

## **Motivating behaviour change among high risk road users: Why is there no Science of Driving?**

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### **Abstract**

In Australia the 17-21 year age group is still in the highest risk age bracket, though in some countries road crash incidence is increasing among road users in their early- or mid-thirties.

For over twenty years my colleagues and I have presented one, two and up to five day driving courses to some 30,000 to 40,000 people of all ages. Somewhat less than half of these presentations have been to young people from 15 to 18 years. In past years most of these young people have had no driving licence. In recent times many have a learner's licence, the issuance of which has been reduced to 16 ½ years.

Throughout our experience there have always been a number of young people who attend our courses holding a provisional licence. This situation has provided my colleagues and myself with the opportunity to have a deep insight into the reasons associated with high risk behaviour among young road users.

The attainment of a driver's licence is in most young minds the major symbol marking the 'Rite of Passage' to adulthood. Our young participants who hold a provisional licence will often consider themselves to be quite superior drivers to the non-licenced students, or, conversely, they may be elevated onto a pedestal by the non-licenced students themselves. Often in this situation the provisional licence holder will indulge in high risk behaviour to 'prove' their superiority. This choice of action is usually counter-productive for the 'P' plate driver, as a crash into traffic cones soon occurs.

Most attempts at this type of driver education and training throughout the world have been aimed at 'provisional' drivers. Where studies have been carried out to assess these courses they have generally failed to establish either a positive or a negative outcome. It is our belief that much of this type of driver education has been mis-directed.

Our long and extensive experience suggests that much more can be done to establish appropriate risk assessment behaviour in young people *before* rather than *after* they are issued with a 'P' licence.

Subjects to be addressed in this paper:

- Getting a licence – learning to drive safely or achieving adult identity?
- Attitude and behaviour as a consequence of knowledge and understanding?
- Thrill seeking – or, simply stimulated by speed, movement, energy and motion sensitivity.
- Changing technology – will changing vehicle dynamics change risk taking behaviour?

## **Introduction**

This paper attempts to explore why so many young high risk drivers lose their lives or are severely injured in road crashes. It also seeks to explore some preventative measures.

### Background of Roadcraft

For over twenty years my colleagues and I, at Roadcraft, in Gympie, Queensland have presented one-, two- and up to five-day driving courses to some 30,000 to 40,000 people, of all ages. Somewhat less than half of these presentations have been to young people from 15 to 18 years of age, most of them pre-licence. I have also carried out driver training and consulting work in a number of overseas countries.

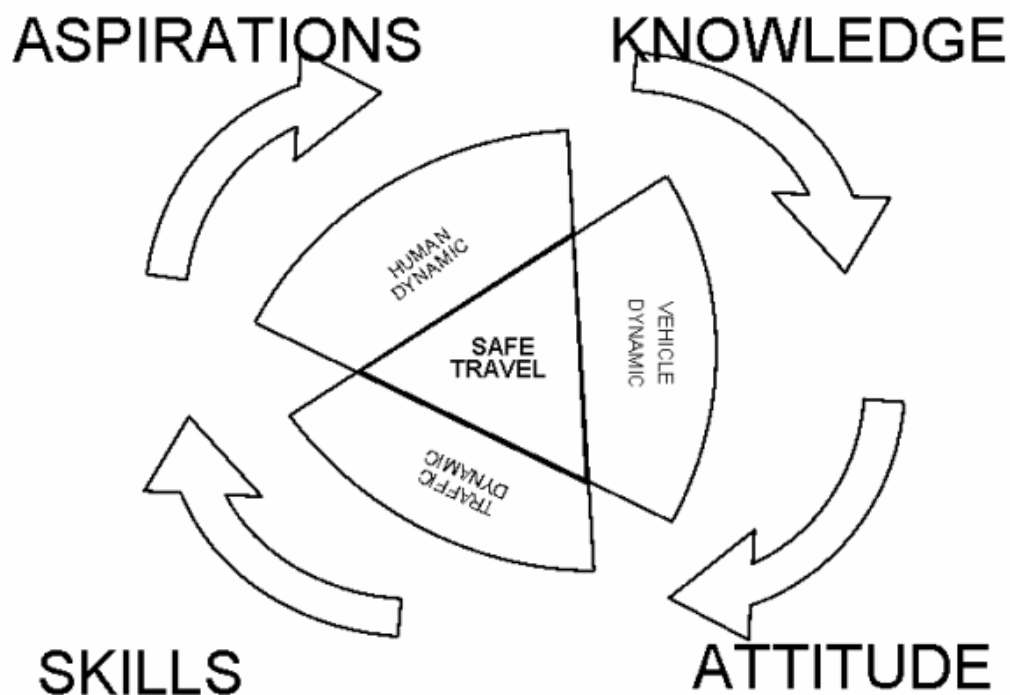
In the mid 1970's a high risk age-group of drivers was identified, with 15 – 17 year olds being killed at an unacceptable rate on Queensland roads. As a result, in 1979, Roadcraft Driver Education was established in Gympie, through the partnership of Rotary and other service clubs in the local area. For a period of almost 30 years Roadcraft has enjoyed support of a huge number of organizations and individuals. These organizations include Service Clubs, Motor Companies, Tyre Companies, Car Clubs and many community groups, Local and State Governments.

