

Raising Awareness of Driver Distraction in Western Australia

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What is Driver Distraction?

Driving a motor vehicle is a complex task that requires the interaction and coordination of various cognitive, physical, sensory and psychomotor skills, and a considerable degree of concentration and attention on the part of the driver.¹ In reality, however, drivers continually divide their attention between competing driving and non-driving tasks. This is possible because many aspects of the driving task become automated with experience, and because drivers are capable of adapting their driving to meet the demands of the road environment and compensating for a decrease in the amount of attention they can devote to the driving task.²

Despite this, drivers can sometimes be distracted by an object, event or activity to such an extent that they are no longer able to allocate sufficient attention to the driving task. When this happens driving performance is compromised, and road safety issues arise.³

Driver distraction, then, may be defined as “the diversion of attention away from activities critical for safe driving toward a competing activity”.⁴

Driver distraction is an emerging road safety issue, and is being increasingly ranked by road safety authorities around the world as a significant contributing factor to road trauma alongside speeding, drink-driving and fatigue.⁵

Types of Driver Distraction

There are four distinct types of driver distraction: physical distraction, visual distraction; auditory distraction; and cognitive distraction.⁶

¹ Young, K., Regan, M. and Hammer, M., 2003. *Driver Distraction: A Review of the Literature*. Melbourne: Monash University Accident Research Centre, Report No. 206, p.1.

² Young, K. and Regan, M., 2007. Driver Distraction: A Review of the Literature. In: Faulks, I. J., Regan, M., Stevenson, M, Brown, J., Porter, A. and Irwin, J. D. (eds). *Distorted Driving*. Sydney: Australasian College of Road Safety, p. 380.

³ Ibid.

⁴ Regan, M. A., Lee, J. D., and Young, K. L., eds., 2009. *Driver Distraction: Theory, Effects, and Mitigation*. Boca Raton: CRC Press, p. 34.

⁵ Regan, M. A., Lee, J. D., and Young, K. L., eds., 2009. *Driver Distraction: Theory, Effects, and Mitigation*. Boca Raton: CRC Press, p. 4.

Physical distraction occurs when a driver takes one or both hands off the wheel while driving to manipulate an object, instead of focussing on the tasks required for safe driving.

Visual distraction occurs when a driver's visual field is blocked, or if their visual attention is on something other than the road, and this impairs their observation of the road environment.

Auditory distraction occurs when a driver either momentarily or continuously focuses their attention on sounds rather than the road environment.

Cognitive distraction occurs when a driver thinks about something not related to the driving task to the point where they are unable to safely navigate the road environment.

A distracting activity involves one, or more, of these four types of driver distraction. The act of operating a hand-held mobile phone, for example, may involve all four: physical distraction (dialling); visual distraction (looking at the display); auditory distraction (holding a conversation with the other person); and cognitive distraction (focussing on the topic of conversation).⁷

Sources of Driver Distraction

Innumerable objects, events and activities can distract a driver.

The National Highway Traffic Safety Administration in the United States has attempted to categorise these sources of driver distraction⁸ under the following headings:

1. Eating or drinking;
2. Outside person, object or event;
3. Adjusting radio, cassette, or CD;
4. Other occupants in vehicle;
5. Moving object in vehicle;
6. Smoking related;
7. Talking or listening on mobile phone;
8. Dialling mobile phone;
9. Using device/object brought into vehicle;
10. Using device/controls integral to vehicle;
11. Adjusting climate controls;
12. Other distraction; and
13. Unknown distraction.

⁶ Young, K., Regan, M. and Hammer, M., 2003. *Driver Distraction: A Review of the Literature*. Melbourne: Monash University Accident Research Centre, Report No. 206, p. 2.

⁷ Young, K., Regan, M. and Hammer, M., 2003. *Driver Distraction: A Review of the Literature*. Melbourne: Monash University Accident Research Centre, Report No. 206, p. 3.

