

**2014 Australasian Road Safety Research,
Policing and Education Conference.**
Melbourne
November 12-14

“It always seems impossible until it’s done”

The above quote is from Nelson Mandela and formed the directive the conference would take. We were treated to a video message from Dr Mandela’s granddaughter who encouraged everyone in attendance to strive to make the impossible, possible. This year’s Road Safety Research Conference was held at the Grand Hyatt in Melbourne a week after the Melbourne Cup. It meant the city was in fine form for visiting delegates and even the Thursday night gala dinner took on a Spring Racing Carnival theme.

The program for this year included optional workshops held on Wednesday afternoon, followed by two days filled with interesting presentations and talks. Of course there is always the social side of the event with welcome drinks on Wednesday night and formal dinner on Thursday, which both provide a great opportunity for networking and discussing varying areas of road safety.

The following report endeavours to provide an insight into the sessions attended. With 4 concurrent sessions running each day, it is impossible to attend every session, and I concentrated on those that deal with road safety education and young drivers, as these are the core areas of our business. While other areas of interest included; speeding, infrastructure, vehicle safety, motorcycle safety, impaired driving and older drivers, these often clashed with sessions that dealt with what the core of our industry deals with daily and had to be missed.

President
Anthony Cope

Wednesday workshop

This year I attended the workshop on road safety education. This workshop featured presentations from experts in the youth road safety field and explored best practice in road safety education in early childhood, school and community based settings.

Our keynote speaker for this workshop was Dr Carl Gibson with a presentation titled “A Risky Brain; misconception, distraction and inattention”. Much of this talk revolved around how the emotional responses can override the cognitive responses in fractions of seconds, and he demonstrated this with aplomb using misdirection, illusion and some simple mind games. We learnt about the two most significant parts of the brain associated with decision making and how the two interact as well as conflict.

The amygdala is the part of the brain that deals with emotional decision making and how it operates very automatically and fast with little effort or sense of how it’s working. This part of the brain develops much earlier in life than the Pre-frontal cortex which is the cognitive decision making area that requires a lot of attention to operate and is demanding on resources while being slower and a conscious process. This area doesn’t fully develop until our mid-twenties. While the amygdala operates on pattern recognition to trigger responses, the pre-frontal cortex relies on set rules.

As this develops it has begun to normalise risk through optimism bias. The more times we get through something safely, the safer we believe the activity to be. The perception of risk can diminish and there may be less cognitive response to this risk. However the process of learning can help this.

As we begin learning we rely on the cognitive processes to follow set rules and instructions. This helps set order and develops patterns. As we move through the learning journey towards expert, we begin to rely more on intuition or gut instinct, and this comes from amygdala which can rapidly override conscious thought.

How our bodies process information also plays a huge role in how we respond. From the retina in the eye to the brain, there is 11 gigabits of information per second being transferred, while your other senses only transfer 1 gigabit per second. However our brains only consciously process 40 bits per second meaning that there is a lot of information coming in and very little of it being consciously used. This means we rely more on the emotional processing of information to respond correctly. But it is not only what information we put into our bodies that can affect this. Our brains use 20% of our body's glucose demands, yet it can't store glucose, so it is always using glucose stores from the rest of our body. The lower these stores get, the harder it is for the brain to process information.

By using some simple magicians' tricks, Dr Gibson highlighted how easily our brains can be tricked. We often see what we want to see, or see what previous patterns have told us what we should be seeing. While focusing on the obvious, we can miss the real information and we need to help our cognitive brain work just as well as our emotional brain. This can be done by using the 4/7/8 breathing method. By breathing in for a count of 4, holding it for a count of 7 and breathing out for a count of 8, we can allow our heart rates to slow and more blood to our brains, reducing the effect of the emotional brain and letting the cognitive brain to still play a role in our decision making.

Check Out role play session

In an effort to entertain as well as inform, the organisers of this workshop used a role play style of delivery for the second part of the workshop. This revolved around a grocery store called RSE (Road Safety Education) where all the customers were practitioners in road safety education and through some poorly acted dialogue (no offence) informed us of some initiatives that have had success around Australasia.

During this session we heard about the Keys Please program running in Victoria as well as the Starting Out Safely program also in Victoria. We got an insight into the BikeWise program from New Zealand promoting safer cycling while Deb from WA told us about the Keys For Life program targeting year 10 students and their parents. David Murray from Road Safety Education informed the delegates of the RYDA program that operates throughout Australia and New Zealand.