For the past 22 years Education Queensland has maintained a teacher at Roadcraft. The fact that Education Queensland has generally ignored this position has meant that the appointed teacher, in conjunction with Roadcraft staff, has been able to develop our curriculum free from bureaucratic or administrative interference. With exquisite timing, given the current escalating road toll, Education Queensland has just recently seen fit to withdraw support from Roadcraft and removed our EQ teaching position.

Roadcraft is a not-for-profit organization, and has therefore been privileged to be able to separate business responsibilities from educational requirements.

Our training is based on a number of precepts:

- Drivers must understand that driving is more than just moving the vehicle from one place to another.
- A driver must also understand the psychological and physical requirements to safely negotiate the complexities of our road systems and traffic.
- All our presentations must effectively interlink and overlap the concepts of Knowledge, Skills, Aspirations and Attitude.
- Human, Vehicle and Traffic Dynamics must be inter-linked and overlapped if safe driving behaviour is to be achieved.



*“Effective Learning is a Permanent change in Behaviour, due to Experience”.*

### **Why do we crash?**

*“I didn’t see it. I didn’t see it until it was too late”.*

This is the most common response to the question which we have asked many thousands of drivers.

To understand this phenomenon we need to recognize the inherent human condition.

- An average 75 kg person can run at about 25 klm per hour.
- When driving a 1500kg car, we can travel in excess of 100km per hour;
- We can also reach this high speed driving a 50,000kg truck.

In these situations we have increased our speed by a factor of at least four. Our weight may have increased several hundred times. These conditions are complicated by an increasingly complex traffic and road-scape dynamic which requires we humans to operate well outside our natural environment. To understand this situation we require the development of a...

*“Science of Driving”*

We have developed many branches of science associated with sport. Millions of dollars and man hours are devoted to the study of traffic movements, vehicle design, tyre development and the design of roads etc. Where is the science of human inputs in the context of the driver? Why, with 1.2 million people killed on the worlds' roads each year, is there no "Science of Driving"?

- No study of the relationship between the primary and peripheral vision?
- No study of human vision – perception – response/reaction systems, as they apply at road speeds?
- No study of motion sensitivity or energy empathy as it applies to motor vehicle use.

During this past 22 years we have presented two and three day programmes to, in excess of, 15,000 pre-licence young drivers in our district and nearby. In that time, we have had no reported road deaths among those who have taken part in these courses. We have had one reported serious motorcycle crash and one reported passenger death, the vehicle being driven by a driver not trained by us. This data is anecdotal (collected by 'bush telegraph' from our local community). Roadcraft has never been in a position to formally collect any statistical data. This anecdotal evidence suggests that further formal study into our methodologies could potentially be very valuable.

In our, now 25 years of practice, the following groups make up the many thousands of people with whom we have worked:-

- Children from 5 years of age
- Pre- and post-licence teenagers
- Adults from the general public
- Professional drivers
- Specialist drivers – e.g. counter-terrorist drivers
- Emergency Services
- Primitive and remote people in the jungles of Papua New Guinea
- Assessment of the elderly
- People with intellectual and physical disabilities
- Race and Rally drivers
- Court ordered "hoons"

We have presented to over 200 court-ordered and solicitor-directed "hoons". So far we know of only one recalcitrant re-offender.