⁸ Stutts, J. C., Reinfurt, D. W., Staplin, L., and Rodgman, E. A., 2001. *The Role of Driver Distraction in Traffic Crashes*. Report prepared for AAA Foundation for Traffic Safety. Washington DC, p. 8.

These are consistent with the more comprehensive categories of distraction developed in a recent study by the New Zealand Ministry of Transport⁹ which breaks down the sources of driver distraction into both internal and external sources in order of significance as follows:

Internal Sources	External Sources
1. Passengers	1. Driver dazzled – sun strike
2. Telecommunications	2. Checking for traffic
3. Entertainment systems	3. Other road users - vehicles
4. Emotionally upset-preoccupied	4. Trying to find destination/location/something
5. Personal effects	5. Scenery - persons
6. Vehicle controls/devices	6. Police – emergency vehicles, crash scenes, etc.
7. Food-drink	7. Scenery – landscape/architecture
8. Smoking	8. Other road users – pedestrian/cyclist
9. Animal or insect in vehicle	9. Driver dazzled - headlights
10. Sneezing/coughing/itching	10. Animal outside vehicle
11. General distraction - inside	11. Other external event
	12. Advertising – signage
	13. General distraction – external

Impact of Distraction on Driving Performance

A number of studies have been carried out to try to determine the extent to which driving performance is affected as a result of the distraction caused by using various communication, information, and entertainment technologies, as well everyday activities like eating.

Mobile Phones

Collectively, a number of studies have shown that using a mobile phone while driving can¹⁰:

- impair a driver’s ability to maintain the correct lane position;
- impair a driver’s ability to maintain an appropriate and predictable speed;
- result in longer reaction times to detect and respond to unexpected events;
- result in drivers missing traffic signals;
- reduce the functional visual field of view which, in turn, has been shown to be correlated with an increase in crash involvement;

⁹ Parliament of Victoria, 2006. *Inquiry Into Driver Distraction*. Report of the Road Safety Committee on the Victorian Parliamentary Inquiry Into Driver Distraction. Melbourne: Parliament of Victoria, p. 10.

¹⁰ Regan, M., 2007. Driver Distraction: Reflections on the Past, Present and Future. In: Faulks, I. J., Regan, M., Stevenson, M, Brown, J., Porter, A. and Irwin, J. D. (eds). *Distraction Driving*. Sydney: Australasian College of Road Safety, p. 35.

- result in shorter following distances to vehicles in front;
- result in drivers accepting gaps in traffic streams that are not large enough;
- increase a driver's mental workload, resulting in higher levels of stress and frustration;
- encourage drivers to look straight ahead rather than scanning around the road ahead; and
- reduce a driver's awareness of what is happening around them in time and space.

As a result of these impacts on driving performance, the use of a mobile phone while driving increases the risk of being involved in a crash by up to four times.¹¹

In addition, there is significant evidence that the use of a hands-free mobile phone while driving degrades driving performance to the same extent as the use of a hand-held mobile phone while driving.¹²

Both retrieving and sending text messages have also been shown to adversely affect driving performance.¹³

Email

One study of drivers using voice commands to retrieve, read and respond to email messages revealed a 30% increase in reaction times to a braking lead vehicle, and an increase in a drivers' subjective estimates of mental workload. A follow up study also revealed that drivers made less corrective steering movements when retrieving, reading and responding to email messages.¹⁴

Radios

Studies on the level of distraction arising from the use of car radios have shown that tuning a car radio adversely affects lane control, increases a driver's subjective estimate of workload, degrades speed control, and delays responses to unexpected hazards. Even listening to a car radio has been shown to degrade lane-keeping performance.¹⁵

CD Players

¹¹ Young, K., Regan, M. and Hammer, M., 2003. *Driver Distraction: A Review of the Literature*. Melbourne: Monash University Accident Research Centre, Report No. 206, p. 10.

