attained the same status; namely, speeding and phone use while driving.

Drink driving

Much has been written about the dramatic changes in both the practice of, and attitudes towards, this high risk behaviour (see McLean for a recent detailed historical account [32]). Generally speaking, the 'culture' associated with drink driving has changed over the last few decades. It is no longer socially acceptable to drink and drive in Australia. This situation is reflected in the almost universal support (98%) found for the existence and implementation of random breath testing (RBT) in the most recent national *Community Attitudes to Road Safety* survey [34]. Notably, this figure has been consistently high for some time, reflecting evidence of the changed community views and culture surrounding drink driving. Sustained and appropriately resourced police enforcement, coupled with legal penalties and sanctions, have played important roles in bringing about behaviour change. Extensive media coverage, including road safety advertising campaigns, has also played a role, both in terms of providing information about enforcement activities and in changing public perceptions of the behaviour. Tay [43, 44] has provided evidence of drink driving advertising campaigns contributing to reductions in alcohol-related crashes and of such campaigns having significant and independent effects from enforcement. In terms of changing public perceptions of the behaviour, as Elliott noted [12], the social disapproval associated with drink driving is evidenced by an individual who is caught for drink driving being likely to be considered by society as a 'criminal' and as 'breaking the law'.

Despite these important successes, work is still needed to eliminate the adverse consequences of alcohol on road safety. Approximately one quarter of road fatalities in Australia are still linked to illegal blood alcohol levels [3] and evidence suggests that there may be new and emergent road safety challenges, such as the increase in women being detected for drink driving. In addition, youth binge drinking and the subsequent interactions that youth may have with the road system when intoxicated, whether as a drink driver or a drink walker [22, 31], reflect the extent to which broader alcohol-related problems in society impact upon road safety. In sum, while notable improvements have been made by public education and awareness campaigns in

recent decades, ongoing efforts are needed and road safety researchers and practitioners must be prepared to address both traditional and emerging alcohol-related road use problems.

Seat belt use

Another important change in Australia's traffic safety culture has been observed in regard to seat belt use. Despite substantial initial opposition in the 1970s, seatbelt wearing rates are consistently high [3]. Consideration needs to be given to why these rates remain high in Australia because in some countries, seatbelts are viewed as an unnecessary inconvenience and a hindrance to freedom of movement (for instance, see Routley [38] for examples from China). As chronicled by McLean [32], the introduction of compulsory seatbelt wearing in Australia was not without dissent. The quote below from the Traffic Accident Research Unit of the New South Wales Department of Motor Transport in 1971 highlights just how much has been achieved in terms of changing the safety culture associated with seat belt use:

It is suggested that the fundamental source of public resistance is that motorists do not feel vulnerable to death or injury under normal driving conditions. This may prove to be an insurmountable barrier to public education designed to increase the seatbelt wearing rate [13], pg 15.

History reveals, however, that what was initially considered 'an insurmountable barrier' relating to seatbelt use in 1971 has proven not to be so, given the high levels of restraint wearing now evidenced among road users. Evidence from other countries supports the important role and positive effects of enforcement as well as seat belt advertising campaigns in encouraging/promoting greater adherence [46, 47, 51].

Overall, when considering drink driving and seat belt wearing, evidence would suggest that the community has generally grasped the link between alcohol intoxication and high(er) risk of road crashes/fatalities, as well as between non-restraint use and high(er) risk of serious injuries/fatalities in a road crash. In contrast, however, for other high risk behaviours, such as speeding and phone use while driving, evidence suggests that the same degree of social disapproval and identification of risk associated with such behaviours does not yet exist in the general community.