Two young offenders from the Sunshine Coast felt so strongly about the benefits of our course, that they reported to the local newspaper encouraging others to attend our Roadcraft courses.

For these courses, we operate with a maximum of four participants per instructor. Our preferred group is eight participants to two instructors. In the case of our young court appointees, we prefer to have a maximum of two in each group of eight. This ratio gives us the opportunity to assess the peer, emotional and cultural perceptions and perceptions affecting these young people and the possibility of using a collaborative learning process involving the more mature participants in the same course. As our courses are conducted over two days these positive influences can be quite strong.

As the court appointees represent only those who have been caught committing traffic offences these presentations can only be viewed as *remedial*.

### ***High risk adolescents***

World wide experience suggests that when working with provisional drivers only limited success has been achieved. In most cases these programmes have been of only one day duration.

Our experience at Roadcraft, working with many thousands of both pre- and provisional-licence holders suggests that we are much more likely to achieve long term attitudinal and behavioural outcomes working with pre-licence participants over two or three days. A look at Sweden's pre-licence skid training also throws some light on pre-licence, as opposed to post-licence, training carried out in other places such as Finland, Luxembourg, Austria and North America etc.

### ***A hypothetical case study of two young people we all know well***

Both are high on horse-power, that is, they have plenty of energy. Both are poor on steering, that is, they are still trying to establish their life's direction.

#### Our young man

Look at me in me V8 Commodore, mate! It's got lowered suspension – wide tyres – twin chrome exhausts, etc. Our young friend perhaps has lacked success at school and early adolescence. In his V8 he has 'power' maybe more than 200kw under his bonnet. And, he gains recognition as he leaves his signature black tyre marks on the bitumen.

#### Our young lady

Who was that who just shot past in that snappy little red hatch-back?

The young girl from down the road, she is off to Uni – late for lectures. She has the latest hair-do, Britney Spears jeans and all the chic gear.

How much air is in her tyres?

Are her tyres mis-matched?

Half way round a wet corner she gets distracted... takes her foot off the accelerator... a 180° spin... *CRASH !!!*

Both of these young people are high on horse-power.

Our young man with his 200kw V8; our attractive young girl, is, or perhaps was, embarking on an illustrious career.

But what about the steering...?

Both are emotionally immature.

Both have passed a licence test.

Both have achieved their 'Rite of Passage' and peer recognition.

Neither have had much experience of vehicle or traffic behaviour.

Our young man has probably hung the tail out a few times, but, faced with a real life difficulty, he will almost certainly over-react.

Our young girl will freeze and wait for the laws of physics to take their course.

Either or both these young people could be or may be stimulated by speed and energy, leading to thrill seeking behaviour. It is likely that neither have had exposure to the consequences of loss of vehicle control.

Presenting to these high risk drivers is almost always remedial in nature. Many of the negative aspects of this high risk behaviour could have been addressed pre-licence.

I recently visited Calgary in Canada to conduct a staff training consultancy for the driver training staff for a company called Fleet Safety International (FSI). Dr Randy and Joan Flemmer (Randy's doctorate is in the discipline of Educational Psychology) who operate FSI have designed and developed a skid training vehicle. This vehicle addresses all of the needs of skid training and at the same time avoids those aspects, which are perceived by some to be negative, when skid pans are used for this purpose. Having traveled extensively throughout the world studying driver training techniques, I believe that Randy & Joan's skid vehicles, and the techniques for their use to be *'World Best Practice'*. The FSI slogan is "Change the World - Drive Safer".

A simulated skid, either understeer or oversteer, can be induced at any speed or at any predetermined severity. This allows the instructor to predetermine the level of student achievement and thereby the level of skid control or prevention desired for each individual participant.

In the case of our hypothetical young man he requires to be shown and to experience the consequences of loss of control. He then needs to learn how to control a skid, and ultimately, be challenged to demonstrate how to prevent one in the first place. In the case of our young girl the primary focus would be on prevention.

It is critically important to understand that there is no 'one size fits all', if we are to develop safer driving. Driver training must encompass aspiration, attitudes, knowledge, skills and above all be aimed at behavioural outcomes.