Conference Sessions

Following on from a keynote presentation from Georgie Harman, the CEO of Beyond Blue, we were treated to a panel discussion on the topic of “what can Australasia learn from other fields to achieve the seemingly impossible goal of zero road deaths and serious injuries?” Whilst there are no outcomes from such a discussion it possibly opened some people’s eyes to where else they can get inspiration from to work on more ways of trying to hit that target. After these we moved into our concurrent sessions for the day, and while you are free to go from room to room and watch any presentation you like, I chose to stay in the one room to watch the main areas of interest for our industry.

Identifying and intervening with potentially high risk young drivers

Anne Harris, Anne Harris Consulting.

In a bid to find ways to identify risky young drivers early and implement some interventions to help minimise their risk, all coronial reports for crashes involving 14-25 year olds between 2005 and 2009 were reviewed. This totalled 121 cases. These reviews showed that while some young people had risky lives and some engaged in risky behaviours, others demonstrated neither.

Results from these reviews show:

- Young people with risky lifestyles (16.5%)
- Young people affected by alcohol (34.7%)
- Drug affected drivers (5%)
- Speeding drivers (15%)
- Inexperience (10%)
- Low risk (19%)

From a driving perspective, high risk young people are more likely to have:

- Driven unsupervised as a learner
- driven unlicensed (joy riding)
- cheat on their learner log book
- committed offences early and often as a novice driver
- had crashes

Those who are unsafe drivers also tend to engage in other behaviours that reflect an unsafe lifestyle, and for some these behaviours are life course persistent, whilst others tend to be risky during adolescence and early adulthood. Seriously risky drivers though are a relatively small group, estimated to be between 7% - 13% young drivers.

In developing a prevention framework, it was thought that there should be 3 tiers.

- A primary tier targeted at the whole population to prevent unsafe road use behaviour and provided to all individuals.
- A secondary tier targeted to selected populations who are distinguished by traits such as age, gender, family history or economic status.
- A tertiary tier for indicated groups. This would include targeted programs for individuals who exhibit early signs of unsafe road use behaviour.

Driver education/training courses for newly licenced drivers: who participates and for what reasons?

Dorothy Begg, University of Otago

In New Zealand, there are several courses that novice drivers can attend, and two of those give these attendees a time discount on their provisional licence. This research looked at who participates in any of these courses and why. The content of these courses was not looked at as part of this project and the presenter could not enlighten me any further as to what is involved in each course. Under the current NZ GLS system, provisional licence holders must hold their restricted licence for a minimum of 18 months if under 24 years of age, or 6 months if over 24. Under 24's get a 6 month discount if they attend either the Defensive Driving Course or the Street Talk course, and over 24's get a 3 month discount for attending the same courses. These results have come from the NZ Drivers Study.

Some existing research suggests there are safety dis-benefits to time discounts and in fact in NZ drivers with less than 18 months on a restricted licence have shown to have a 3 times higher crash risk on full licence than those with over 18 months.

From the drivers study, there were 786 restricted drivers who had received a time discount. There were 5 courses that were investigated in this research, however only the two previously mentioned ones entitle attendees to a time discount. Out of all courses, it was the Defensive Driving course that had been most heard of with 94% people having heard of it as opposed to only 2% for the other time discount course. Of all people, only 49% had attended the Defensive Driving Course, against only 1% of people had attended the Street Talk course.

Those people who attended the DDC were more likely to be:

- Younger at restricted licence level
- Not of Maori decent
- Live outside a main urban area
- Not from an area of medium or high deprivation

With regard to their driving variables, they were more likely to:

- Have had professional driving lessons
- Breach the passenger conditions on restricted licence

However they were significantly less likely to:

- Driven unsupervised on learners licence
- Drive unsupervised between 10pm and 5am on restricted licence (a condition of restricted licences)
- Had a crash on learners licence
- Had a crash on restricted licence
- Have used cannabis

The overwhelming reason why people attended was to get their full licence sooner with 85% of people stating that as the main reason for attending. These new drivers appeared to be relatively safe young drivers who just wanted to get their full licence sooner, however there has not been enough time or crash data to see if that level of safety has transferred into their full licence stage in the long term. They have however shown a significantly higher occurrence of traffic offences.

Gender differences in crash characteristics among occupants aged 17-25 years admitted to hospital in NSW

Lynne Bilston, NeuRA injury prevention research centre.

This research project used data from hospital admissions, police crash analysis and the NSW Centre for Road Safety Traffic Accident Data and aimed to look at what affect gender played in this figures.