¹² Young, K. and Regan, M., 2007. Driver Distraction: A Review of the Literature. In: Faulks, I. J., Regan, M., Stevenson, M, Brown, J., Porter, A. and Irwin, J. D. (eds). *Distacted Driving*. Sydney: Australasian College of Road Safety, p. 384.

¹³ Regan, M., 2007. Driver Distraction: Reflections on the Past, Present and Future. In: Faulks, I. J., Regan, M., Stevenson, M, Brown, J., Porter, A. and Irwin, J. D. (eds). *Distacted Driving*. Sydney: Australasian College of Road Safety, p. 35.

¹⁴ Regan, M., 2007. Driver Distraction: Reflections on the Past, Present and Future. In: Faulks, I. J., Regan, M., Stevenson, M, Brown, J., Porter, A. and Irwin, J. D. (eds). *Distacted Driving*. Sydney: Australasian College of Road Safety, p. 36.

¹⁵ Ibid.

Studies have shown that selecting, inserting, listening to, and ejecting CDs while driving results in poorer lane keeping ability, more glances away from the road, and greater variation in speed control than when dialling a mobile phone.¹⁶

Eating

One study found that eating a hamburger while driving was as distracting as dialling a mobile phone using voice commands.¹⁷

Advertising Signs

One study on driver distraction arising from advertising billboards has shown that it affects a driver's ability to detect peripheral hazards.¹⁸

Groups Particularly Vulnerable to Driver Distraction

There is evidence that young novice drivers and older drivers (i.e. 55 years and older) are particularly vulnerable to the effects of driver distraction.¹⁹

For young novice drivers, this is due to the fact that they have not yet automated many driving tasks and thus have less spare attentional capacity to devote to other tasks. They are also likely to be less effective in self-regulating their performance between competing tasks.²⁰

Older drivers are more vulnerable to the effects of distraction because they have less attention to distribute between competing tasks, require more glances at mobile phones and other devices to read information, require more time to move their eyes between the road and displays inside the vehicle, and require more time to complete tasks.²¹

Crash Statistics and Crash Estimates

Estimates of the number of crashes attributable to driver distraction vary because of differences in definitions, data collection methods, and classification schemes.²² Despite this, the current literature on driver distraction reveals the following key findings:

¹⁶ Ibid.

¹⁷ Regan, M., 2007. Driver Distraction: Reflections on the Past, Present and Future. In: Faulks, I. J., Regan, M., Stevenson, M, Brown, J., Porter, A. and Irwin, J. D. (eds). *Distracted Driving*. Sydney: Australasian College of Road Safety, p. 37.

¹⁸ Ibid.

¹⁹ Regan, M., 2007. Driver Distraction: Reflections on the Past, Present and Future. In: Faulks, I. J., Regan, M., Stevenson, M, Brown, J., Porter, A. and Irwin, J. D. (eds). *Distracted Driving*. Sydney: Australasian College of Road Safety, p. 40.

²⁰ Ibid.

²¹ Ibid.

²² Regan, M. A., Lee, J. D., and Young, K. L., eds., 2009. *Driver Distraction: Theory, Effects, and Mitigation*. Boca Raton: CRC Press, p. 621.

- Traditional crash studies suggest that driver distraction is a contributing factor in at least 10-12% of crashes (these studies are known to underestimate involvement).²³
- Data from the 100-Car Naturalistic Driving Study undertaken by the Virginia Tech Transportation Institute in the United States suggest that distraction from secondary tasks may be a contributing factor in 23% of crashes and near-crashes.²⁴
- It has been estimated that distraction played a role in 32% of all road crash deaths and serious injuries in Western Australia between 2005 and 2007.²⁵ This is consistent with the results of a recent study of serious crashes in Perth which found that one-third of all the crashes studied involved a distracting activity.²⁶
- Approximately one-third of all distractions appear to be outside-the-vehicle distractions.²⁷
- Between 15%-20% of all distractions appear to involve driver interaction with technology.²⁸
- Distraction appears to be largely associated with rear-end crashes, same travel-way or same direction crashes, single vehicle crashes, and crashes occurring at night.²⁹

Legal Issues

While “distraction” is not an offence in Western Australia under the *Road Traffic Act 1974* or the *Road Traffic Code 2000*, there are a number of offences that drivers can commit if they make errors as a result of distraction. These range from not giving way to more serious offences like speeding and careless driving.

