Submission No. 59

INQUIRY INTO YOUNG DRIVER SAFETY AND EDUCATION PROGRAMS

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17 December 2007

Mr Geoff Corrigan, MP
Chairperson, Staysafe Committee
Joint Standing Committee on Road Safety
Parliament House, Macquarie Street
SYDNEY NSW 2000

Dear Mr Corrigan

"The Effectiveness of Driver Training as a Road Safety Measure – 2007 Update"

I enclose a copy of the recent updated summary report, funded by RACV's Road Safety Research Fund, entitled *"The Effectiveness of Driver Training as a Road Safety Measure – 2007 Update".* The updated research, conducted by Dr Ron Christie of RCSC Services is based on interest generated by a previous review conducted for RACV in 2001 and the need for current research on driver training.

The main findings of the updated review are:

- The research evidence suggests that most driver training contributes little to reductions in crash involvement or crash risk among drivers of all age and experience groups.
- On-road driving experience is the only way most higher-order cognitive skills related to driving (e.g. hazard perception) are developed and maintained.
- Alternatives to conventional driver training such as increased supervision and graduated licensing for novice drivers are likely to make greater and more lasting contributions to road safety.

RACV believes that this updated report is a worthwhile contribution to the subject of driver training and education. I hope you find this report of interest. Your office could contact Robyn Seymour on (03) 9790 2912 if any further detail is required.

Yours sincerely

COLIN JORDAN
MANAGING DIRECTOR & CEO

The Effectiveness of Driver Training as a Road Safety Measure

2007 Edition/Update

Introduction

Debate continues in Australia and overseas about the value of training for car drivers as a means of improving driver behaviour and reducing road crash involvement (1). This document provides an up-to-date summary of scientifically-based Australian and international research about the effectiveness of driver training programs for:

- learner drivers,
- young/recently licensed drivers, and
- experienced drivers.

It summarises and references relevant reports, papers and other publications published in scientific journals, conference proceedings or by reputable sources such as government agencies, universities, and research organisations over the last 30 years. These publications applied scientific principles to the evaluation of the effects of driver training on crash involvement, crash risk or other factors such as driver behaviour

Effectiveness means the degree to which driver training programs reduce the participant's risk of crashing compared with drivers who did not undertake such programs.

While driver training and driver education are not the same, these terms are often used synonymously (2, 3). This summary deals with driver training rather than education per se. However, as many driver training programs have been termed "education" published materials labelled as both "driver education" and "driver training" are considered.

The effectiveness of driver training for learner drivers

Learner drivers are particular targets for driver training efforts of various types (4-7).

Pre-licence training programs

Various organisations or groups operate special driver training programs for learners and pre-learners. These programs usually aim to encourage the development of safe driving techniques, and can involve road law knowledge tuition and some in-car components, either on an off-road track or circuit, or on-road under supervision.

The research literature suggests that, beyond imparting basic car control and road law knowledge skills, these courses contribute little to post-licence reductions in casualty crashes or traffic violations (6-13).

In addition, some of these programs that have been made compulsory and offered through high schools in overseas countries, have not been found to be effective and may contribute to increased exposure-to-risk for young drivers, particularly females, by encouraging early solo licensing (14-20).

There is also considerable evidence that driver training that attempts to impart advanced skills such as skid control to learner drivers may contribute to increased crash risk, particularly among young males (7, 18, 21-23). This pattern of results has been confirmed and replicated across numerous studies conducted in Australia, New Zealand, North America, Europe and Scandinavia over the last 30 years (eg 23-31).

Evaluations of pre-licence training programs have generally found no significant differences between learners trained off-road (i.e. at off-road facilities that are not part of the road network) and those trained on-road, in real world driving conditions, in respect of subsequent crash or violation involvement (26, 31, 33, 34). Off-road training is

more expensive to provide than on-road training as off-road facilities are costly to build, operate and maintain (24, 26). Such facilities may also divert scarce funds away from more effective road safety initiatives and countermeasures.