The numbers show that males, compared to females, were more likely to:

- Be unrestrained
- Drive older cars (older than 1996)
- To be a in a fatal crash
- To be in a single vehicle crash
- To be in a loss of control crash

They were also more likely to have injuries to their head, knee/lower leg, wrist or hand and shoulder or upper arm, whereas females were more likely to have injuries to lower torso and abdominal area and neck. As we know, being unrestrained in a car increases the chance of being killed, and this study shows the unrestrained drivers were 4.6 times more likely to be fatally injured, and that male drivers were 3 times more likely to be fatally injured.

After controlling for gender, head injuries were more likely in/with:

- Older vehicles
- Unrestrained occupants
- Fatal injuries
- Loss of control crashes

Abdominal and thoracic injuries were more likely in high severity crashes, whilst neck injuries more likely in low severity crashes. Whilst being unrestrained increased the chances of a fatality, 72% of fatally injured drivers were restrained, so there still needs to be work done on protecting those people. A conclusion from the study suggests work needs to be done to get more male drivers to drive whilst restrained and to get them into more modern cars with greater crash protection.

Higher order instruction by professional driving instructors

Bridie Scott-Parker, University of the Sunshine Coast

This small scale study was designed to look at the use of higher order instruction within the professional driver training industry compared to recent research results that suggest it is used infrequently amongst parental instruction. This is a pilot study to assess the requirements for a larger scale study and revealed several issues which included technology and recording problems and transcriptions of lessons.

6 driving instructors on the Sunshine Coast were recruited and all lessons over a 1 week period were recorded. Not all instructors were full time and the number of lessons per instructors ranged from 1 -22 with a total of 43 lessons recorded. The recording was done with 2 GoPro cameras fitted to each vehicle, one facing inwards to capture the nonverbal communication and another facing forward to capture the verbal communication and roadway. Each night the footage would be downloaded to external hard drives, which took almost as long as recording themselves.

Out of 10 randomly selected lessons, the verbal communications could be placed into 5 categories:

1. Introductory instruction (26%)
2. Navigation (14%)
3. Warnings (15%)

4. Positive comments (10%)
5. Higher order instruction (35%)

Introductory instruction included directly telling the learner what actions they needed to follow in terms of vehicle control etc. some examples included “clutch up further”, “push your foot on the brake” and “add power and put the handbrake down and we will go forward”.

Warnings included “indicate in good time”, don’t put the clutch in that early” and “always make sure you check your blind spot before you start going”.

Positive comments included “very nice. Alright, no problem with that one”, that was a real good gear change” and “you’re going to merge, the speed of these oncoming cars, pick your speed up, nice early plan of attack”

Higher order instruction included “you might remember that the sign shows road swings very sharply up ahead, at the dead end”, if you are looking at the upcoming traffic, you could drive that direction” and “this is a park, so you’re going to slow enough to brake quickly in case a kid or something ran”.

While this was only a small study the aim was to prove the concept of the study and look at what needs to be done to conduct a larger study. Plans for the larger study are already underway with assistance being agreed to from various driver training sectors around the country. It will also be a longer study which will also aim to identify missed opportunities for teachable moments. The variability between instructors will also be explored along with the perceptions of instructors and learners regarding lessons and ultimately whether or not higher order instruction is related to independent driving performance.

Learner driver mentor programs (LDMPs), a long term review.

Duncan McRae, Youthsafe

Learner driver mentor programs (LDMPs) emerged during the 2000’s as a support strategy to help young people obtain their drivers licence, often for the purpose of employment. In 2007 NSW increased the minimum number of supervised hours required by learners before going for their licence up to 120 hours, and LDMPs were seen by many disadvantaged youth as a good way of meeting these requirements.

In 2009, Youthsafe undertook a comprehensive review of the issue. This review included the literature of time, running public seminars and surveys and interviews with key stakeholders. This work resulted in the establishment of an enquiry service that is supported by Transport for NSW, followed by Youthsafe publishing a “tool kit for developing LDMPs” to be used by community professionals who are planning running a LDMP.

In 2009 there were 32 Australian LDMPs, with 6 NSW based ones (2 in Sydney and 4 regional). By 2014 this had grown to 32 NSW LDMPs, with 8 in Sydney and 26 regional (a couple cross over).

Top assist with development of other programs and to ensure they run as smoothly and efficiently as possible; the “tool kit” was developed and is made available to anyone interested in starting a program. There is also support through Co-ordinator networking as well as a mentor program. There is now a centralised register of LDMPs which also offers phone and email advice and advocacy.