Speeding

Currently, all Australian jurisdictions have laws that nominate a maximum speed limit. However, consideration is currently being given to the removal of an upper speed restriction on some roads by the Northern Territory government, despite protests from the road safety

community. The concept described above in the quotation from 1971 relating to seatbelts (i.e., that motorists do not feel vulnerable under normal driving conditions) can be considered an issue relevant to speed management. Speeding remains prevalent and contributes to approximately 34% of fatalities and 13% of serious injuries each year [3]. Despite extensive and sustained police efforts and mass media education and awareness campaigns over many years, some people still reject the link between speed and crash risk and crash severity. Indeed, some drivers report deliberately disregarding legally posted speed limits, preferring instead to rely on their ability to determine speeds appropriate to the driving environment, even if those speeds are well above posted limits [14, 24]. It is clear that some segments of the Australian community and media regard posted speed limits as an unnecessary and unwarranted invasion of personal freedom to choose to drive as fast as they desire. Furthermore, speed enforcement and associated penalties are viewed by some as having only one purpose – to raise funds for governments.

The most recent survey of *Community Attitudes to Road Safety* indicated that a substantial proportion of those sampled reported the belief that driving at speeds above posted speed limits are acceptable [34]. In terms of the social perceptions of the acceptability of speeding behaviour, in direct contrast with the negative views that an individual caught for drink driving may attract, a speeding driver may consider themselves (and others may consider them) as simply having been ‘unlucky’ for being detected [12]. The *Community Attitudes to Road Safety* survey also revealed that a minority of respondents reported the belief that there should be zero tolerance associated with enforcing speeding (i.e., no speed allowed above the posted limit):

- 30% (when asked about driving in a 60km/hour speed zone) and
- 24% (when asked about driving in a 100km/hour speed zone).

This outcome suggests that the majority consider some degree of tolerance appropriate. In other words, the majority of people sampled reported the belief that it is acceptable to drive above posted speed limits. For the 60km/hour speed zone, approximately half the respondents (48%) indicated the belief that people should be allowed to drive at or above 65km/hour – a figure that has remained constant in recent years [34]. For the 100km/hour zone, at least one third of respondents indicated that they believe people should be able to drive at 110km/hour without attracting an offence.

In the same survey, participants were asked to indicate what factors they believed contributed to road traffic crashes. Speed was the factor mentioned by most people, identified

by over half of the sample (54%). Drink driving (47%), inattention (26%), driver fatigue (21%) and distraction/talking on a phone (14%) were also mentioned. The majority of the sample (70%) also expressed the belief that the chance of being involved in a crash significantly increased if their driving speed increased by 10km/hour; notably, the number of respondents agreeing with this aspect has increased substantially over the last decade. This desirable increase may represent a general awareness of the link between speeding and crash risk, or it may simply reflect a heightened awareness among the driving community that police are improving speed management approaches, perhaps prompted by ongoing mass media communication. These figures, taken together with those previously discussed relating to the high levels of self-reported speeding, provide more evidence for the existence of the ‘speed paradox’. This paradox refers to the mismatch between drivers’ beliefs and behaviour, reflecting the tendency for many individuals to report the belief that speeding is dangerous and yet still report engaging in the behaviour on a regular basis [15]. This mismatch is likely to be a substantial part of the challenge in producing similar changes in attitudes and behaviour which have occurred for drink driving and restraint use.

Speeding and drink driving are distinctive behaviours and are, therefore, likely to be perceived and practiced differently by motorists [21]. One notable example of this distinction is the extent to which speeding is a much more transient violation than drink driving and which may occur numerous times during a driving episode. In addition, when it comes to identifying strategies to avoid/reduce one’s engagement in such behaviours, many more strategies may be offered and promoted to avoid drink driving (e.g., take a taxi, identify a designated driver who remains sober) than may be identified for speeding with the main strategy to avoid speeding being encouraging a driver simply not to speed [44]. Given this distinction between behaviours, it follows that advertising interventions need to be deliberately and carefully devised to address a particular behaviour [44]. Thus, extensive work continues in relation to anti-speeding message development [23, 29, 28] in the attempt to devise targeted and effective message content.

Traditionally and predominantly, anti-speeding messages have focused on the risks associated with speeding and, in particular, the risk of death and injury to self and others and the risk of being apprehended and receiving the legal consequences as aversive consequences of speeding. Attempts have also been made to educate motorists about issues such as the need for greater stopping distances when driving faster and potential difficulties in vehicle control at speed. One avenue that may assist in relation to speeding is in identifying what motivates people to speed and then challenging these motivations through appropriately devised and targeted public education campaigns [18, 28].