The law does, however, apply to two potentially distracting activities:

- It is illegal to use a hand-held mobile phone while driving. The current penalty is a \$250 fine and the loss of three demerit points.³⁰
- It is illegal to drive a motor vehicle which has a television receiver or visual display unit operating if any part of the image on the screen is visible to the driver from the normal driving position, or is likely to distract another driver. The current penalty is a \$100 fine and the loss of three demerit points.³¹

²³ Regan, M. A., Lee, J. D., and Young, K. L., eds., 2009. *Driver Distraction: Theory, Effects, and Mitigation*. Boca Raton: CRC Press, p. 621.

²⁴ Ibid.

²⁵ Road Safety Council, 2009. *Towards Zero – Road Safety Strategy*. Perth: Road Safety Council, p. 16.

²⁶ McEvoy, S. P., Stevenson, M. R. and Woodward, M. 2007. The prevalence of, and factors associated with, serious crashes involving a distracting activity. *Accident Analysis and Prevention*, 39, pp. 475-482.

²⁷ Regan, M. A., Lee, J. D., and Young, K. L., eds., 2009. *Driver Distraction: Theory, Effects, and Mitigation*. Boca Raton: CRC Press, p. 621.

²⁸ Ibid.

²⁹ Ibid.

³⁰ Regulation 265 of the *Road Traffic Code 2000*.

³¹ Regulation 264 of the *Road Traffic Code 2000*.

What are we doing about Driver Distraction?

Driver Distraction has been identified as an emerging road safety issue in *Towards Zero*, Western Australia's road safety strategy for 2008 – 2020.

As identified in *Towards Zero*, the Office of Road Safety on behalf of the Road Safety Council will continue to develop a range of community education campaigns for the established behaviours as well as this emerging problem area.

The goal of the driver distraction campaign is to raise public awareness of the dangers of in-car distractions while driving.

As part of the development of the campaign research was conducted with the community to explore awareness, attitudes and behaviours.

Focus group research confirmed that people undertake a number of other tasks while driving. Those activities that take the driver's eyes off the road were seen as the highest risk and mobile phone use was common amongst all drivers.³²

Community Attitudes

An online survey of Western Australians aged 17 years and older, which was conducted in May 2009³³, revealed the following community attitudes to driver distraction:

- Two-thirds (68%) of the community rate driver distraction as a problem behaviour on Western Australian roads which is on par with driver fatigue (71%), but lower than drink-driving (87%), speeding (84%), and drug driving (73%).
- Mobile phone use is considered by the community to be the single biggest distraction in a car, with 90% identifying text messaging and 82% identifying making/receiving phone calls as major distractions.
- Among drivers with mobile phones, 51% admit to answering a hand-held mobile call while driving, and 49% admit to reading a text message while driving.
- Approximately one-third of the community rate other activities as major sources of distraction including children in the car (36%), perving at other males/females on the road (36%), and pets in the car (34%).
- Almost one-fifth (19%) of drivers admit to using an iPod/MP3 player in the car while driving, with this increasing to 49% among 17 to 24 year old drivers.
- Almost one-third of female drivers (29%) admit to applying lipstick or lip gloss while driving, with this increasing to 47% among female drivers aged 17 to 24 years.
- Drivers report near misses as the most common consequence of being distracted while driving. These include swerving and correcting (44%), clipping the kerb (44%), and nearly hitting another vehicle (26%).

³² Synovate, 2008. *ORS – Distractions*. Report for the Road Safety Council. Perth.

³³ Synovate, 2009. *Understanding The Impact Of Driver Distraction On WA Roads – Factoids Research*. Report prepared for the Road Safety Council. Perth.