Views, compliance and enforcement of graduated driver licence conditions: findings from the New Zealand Drivers Study (NZDS)

Rebecca Brookland, University of Otago

The NZDS is a large scale prospective cohort study of 1599 newly licenced drivers, who have progressed to full licensure. These drivers completed a baseline interview, another during their restricted licence period and again at full licence level. Offences regarding the GDLS were sourced from official traffic records. The offences looked at were:

- Driving unsupervised on learners
- Driving at night unsupervised
- Driving with passengers unsupervised.

24% of these learners had driven unsupervised whilst on learners' licence, with 43% of those claiming to have done it regularly. Disturbingly 72% reported that their parents were aware of this behaviour and of these 66% of the parents approved (weren't worried, approved in certain situations, it was easier for parents, and it was ok as long as they don't get caught).

66% of respondents drove at night unsupervised with their reasons ranging from there was no supervisor available, or they had to travel from work or it was convenient. Again worryingly, 88% of parents were aware of this and 62% of these approved of the behaviour.

79% of respondents broke the condition of driving with passengers unsupervised with 41% saying it covered most of their driving. 72% of parents were aware of this with 65% of them agreeing with the behaviour.

One in five respondents had breached all 3 conditions and less than half thought it was likely they would be caught by police for non-compliance. In fact offence notices for breaches ranged from 4% to 12%.

These figures are at odds with young drivers' thoughts on the conditions as most think they are important for safety reasons, and agreement with the conditions was generally high. What the results show is that there needs to be stricter enforcement by Police of these conditions to improve compliance, which will also assist parents with enforcing the conditions.

Keynote presentation

Dr Peter Sweatman, Director of the University of Michigan Transportation Research Institute (UMTRI)

Dr Sweatman is an internationally recognised leader in intelligent transportation systems and future mobility for people and freight. Apart from autonomous vehicles, the other most exciting area of development for transport is in connected vehicles, and Dr Sweatman has been at the forefront of this development with a large scale model deployment.

Commencing in August 2012 in the college town of Ann Arbor, Michigan, 2836 were fitted with radios that allow vehicles to communicate with each other and the local infrastructure. These vehicles were used voluntarily and were obtained widely through the school and college network. With a population of around 120,000 people, Ann Arbor proved an ideal place to conduct such a study. There are currently around 5% of vehicles in a typical traffic stream that are talking to each other as well as the

infrastructure. In the 24 months it has been operating, there have been over 67 million messages collected that have been transmitted through these radio networks.

This communication is placed in two categories, Vehicle to vehicle (V2V) and vehicle to infrastructure (V2I). It uses radios that transmit to each other to notify of speed, position, direction of travel etc. Radios placed on key infrastructure with a 300 m radius of coverage also allow for the local road network to know where cars are and all details of their travel. From the results so far, the National Highway Traffic Safety Administration (NHTSA) believe this could address 80% of single vehicle crashes. As well as being effective, it is also relatively cheap, at a cost of approximately \$300 per vehicle and \$20,000 per infrastructure node. This cost would be reduced if being included in initial design and implementation rather than retro fitting.

The next stages of this program will see 9000 cars and 27 square miles of infrastructure fitted with the technology after 2014, followed by 20,000 cars and 560 infrastructure nodes beyond 2015. On 18/8/2014 there was an announcement of Advanced Notice of Proposed Rule Making, which means that the American Government is looking at making this technology compulsory on new vehicles in the near future. The car manufacturers are already jumping ahead with this with many already making plans for widespread deployment from 2017. In fact Toyota has already made plans to launch it next year in Japan.

The next greatest innovation is automated vehicles. There is already a trial of this taking place in California; however the University of Michigan is building its own testing and research facility to ensure that as many elements of automated vehicle travel can be measured and replicated over and over. As a purpose built facility the university is able to design a wide range of environments and vehicle travel. The facility will include robotic pedestrians, cars and other road users. The building facades adjoining the road will be moveable to allow for different sightlines etc. It's the first facility of its kind anywhere in the world.

The future isn't coming. It's here. How this will impact on our industry is yet to be seen. It may be a change of direction in the future where we are training people to not drive cars, but to use the technology available to them.

Summary

This report forms an overview of the presentations attended. Some presentations have been left out as the results have not been finalised yet, or the information provided was not of any significance. Copies of the full papers presented will be available on the Australasian College of Road Safety website in the near future.

There are also some changes for next year's conference. As most years sees two major conferences being held, this one and also the Australasian College of Road Safety annual conference, there is a lot of demand placed on many who would attend both. So in a move to improve the quality of both, they have joined forces and will now become one conference, hosted by the ACRS. And next year it will be held on the Gold Coast. No dates confirmed yet, but as soon as we know, we will inform members who may be interested in attending.

Regards
Anthony Cope
President
ADTA National