Some major pieces missing from this jigsaw at present is understanding of:

1. Why does ergonomics (seating posture, body bracing, pelvic stability) play such an important role in directioning and maintaining gaze orientation and steering accuracy?
2. How can the inter-relationships between primary and peripheral vision and primary and peripheral consciousness be understood?
3. How can these inter-relationships be acknowledged, adapted and incorporated into road use education in order to develop safer driving behaviours?

The challenge facing us is to identify the physical, psychological and technical aspects of road use and to integrate these many and varied concepts into our road use education programmes.

It is our belief, that only when these systems are better understood, can we begin to effectively motivate behavioural change in high risk road users and perhaps even get ordinary motorists to:

*"Change the World By Driving Safer"*.

## Recommended reading

Understanding the Brain: The Birth of a Learning Science.  
O.E.C.D. Publication C.E.R.I.

## Appendix

Getting a licence – learning to drive safely or achieving adult identity?

Concerns of the adolescent mind:

- Physical maturity
- Hormonal disruption
- Defining a career path
- Emotional maturity
- Peer influences
- A driver's licence as proof of adulthood
- Car culture – outer suburban and country – high crash rate.

Our 'Rite of Passage' to adulthood is no longer marked by turning 21.

Is it to be recognized by getting a driving licence or perhaps by taking part in schoolies week????

Attitude and Behaviour – a consequence of knowledge, understanding and perceived place in society.

At Roadcraft we use aspirations, knowledge, skills and attitudes as means to achieve our goal of long term behavioural change.

The High Risk Adolescent: High on horsepower; Poor on steering

*Look at me in me V8 Commodore, mate.*

*Lowered suspension – wide tyres – twin exhausts.*

*Lacking success at school and early adolescence.*

*Power and recognition as I leave black marks on the bitumen.*

Who was that who just shot past in that snappy little hatchback?

*The young girl from down the road*

*She's off to Uni. - late for lectures.*

*The latest hairdo – Britney Spears jeans etc.*

*How much air is in her tyres?*

*Are the tyres mis-matched?*

*Half way around a wet corner she sees something and takes her foot off the accelerator... a 180° spin... CRASH!!*

Both of these young people are high on horse-power. Our young man has over 200kw under his bonnet. Our attractive young girl is, or perhaps was, embarking on an illustrious career.

But, what about the steering?

- Both are emotionally immature.
- Both have passed a licence test.

- Both have achieved their 'Rite of Passage' and peer recognition.
- Neither have had much experience of traffic or vehicle behaviour.
- Our young man has most likely hung the tail out a few times, but faced with a real life difficulty he is most likely to over-react.
- Our young girl will freeze and wait for the laws of physics to run their course.

Both of these young people could be stimulated by speed and energy, leading to thrill seeking behaviour.

It is likely that neither have had exposure to the consequences of loss of vehicle control.

### *Change Education – Changing Technology*

While we at Roadcraft see no silver bullet solution to the problem of road trauma, we are appalled at the lack of understanding of human, vehicle and traffic dynamics in our road using public or in those who plan our use of the roads.

New technologies such as ABS brakes, Stability control, etc. would be much more useful if their function was understood by the driving public.

Those parents and schools who encourage their students to participate in preparatory classroom activities then enroll them in our two or three day Roadcraft programmes can truthfully say to their young people, 'You can still go out and kill yourself in a car, but you can no longer die of ignorance.'

Lower the horse-power - by dispelling the ignorance.

Improve the steering - by presenting holistic experiential learning, pre-licence.

In recent times we have presented courses to people who have been ordered to attend Roadcraft by the courts or advised to attend by their solicitors.

This presentation will include some case histories relative to these young high risk road users.

It should be remembered that presenting to young high risk drivers post licence, is remedial in nature. Many of the negative aspects of high risk behaviour could have been addressed licence, thereby reduced or perhaps avoided.

25 years ago Roadcraft staff began to develop a range of road safety education and training programmes for presentation to road users of all ages. Roadcraft is a community organization established in Gympie via a Rotary initiative in the late 1970's/ early 1980's. Earlier management committees recognized that educational programmes would have to be developed by staff. The staff members were often referred to by our then chairman as road safety fanatics.