- Males are significantly more likely than females to have experienced at least one consequence of driving distracted (78% for males compared to 69% for females).

In May 2010 a further study of community attitudes was conducted prior to the commencement of the Driver Distraction community education campaign.³⁴ The study showed that there had been an increase in the proportion of people who recognise Driver Distraction to be a problem (up to 75%), improved recognition of the risks, and an increase in the proportion of people who rate sending or receiving text messages as a major cause of distraction (up to 96%).

Campaign Target Audience

The initial target audience was all road users. Crashes happen everyday, many of them occur because drivers and riders are distracted.

In the initial stages, mass media will run statewide but will then be focussed on urban areas.

The first phase of the Driver Distraction campaign commenced on 16 May 2010 and ran until the end of October 2010.

Campaign Elements

In order to raise awareness of driver distraction, the following mass media elements were produced for this campaign:

- a new 30 second television commercial;
- a series of radio commercials;
- Bus-back advertising; and
- Billboards.

Supporting mass media, the following community collateral items were produced:

- Information kit including posters, leaflet, and order form;
- Website game; and
- downloadable ring tones.

Campaign Evaluation

The key objective of the campaign was to communicate the risks associated with being distracted whilst driving. The initial phase of the campaign ran Statewide.

The evaluation was conducted by independent market research company Synovate³⁵ in Perth, Western Australia.

³⁴ Synovate 2010, *Community Attitudes Towards Driver Distraction on WA Roads*. Report for the Road Safety Council. Perth.

³⁵ Synovate 2010, *Campaign Evaluation Driver Distraction*. Report for the Road Safety Council, Perth.

The objectives of the research were as follows:

1. Compare post campaign results on key attitudinal measures regarding driver distraction to pre-campaign 2009 and 2010 levels, specifically
 - The incidence of recognising driver distraction as a problem;
 - The recognition of the potential consequences; and
 - The perceived likelihood of experiencing these consequences.
2. Gather campaign evaluation measures including;
 - Unprompted and prompted campaign recall;
 - Message take-out;
 - Perceived relevance; and
 - Impact on attitudes and awareness of driver distraction as an issue in the community.

Synovate conducted an on-line survey with a sample of 424 respondents aged 17 years and over. The sample was split between metropolitan (n=316) and regional (n=108) residents. Data was collected from 10 to 18 November 2010.

Key findings are as follows:

Campaign Impacts

There is widespread and increasing knowledge of driver distractions as a major issue, and of the risk of serious consequences.

- Driver distraction is now considered a major problem on WA roads, by the same proportion of people that rate drink driving and speeding as major problems.
- More than 80% of people acknowledge the likelihood of serious consequences as a result of driver distractions.

Both these measures have increased since May 2010, indicating an increasing concern and awareness about the issue.

The vast majority of respondents (80%) consider this campaign is relevant to them and 94% consider the messages believable and easy to understand. Wear out effects were very low (7%).

The relevance and believability of the campaign resulted in positive impact results:

- 91% agreed the campaign reminded them of the importance of not being distracted;
- 84% agreed the campaign made them think again about not being distracted while driving;
- 72% agreed they were now more concerned about the risks of being distracted on the road.

Campaign Performance

- 62% of the WA community recalled seeing/hearing messages about driver distraction before being prompted by the ads.
- The campaign achieved overall recognition of 86% (ie % aware of at least one component when prompted). This is a strong result.
- Message takeout was strong with several specific elements of the campaign recounted before prompting and the core messages interpreted correctly.

The Driver Distraction campaign itself has performed reasonably well on measures of recall, and while this measure was lower than some other road safety campaigns, the impacts achieved by this campaign clearly demonstrate its effectiveness.

The relevance of driver distraction as a road safety issue, and the cut-through and low wear-out of this campaign all indicate the campaign can be re-run effectively to maintain salience of the issue.

As a result of the above, the second phase of the campaign ran from February to June 2011. A campaign evaluation is being prepared for this phase of community education activity.