ROAD SAFETY IMPLICATIONS OF FURTHER TRAINING FOR YOUNG DRIVERS

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1 A BRIEF STATEMENT OF THE ISSUE

Young drivers' high involvement in road crashes is often attributed to a lack of driving skills. Consequently, there is a regular call to make additional driver training mandatory, either before or during the first years of driving.

2 AN ASSESSMENT OF THE ROAD SAFETY ISSUE

In Australasia as in most Western societies, young drivers are over-involved in road crashes. Figure 1 shows, the average annual involvement of drivers of different ages in serious casualty crashes per distance driven in Australia in 1996 (Fildes et al. 2001).

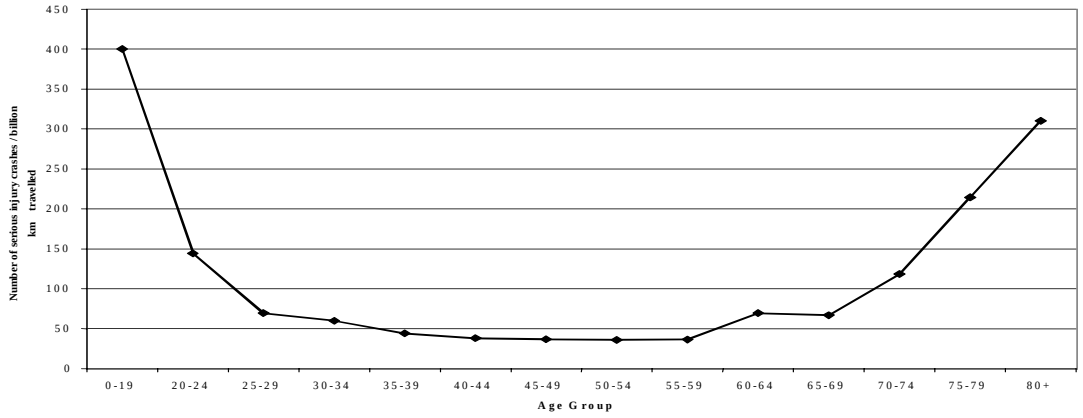

Figure 2.1: Age of driver and serious injury crashes per distance travelled, Australia, 1996 (Fildes et al. 2001).

The association between age and crash involvement shown in Figure 1, holds true at very specific levels: drivers starting to drive at 18 will have fewer crashes that drivers starting at 17, drivers starting to drive at 19 will have fewer crashes than drivers starting at 18 (Maycock, Lockwood & Jester 1991). It generally takes some 20 years following licensing to achieve the safest driving levels.

The high crash involvement rates during the first years of driving have frequently led to a call for more and better training of novice drivers. For example, during the 2004 election campaign the current Australian national government committed to introduce national compulsory driver education for all new provisional licence holders – a step explicitly aimed at reducing young drivers' crash involvement (Australian Transport Safety Bureau 2005). As a result of that commitment, a novice driver education program is currently being trialled in New South Wales and Victoria, involving 14 000 'cases' and a further 14,000 'controls'.

However the role of driver training in promoting the onset of safe driving is at best, questionable:

> Possibly no single traffic intervention has been the subject of so much controversy. To supporters, the programs are responsible for decreasing highway carnage. To some opponents, they are responsible for increasing death and injury, because they (may) encourage more drivers in the highest-risk years to be on the road. (p. 133) (National Committee for Injury Prevention and Control 1989).

3 A REVIEW OF THE RESEARCH

3.1 Setting the scope

Driver training and driver education may be differentiated along the following lines (Horneman 1993):

- driver training relates to car control or to the techniques of handling a vehicle
- driver education is a broader term which may include driver training but extends to a fuller knowledge and understanding of the driving task in all its complexity.

However the distinction is difficult to maintain when examining the research literature, in part because many authors regard the terms as synonymous and, in part, because many studies provide insufficient program details to allow full differentiation. In this paper the term ‘training’ will include both types of activity.

Driver training also comes in many forms and has a range of target groups, including mature and older drivers. This paper is restricted primarily to programs aimed at young people either about to acquire a licence or going through the preliminary stages to full licensing.

3.2 The evidence from the research

One-to-one pre-licence training

The most common form of pre-licence driver training is one-to-one instruction in basic car control skills and road law knowledge from a friend, relative and/or professional driving instructor. This training, while highly effective in bringing trainees from non-driver to licensed status, does not guarantee subsequent safe or crash-free driving – with the safety outcomes largely independent of the source of instruction (Christie 2001).