Devising effective campaigns to tackle speeding can also assist in altering the current level of social acceptability of the behaviour. There is an ongoing need to challenge normative beliefs about speeding – that is, to challenge the notion that everyone speeds. The NSW Roads and Transport Authority's Pinkie campaign [54] is an example of an attempt to challenge the status quo regarding acceptable community norms towards speeding. Lewis and Newnam [27] reported a study in which anti-speeding messages were developed for a fleet of community care nurses which included an attempt to challenge the notion that everyone speeds. Specifically, the authors noted that messages were designed to challenge the common beliefs that: (i) everybody speeds, (ii) speeding saves and/or makes up time; and (iii) 'safe' speeding is okay. Reductions in self-reported speeding were reported as a result. In addition, governments could also assist by conveying the message that not everyone speeds via the dissemination of information collected from speed surveys (e.g., Kloeden, [26] for an example from Queensland). These surveys provide information such as mean speeds across large parts of the road network that are below posted speed limits. In other words, they provide objective data showing that not everyone speeds and that a considerable proportion (approximately two thirds) of the Queensland driving population adhered to posted speed limits across a three year period [26].

Other key challenges relate to the need to counteract the often misleading and inaccurate statements and claims made by sections of the community and media. It is unfortunate that the media often report extremely high speeds attained by some offenders which may serve to motivate others to copy this high risk behaviour and may also glorify it. In addition, some sections of the community and media consistently campaign to discredit speed enforcement policies, equipment, and practices [2, 3, 35, 37, 49]. Numerous strategies have been suggested in order to alter many of the commonly expressed beliefs about the perceived benefits of speeding [28]. The use of technology also has a role to play here. Various authors have examined and discussed the potential for in-vehicle technologies, such as Intelligent Speed Adaptation (ISA), to assist in promoting speed limit compliance [36, 53]. Interestingly, in a study conducted in the United Kingdom, even participants who were strongly opposed to the use of ISA conceded that they would, if forced to by the introduction of legislation; use the technology [7]. Interestingly, analogies to seat belt use and legislation were made to illustrate how driver behaviour has altered in the past, even though the introduction of the countermeasure was not popular initially [7]. This finding is encouraging in that it suggests that people are able to appreciate the value of new countermeasures, even though they may not understand or agree with such countermeasures in the first instance.

One area that has not yet received much attention when promoting the benefits of speed limit compliance is the role of new speed enforcement technologies. For instance, point-to-point speed enforcement (also known as section control and average speed enforcement) is a relatively new enforcement approach in Australia, compared to its use in parts of the United Kingdom and Europe (see Soole, Fleiter and Watson [41] for an extensive discussion of the use of this technology in Australia and elsewhere). Not all Australian jurisdictions currently use point-to-point speed enforcement. Among those that do, the extent of use differs in various ways and it is likely that each jurisdiction also promotes the approach differently.

Recommendations regarding public education about point-to-point speed enforcement in Australia include the need to educate motorists about exactly how the system operates and the extent of the operations [41]. Further, it has been recommended that the general and specific deterrent effects of the approach be highlighted, as well as its cost-effectiveness; although expensive, it can produce significant returns on investment owing to reductions in crash-associated social and economic costs [42]. Finally, it has also been recommended that the ability of the technology to detect those who speed over a longer period of time be publicised. In this way, the technology could be promoted as better able to detect those who deliberately break the speed limit over an extended time more effectively than other speed enforcement approaches. In other words, point-to-point enforcement has the ability to better differentiate between those motorists who inadvertently speed (and may be caught by a mobile or fixed camera at a single location/time) and those who deliberately speed over longer parts of the road network. This ability to detect more persistent speeders may be an important 'selling point' of the technology and might assist in promoting acceptance of it among those who are sceptical of speed enforcement. Inadvertent speeding and feelings of being 'caught out' by police for a momentary lapse of concentration are commonly reported beliefs (complaints) about speed enforcement [8, 24]. This barrier to acceptance may be reduced for point-to-point enforcement if it is explained clearly to the motoring public.