Professional driving instruction for learners

Basic driver training works at an instructional level. Most people are initially trained to drive by a driving instructor, friends, relatives, or a combination of these, in order to obtain their driver licence. This type of driver training concentrates on basic car control skills, driving techniques, road law knowledge and initial driver licensing (8, 35, 36).

Greater levels of supervised, real world experience during the learner period have been shown to reduce post-licence crash involvement by up to about 35% (37-39). Comparisons of the post-licence crash experience of learners who were trained exclusively by professional driving instructors and those trained exclusively by parents, relatives or friends, is much the same (39). However, research shows that encouraging cooperation between driving schools and parents in learner driver training may be beneficial in increasing the quality of instruction and the quantity of learner driver experience (41, 42).

It may also be useful to provide guidance to professional instructors in respect of the type and extent of pre-licence experience that learner drivers should receive (where, when, how and what) before being presented for initial licence assessment - this proved useful in Denmark (43). Historically, many instructors have focused more narrowly on preparing novices for licence testing.

Research suggests that the best learning environment for the beginning driver is the real road system under the supervision of an experienced driver or instructor (12, 23). Learner drivers under supervision on-road have a low risk of crash involvement, probably the lowest of all driver groups (44-45). The accumulation of an on-road driving “experience bank” is perhaps the major potential contributor to reduced crash risk in solo driving for novice drivers (6, 19).

In some North American States or Provinces, the completion of approved driver education or training (provided by driving instructors or via high school driver education) has allowed learner drivers to shorten their learner permit period or lower the number of experience hours, required for a solo driving licence. Recent research has shown that the provision of these “time discounts” has resulted in significant increases in crash involvement among new drivers granted this discount (46-49). Researchers concluded that driver training or education cannot substitute for driving experience gained as a learner. In light of these findings, driver licensing authorities are moving to remove such time discounts.

The effectiveness of driver training for young and/or recently licensed drivers

Some young or recently licensed drivers attend post-licence driver training courses in the belief that this may improve their driving skills and reduce crash risk. At face value, this has some intuitive appeal. New drivers are at greatest crash risk in the first six months of solo driving (6, 50). However, there would appear to be little evidence that training programs undertaken by young and/or recently licensed drivers are effective in reducing crash risk or traffic violations (6, 18, 51-53). Such training often leads to an increase in confidence and optimism bias (i.e. where novices can believe that they are more skillful than they actually are) and sometimes an increase in crash risk for novices, particularly young males (12, 14-18, 40).

From a theoretical perspective, there is support for the development and application of programs that target optimism bias, over-confidence and attitudinal or motivational factors that influence driving behaviour (23, 54, 55). Several programs using this approach – sometimes referred to as “Insight” training - have been trialled in Sweden (56) and the Netherlands (57). Evaluations using behavioural rather than crash-based methods have been undertaken. However, there is little evidence thus far that this type of training reduces crash/violation risk among novices as few crash-based studies of these newer approaches to training have been completed (13, 19).

The effectiveness of driver training for experienced drivers

There is no sound evidence that either advanced or defensive driving courses reduce the crash involvement of experienced drivers who attend them (4, 5, 58). This is perhaps not surprising as such drivers, particularly those between the age of 25 and 59 years, are quite experienced and already have a relatively low crash risk per distance travelled.

There is evidence from US studies that some programs designed to reduce offence rates among drivers with a history of traffic violations may be effective, but this does not seem to translate into reduced crash involvement (59-60).

Driver training may be more effective in fleet settings than for drivers in general (4, 61-63). However, crash reductions among fleets that have been attributed to driver training programs often disappear when the effects of other factors are taken into account (64). Swedish research suggests that other more economical measures, such as group discussion on safety issues and incentive programs may be more effective in crash reduction terms than driver training programs (5, 64).

Why does driver training not seem to be effective in reducing crashes?

Promoting driver training as a means of improving driving skills and knowledge assumes that there are deficiencies in the skills or knowledge of drivers, and that these can be improved via training. It also assumes that these skill deficiencies increase the risk of crash involvement. These assumptions are largely false and based on beliefs not supported by the weight of research evidence (16, 65, 66).