High school driver training programs

Programs based in secondary schools represent a second form of pre-licence driver training, designed to supplement conventional one-on-one driver instruction.

A key study in evaluating the road safety impact of school-based driver training programs is the DeKalb project (Horneman 1993; Cercarelli 1994; Henderson 1991), conducted in the USA in the late 1970s and early 1980s at the cost of some $US4m. This study has come the closest to controlling for the many factors which customarily bedevil evaluation studies in this area and, in particular, managed to control for self-selection biases by randomly allocating students to either one of two levels of driver education groups, or to a group which received no driver education.

Students who received either level of driver education had significantly fewer accidents and fewer violations during the first six months of driving than students from the control group. These differences, however, disappeared after a further eighteen months of driving. Further analysis showed that driver education led to earlier licensing which meant more crashes per capita for the two experimental groups. Later analysis also suggested that despite earlier licensing, the two driver education groups reported less driving exposure than the control group – a finding that may well have explained the reduced crashes during the first six-month period (Lundt, Williams & Zador 1986). The overall conclusion: neither level of driver education can be viewed as an effective road safety countermeasure.

Since the DeKalb project, there have been many individual evaluations of different driver training programs, as well as numerous reviews of these evaluations. The message has been consistent over the past twenty or so years. For example, a recent Australian review:

> The research literature suggests that, beyond imparting basic car control and road law knowledge skills, pre-licence driver training/education contributes little to post-licence reductions in casualty crashes or traffic violations among novice drivers. In addition, mandatory pre-licence training ... may contribute to increased exposure-to-risk for young drivers, particularly females, by encouraging early solo licensing. 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. This pattern of results has been confirmed and replicated in Australia, New Zealand, North America, Europe and Scandinavia during the last 30 years. (p. iv) (Christie 2001).

Overseas reviews return a similar message.

A US review in 1999 (Vernick at al. 1999) identified twenty-seven studies relating to the evaluation of driver training/education programs for high school students. Eighteen of the studies were subsequently eliminated, due mainly to methodological limitations (non-random assignment of participants, no adequate control group, inadequate outcome measures etc.). Based on the remaining nine studies (two randomised control trials, two subsequent re-analyses of one of the trials and five ecological studies), it was concluded that not only was there no convincing evidence that high school driver education programs reduced young drivers' crash involvement - but there was also evidence that these programs were associated with earlier licensing and hence increased crash involvement rates.

Another review looked at sixteen studies published over the period 1967-96 which sought to evaluate novice driver training programs (Elvik & Vaa 2004). When the effects of all studies were combined, it was found that drivers from training programs had 2% fewer crashes than drivers without formal training. However it was also recognised that the evaluations varied in quality, particularly in regard to methodological factors. When the evaluations were restricted to those using a random control design, it was estimated that attendance at a formal training course was associated with the same crash rate per capita but with an 11% increase in the per-distance crash rate. (Crash rates commonly pertained to the first one to two years after independent licensing.) The random control studies also showed a negative dose-response association: that is, the more driving lessons taken, the greater the increase in crash rates.

A UK study searched the main safety publication databases for the period 1968-2000 to identify randomised control trials which compared the licensing and crash outcomes of participants in school-based driver education to outcomes for non-participants (Roberts & Kwan 2005). Only three trials met the specified criteria. Two of the trials assessed the impact on licensing – one showing a greater licensing rate for training participants, the other showing earlier licensing for participants. In considering crash consequences all three trials showed that young drivers who underwent training had higher crash rates than drivers without training, although in all three instances the differences were not statistically significant. It was concluded that driver training while leading to earlier licensing, can provide no evidence of any crash reduction benefits.

Post-licence driver training

Young driver training may also be undertaken following full licensing, usually as either defensive or advanced driving courses. (Defensive training aims to assist drivers in avoiding risky situations whereas advanced training aims to impart skills that allow drivers to cope with critical situations once they have arisen). After reviewing the available studies in this area, Christie was unable to find evidence to support the existence of road safety benefits arising from either of these courses (Christie 2001). After searching through some 1300 studies of possible relevance, UK researchers identified twenty-four randomised control trials which sought to evaluate the outcomes of post-licence driver education courses (for drivers of all ages) - (Ker, Bunn & Roberts 2003). Although there was some evidence of program attendance being associated with a small reduction in later traffic offences, there was no evidence that the programs were effective in reducing crashes or injuries.