Attempts to quantify support for this new speed enforcement approach among Australia's motoring public have occurred recently. For instance, the most recent Community Attitudes to Road Safety survey [34] and an Austroads project investigating attitudes to speed enforcement [24] both found reasonably high levels of support among participants (two thirds of participants reported agreement with use of this speed enforcement approach in both surveys). Indeed, the Ipsos research indicates that among those interviewed, some participants reported a preference for point-to-point enforcement over other detection methods because it was perceived as

more efficient at detecting those who speed across longer sections of road network as opposed to those who make a momentary error of judgement. Results also indicated that point-to-point speed enforcement was not strongly associated with perceptions about potential revenue raising – another key challenge traditionally facing government authorities, particularly in regard to automated speed enforcement [8, 16].

These findings [34, 24] are encouraging and provide reason for optimism when it comes to future expansions of point-to-point enforcement in Australia. However, caution is also required. The relatively high levels of support for point-to-point speed enforcement reported above were, in some instances, reported by participants living in jurisdictions where this enforcement approach was not operational. Furthermore, some participants reported perceptions of inaccuracies about point-to-point equipment and operations which suggests that there is a need to clearly explain how the technology works, how it differs from other types of speed cameras, and how it can promote safer road use and a more efficient road network.

Phone use while driving

Despite hand-held mobile phone use when driving being illegal in all Australian jurisdictions, research indicates that many drivers continue to report engaging in this behaviour [19, 33, 34]. For instance, a recent study conducted in NSW by the National Roads and Motorists' Association Insurance found that 88% of drivers reported making calls while driving, and 68% reported sending text messages [6]. Drivers in Queensland also self-reported their mobile phone use when driving [50]. One third of surveyed drivers (36%) reported reading a text message and a smaller proportion (18%) reported sending a text message while driving. In the sample of 801 drivers, two thirds did not have a hands-free mobile phone kit and of those who did, only one half (49%) reported using it all the time for phone calls. These self-report data show much higher rates of use than observational studies that indicate that approximately 2% of drivers were using a hand-held phone at any given time [20, 45].

Together, these findings show a discrepancy between observational and self-report phone use data. However, it is important to note that it is likely to be more difficult to accurately determine if a driver is sending/reading a text message than if they are speaking on the phone from an observational point outside the vehicle. Indeed, as Gauld et al. (under review) identified, drivers are aware that texting while driving is illegal and as a consequence, a majority of young drivers in that study reported deliberately concealing their texting while driving (i.e., holding their phone and texting from below the level of the steering wheel) to avoid detection.

Phone use while driving can be considered similar to speeding in that there is evidence of a misalignment between community beliefs and behaviours. One example of the contradiction in community behaviours and beliefs about this high risk behaviour can be seen nationally and internationally in instances where substantial media attention follows the death of (typically young) drivers who were using a phone at the time of a crash. Often there is public outrage at the occurrence and calls for changes to be made to prevent the ability to use a phone while driving, which even extends to debate about the use of technology to block their use while they are in a vehicle which is in motion.

Further attesting to the misalignment between behaviours and beliefs, Walsh [50] found that one quarter of their study's sample reported using a phone while driving at least once a day. When asked to describe the advantages and disadvantages of phone use when driving, it was the disadvantages that were most frequently given by this group of respondents. Being 'distracted from driving' (47%), 'having less concentration' (34%) and 'dangerous' (34%) were more frequently nominated than any of the advantages of phone use when driving. This finding suggests that the risks to personal safety from phone use when driving are recognised at some level, yet the behaviour continues despite this recognition. The potential of receiving a fine for using a phone was the least frequently reported disadvantage which may relate to the challenges associated with enforcing this behaviour.

Collectively, the body of evidence which is emerging in relation to phone use while driving reflects attempts to understand more about the key underpinning psychosocial influences of behaviour and then using such understanding to devise better-targeted advertising initiatives [19, 33, 39]. As Gauld et al. (under review) discuss, the extent to which drivers may conceal texting while driving suggests that detection and thus enforcement of such a behaviour is increasingly difficult, relative to other behaviours such as speeding. As such, mobile phone use while driving (and concealed texting, in particular) may represent a risky driving behaviour where advertising campaigns which attempt to persuade drivers against engaging in the behaviour may be particularly important at reducing/preventing it.