It may be unreasonable to expect driver training to deliver crash reductions (4, 67). Improving knowledge and skill does not always lead to a change in behaviour among drivers. Furthermore, a driver trainer has little control over the post-course behaviour of trainees, the motivation of trainees to apply what has been learned or the many other risk factors that may contribute to crash causation. Drivers, particularly young drivers, can and do take risks that have little to do with how much skill and/or knowledge they have, but much to do with motivation and psychological factors (4, 6, 66, 68, 69). There is little evidence to suggest that driver training accelerates the development of hazard perception skills, or other cognitive skills. These skills are developed largely via the experience of real world driving (7, 12, 19, 35, 70).

Some driver training programs claim to modify "attitudes". Even if attitudes could be changed it would not necessarily be helpful as there is a poor causal relationship between attitude and actual behaviour (65, 71). In addition, driver training is unlikely to undo firmly established past learning laid down through weeks, months and years of practice and experience, nor alter motivation or change underlying personal values.

Alternatives to conventional driver training

Research suggests that alternative road safety initiatives may be more beneficial than conventional driver training, particularly among novice drivers. Alternatives worth considering include:

Increasing the amount of supervised on-road experience that learner drivers receive:

Research shows that learners who received about 118 hours of supervised experience had up to 35% fewer crashes than those who received only 41-47 hours (37). Later research also showed that, those who practised more as learner drivers had lower crash involvement after licensing (72, 73). VicRoads, Transport Accident Commission (TAC), Royal Automobile Club of Victoria (RACV) and other road safety organisations have encouraged learner drivers to gain lots of supervised pre-licence driving experience (45). From July 2007 Victorian learner drivers require a minimum of 120 hours of supervised, on-road instruction/experience prior to solo driving (74).

Programs have been developed by VicRoads, the TAC and RACV to encourage learners to gain greater supervised experience through cooperation between parents and driving instructors (45, 74-77).

A different type of training:

Improvements in driver training may be achieved in the longer term by concentrating on cognitive and perceptual skills, together with a greater emphasis on how factors such as beliefs and motivation shape driver behaviour (19, 20, 66, 78). This would require a different type of training program than is currently offered. Education programs delivered over several years, perhaps through secondary schools, to foster development of safe attitudinal /motivational factors, have also been suggested as an alternative to short-term driver training (20, 79). While theoretically sound, the effectiveness of such programs in effecting changes in attitude, behaviour or crash risk is yet to be proven (6, 19, 20).

National novice driver programme trial:

In 2005, the Australian, New South Wales and Victorian Governments together with the Federal Chamber of Automotive Industries (FCAI), the Insurance Australia Group (IAG) and the Royal Automobile Club of Victoria (RACV) announced a trial, to be funded by them, of a special novice driver education program. The trial will involve 7,000 young drivers in New South Wales and 7,000 Victoria and equivalent numbers of young drivers in control groups in the two states. The intent of the trial is to measure the road safety effects of best-practice approaches to the education and development of novice drivers (80). For further details visit the Australian Transport Safety Bureau (ATSB) website (81).

Graduated licensing schemes:

Under a Graduated Licensing Scheme (GLS) novice drivers do not receive an unrestricted solo driver licence immediately and must gain experience under lower risk conditions (e.g. zero blood alcohol content) and remain relatively offence free over a period of up to three years (7,19). GLS programs have been described as "apprenticeship" systems for new drivers where they gain experience under less risky driving conditions before "graduating" to an open licence with few restrictions (82). While GLS programs vary in content and duration and apply across jurisdictions with minimum solo licensing ages ranging from 15 to 18 years, the central risk reduction aim is the same (19, 76). To be effective, GLS conditions need to apply to all new drivers regardless of where they live as increased crash risk is not confined to rural, regional or urban areas (70, 82).

Research shows that while many individual GLS differ in respect of the conditions they contain, crash-based evaluations in New Zealand and North America show statistically significant reductions in novice driver crashes typically ranging from about 7% to over 20% (19, 82, 83). The most effective GLS are those that contain restrictions on passenger carriage and late night driving in the first six to 12 months of solo driving (18).

Most Australian States and Territories have a GLS of some kind. For example, Victoria applies a GLS approach to novice drivers and in 2006 expanded the program to include restrictions on mobile phone use for novices and the requirement for learner drivers to accumulate at least 120 hours of supervised on-road experience before being eligible for gain a probationary licence (74).

Higher order testing within a graduated driver licensing program:

Some graduated driver licensing programs require novices to pass additional tests of higher-order skills to progress to less restricted licensing levels and to "graduate" to full licence status. For example, the NSW GLS requires novices to pass a screen-based Hazard Perception Test (HPT) in order to graduate from the most restricted P1 licence (the first solo licence) to the less restricted P2 licence (84, 85). This is a touch-screen computer test that measures the candidate's ability to recognise and respond to potentially dangerous situations and to react appropriately. Preliminary research from Victoria's use of similar hazard perception testing within the probationary licensing system suggests that such tests can predict novice drivers likely to be at greater crash risk (86). Research into the effectiveness of HPT is continuing in Australia and overseas.

Comprehensive fleet management safety programs:

A combination of approaches can help reduce crash risk and involvement within company fleets (62, 64, 87, 88). A multifaceted approach to fleet safety dealing with the selection of vehicles (i.e. purchasing only vehicles with good crashworthiness features) and management of where, when and how vehicles are used may help reduce crash risk. Recent studies have identified ways of increasing fleet safety via the application of best practice approaches (87). This includes the implementation of integrated occupational health and safety policy and practices within the organisation to influence fleet vehicle selection, education about safe vehicle use for employees, incentives for crash free driving (not rewards) and the promotion of a safety culture within the organisation (87, 88). Research into understanding and improving fleet safety continues (89, 90).

Enforcement:

Police enforcement is effective, particularly when drivers understand that they will get caught and perhaps lose their license if they break the law (91). The most effective enforcement targets behaviour such as drink-driving, speeding and red light running (92, 93).

Conclusions

Overall, the research evidence suggests that most driver training contributes little to reductions in accident involvement or crash risk among drivers of all age and experience groups. Low individual crash risk and decay of learning work against the potential effectiveness of driver training programs that concentrate on car control skills or deal with rare events such as emergencies. The high motivation which trainees usually bring to driver training does not compensate for these factors.

Improving driver knowledge and skill does not always lead to a change in on-road behaviour or reduced crash risk among trainees. While skill and knowledge are important, particularly for novice drivers, they have little influence on the driving environment or conditions under which driving behaviour occurs post-training. On-road driving experience is the only way most higher-order cognitive skills related to driving (e.g. hazard perception) are developed and maintained. Conventional driver training is unlikely to undo firmly established past learning laid down over weeks, months and years of practice and experience, nor alter motivation or personal values.

It is of concern that the provision of conventional driver training beyond that required to gain an initial driver licence often leads to increased crash risk among novice drivers. Research suggests that this is because the training can encourage earlier licensing, increase exposure-to-risk and/or unduly increase the confidence of novices about their driving abilities.

Resources committed to traditional driver education/training may also divert scarce funds and community attention away from more effective initiatives likely to reduce crash risk. However, there is some suggestion that, due to its high face validity and popularity, driver training may have a place in risk reduction programs in fleet settings, but only as one small part of an integrated road safety program.

A better alternative for novice drivers is to promote extensive driving experience among learners. This approach has been taken up by most Australian driver licensing jurisdictions and some in North America via the implementation of GLS which provide for and encourage learner drivers to gain more supervised, on-road driving experience before solo driving. However, this approach requires cooperation between novice drivers, parents (or supervisors) and professional driving instructors over a period of months and perhaps years.

Research and development in respect of driver training, including the National Novice Driver Programme Trial may eventually show some approaches to be useful in reducing casualty accident risk/involvement. In the interim, other approaches such as increased supervision and graduated licensing for novice drivers are likely to make greater and more lasting contributions to road safety.

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