As noted above, debate is occurring about the appropriateness of, and the need to employ, technologies to block the use of phones when driving in order to remove the temptation for drivers to communicate with others while in control of a vehicle. Recent Australian research examined crash records over a ten year period in two Australian jurisdictions and found that driver inattention and distraction were key contributors to crashes where at least one person was admitted to hospital because of the injuries they sustained in the crash [5]. Interactions with passengers

were the most commonly reported type of distraction. However, other activities such as adjusting vehicle controls, changing CDs and using a mobile phone when driving were also distracting activities leading to a crash. The authors commented on the ever-increasing array of in-vehicle technologies and portable electronic devices on the market that are likely to provide opportunities for additional driver distraction in future. They also suggested that it may be possible to legislate to prohibit certain devices when driving or to block and/or restrict device functionality.

However, until any such legislation is implemented, many people continue to illegally use their phones while driving, despite the threat of legal penalties. As discussed above, the threat of penalty does not appear to deter some people, given that it was the least frequently reported disadvantage of phone use while driving in one Australian study [50]. This finding may indicate that the perceived risk of apprehension for illegal phone use is low. Alternatively, it may indicate that legal penalties when apprehended are not considered severe enough to act as a deterrent. Education campaigns to help alter this risky behaviour may benefit from a relatively new type of research being conducted in several international jurisdictions and soon to be applied in Australia for the first time. Naturalistic driving studies, where driver behaviours are constantly recorded in their own vehicle over extensive periods of time [10], are likely to provide much more accurate information about the extent of phone use while driving and associated distractions from the driving task. Recorded images of a real trip where the driver was using his/her phone may be useful in demonstrating the dangers associated with this practice. For instance, the ability to show the real consequences of people engaging in phone use, such as near misses, loss of vehicle control, or minor and major collisions may be more meaningful than watching advertisements showing actors experiencing these events.

The use of technology may also assist in enhancing ongoing education efforts in regard to drink driving. As noted earlier, the safety culture surrounding this behaviour has dramatically changed in Australia, and yet alcohol remains a major contributor, playing a role in a quarter of all fatal crashes. Currently, alcohol ignition interlocks are used in many jurisdictions to manage repeat drink driving offenders by encouraging them to separate their drinking and driving [56]. However, their use is widening; an outcome that has the potential to strengthen the message that drinking and driving do not mix and to further enhance the cultural norm that drink driving is not acceptable. For example, the Victorian government has announced that it intends to introduce laws requiring all drink driving offenders to have an interlock fitted to their vehicle, although the exact commencement of this change is uncertain [40]. Additionally, the use of interlocks in commercial/professional fleets is widespread in several European

countries [48]. Promoting interlocks more widely in our community (e.g., fitting them on all vehicles) could assist in normalising the role of this technology and in sending a clear statement to the community that drink driving is never acceptable.

Finally, Australian jurisdictions have made important and often innovative progress in altering road user attitudes and behaviours as well as in policing and punishing risky and illegal road use. Australia is internationally recognised as a country with a strong track record of improving safety outcomes. However, the extent to which the Australian public understands this achievement and the international praise and recognition that it has brought is unclear. While the aforementioned national *Community Attitudes to Road Safety* surveys and others like them assess many road safety-related issues, they do not provide any information to gauge the extent to which the community understands the burden of road trauma, the significant achievements made in reducing road fatalities, and Australia's international standing as a strong performer in road safety. Indeed, there is extremely limited information to indicate what the broader community knows about these issues. There may be value in promoting the significant reductions in road fatalities that have been achieved as a means of demonstrating the need to continue enforcement and education campaigns that have served the motoring public so well in the past.

Furthermore, individual road crashes and subsequent fatalities (i.e., the 'road toll'), and to a lesser extent, the amount and extent of injuries, are regularly reported in the media, especially during major national holiday periods such as Christmas and Easter. Despite this high profile coverage, it is not clear how well the broader Australian community understands the extent of the road fatality problem. Research conducted in Queensland sought to begin addressing this gap in knowledge. A sample of 833 Queensland drivers was asked to report how many people they thought had been killed on Queensland's and Australia's roads in the previous year [17]. Results indicated that the majority of people under-estimated the extent of road deaths. For instance, three quarters of respondents under-estimated the national fatality figure, with one half of the sample nominating a number that was less than half the actual number. The pattern of results was similar for the question relating to Queensland fatalities. Another finding of relevance to the current paper was that the media may, in part, contribute to underestimations of the road trauma burden. Some participants reported basing their (under) estimates on media reports of fatalities during holiday periods. It is possible that such reporting may inadvertently create the perception that these periods are more risky than other times of the year; a proposition shown to be incorrect [4]. Further, such reporting may also give the inaccurate impression that the number of fatalities

reported during these periods represents the bulk of annual road fatalities. This misperception is likely to do little to highlight the true extent of the road trauma problem. These inaccurate perceptions may also be barriers to convincing motorists of the need to heed road safety messages and of the need for future countermeasures. Consideration could be given to informing the public about these misperceptions in the hope that the true extent of the road trauma burden is fully appreciated. This appreciation may lead to more support for road safety countermeasures.

Conclusion

Great gains have been made in changing Australia's traffic safety culture, particularly with regard to drink driving and seat belt use. However, other illegal and risky behaviours have not experienced the same changes despite sustained and multi-pronged attempts to alter them. This paper has focused on two such behaviours; speeding and phone use while driving. These behaviours remain resistant to change, particularly in relation to their prevalence and the levels of social acceptability surrounding them. This paper has identified various ways that technology could be harnessed to assist in changing the culture surrounding speeding and phone use while driving and how research into the design and evaluation of advertising countermeasures may help to alter the current norms and culture associated with these high risk behaviours. Additionally, there is a need to better understand how much the community knows about the significant gains Australia has made in road safety in recent decades. It is hoped that improving awareness of these gains will promote an understanding of just how effective road safety countermeasures have been and assist in creating a culture that is accepting of new initiatives aimed at reducing harm and saving lives.

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The accuracy of determining speeding directly from mass crash data and using the NSW Centre for Road Safety method

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Abstract

Exceeding the posted speed limit, or speeding, is generally accepted as a major cause of road crashes and in particular fatal crashes. However, the actual proportion of crashes in which one or more vehicles was speeding is not easily determined. The exact travelling speed of a vehicle prior to a crash can only be determined by detailed crash reconstruction. Such a reconstruction is considered beyond the scope of regular traffic police who record the majority of the crash data that makes up the mass crash databases such as the South Australian Traffic Accident Reporting System (TARS). It is therefore thought that speeding is under-reported in the mass crash data. A method was developed by NSW to identify, from mass data, crashes that involved speeding as a factor. This method was subsequently used by other states, including South Australia. The Centre for Automotive Safety Research conducts the crash reconstructions required to determine speed as part of its at-scene in-depth crash investigation work. This paper compares the actual proportion of speeding crashes in the most recent set of at-scene in-depth crash investigation cases with that found by using the mass data and the method developed by the NSW Centre for Road Safety. It was found that the error 'excessive speed' recorded in the TARS database is not accurate in identifying crashes where a vehicle was speeding. The NSW Centre for Road Safety method of determining speeding in crashes

was also found to lack accuracy, though it was more accurate than simply relying on the error 'excessive speed' in the TARS database.

Keywords

Speed, Speeding, Crash data

Introduction

Higher vehicle travel speeds have been shown to elevate the risk of being involved in an injury crash [4-6]. Travelling at a speed above the legal speed limit, or speeding, is considered to be one of the major factors in fatal crashes. For these reasons speeding has been the focus of major enforcement efforts (more than 100,000 hours of enforcement per year [3]) and media campaigns in South Australia, and similarly around Australia.

However, the actual proportion of crashes in which one or more vehicles was speeding is not easily determined. The most reliable method of determining a vehicle's speed, and therefore if it was speeding or not, is a detailed crash reconstruction conducted by a suitably qualified person. Such a reconstruction is considered beyond the scope of regular traffic police and is usually only conducted by dedicated police officers in circumstances where a driver will be charged with a serious driving offence. It