(Usually) post-licence training can also allow young drivers accelerated movement through the various stages of licensing upon successful completion of an approved training course. The only evaluation (Boase & Tasca 1998) found in the preparation of this paper dismissed any associated safety benefits. Ontario's graduated licensing program allows an intermediate licensing level to be reduced from one year to eight months after passing an approved training course covering road rules and basic vehicle operation skills. When the subsequent crash rates of graduate drivers with and without training were compared, it was found that drivers with training had a 45% higher collision rate than untrained drivers. The authors suggested differences in driving exposure as a possible explanation.

Skidpan and related training has its own particular place in young driver training, whether as a pre- or post-licence option. Its alleged benefits rest upon the assumption that a substantial proportion of crashes are attributable to a lack of vehicle-control skills: increased exposure to assorted manoeuvres on a skidpan will improve these skills and thus reduce accidents. However, any claimed benefits do not stand up to close examination.

Attendance at skid training programs in Norway has been associated with increased, rather than reduced, crash involvement – an outcome which was attributed to participants' subsequent driving styles being influenced by an over-confidence in being able to handle emergency situations (Glad 1988; Katila et al. 1996; Keskinen et al. 1992). In 1990 in Finland, a compulsory skid training course was added to training curricula. Self-reported crash and other data were collected from novice drivers, some of whom were licensed immediately before the new provisions, some immediately after. The results showed that the new curriculum drivers (like their Norwegian counterparts) were also more confident of their driving skills but had no different crash rates from drivers who trained under the old curriculum – a finding which was curiously interpreted as indicating that the renewal of the Finnish driver training system was at least partly successful (Katila et al. 2004).

3.3 Why conventional driver training fails to reduce young drivers' crashes

Possible reasons for driver training ineffectiveness include:

- It may be unreasonable to expect driver training to work, given that the courses are generally of short duration and often concentrate on acquiring only the basic skills. Any course impact, even if it does include a safety component, is too easily swamped by other influences (peers, parents, marketing forces etc.) - (Williams & Ferguson 2005).
- Many of the participants may be relatively unmotivated to acquire safety habits – partly because of the stage of their lives, partly because of the primary objective of getting a licence rather than necessarily driving safely (Williams & Ferguson 2005).
- Training often contributes to earlier licensing (even if formal training does not shorten the qualifying period) and, hence, increases overall driving exposure.
- The relevant skills that might be imparted by training are likely to decay over time through lack of practice and need, given that crash-threatening circumstances are rare even amongst young drivers.
- Training courses typically aim to improve basic driving skills and knowledge whereas the research indicates that deficiencies in these skills have a minimal role in crash causation (Woolley 2000). Rather, the main causes of young driver crashes appear to be the absence of those higher-order skills arising from practice and experience, excessive risk-taking (arguably characteristic of adolescence), and exposure to high-risk circumstances, for example, driving late at night (National Highway Traffic Safety Administration 1999).
- There is also the argument that higher-order cognitive and information-processing skills necessary for safe driving, ultimately require sustained driving practice (Harrison, Triggs & Pronk 1999). Many conventional driver training programs are arguably, necessarily restricted to learning earlier lower-level skills, given most programs' time frames.
- Perhaps driver training courses do succeed in imparting many safety-related skills – but young drivers in response to those skills drive with excessive confidence and greater abandon (Elvik & Vaa 2004).
- Perhaps driver training courses do have safety benefits and the evaluation methodologies are too poor to identify those benefits (Elvik & Vaa 2004).

3.4 The way forward

Promising alternatives to conventional training programs for young drivers include (Christie 2001):

- Encourage the acquisition of more experience and experience under a greater range of driving conditions, especially during the learner period when the learner is accompanied by an experienced driver and has a reduced crash risk (Gregersen, Nyberg & Berg 2003).
- Use graduated licensing principles to ensure that the learning driver is exposed to the full range of driving conditions in a systematic and controlled manner.
- Improved assessment of higher-order driving skills within licensing structures, in particular, hazard perception skills.
- Continue to develop and evaluate new approaches to training that transcend the conventional focus upon basic driving skills and road knowledge.

As an example of a new approach, insight training targets young drivers' over-confidence (Senserrick 2001). While providing behind-the-wheel training to develop basic vehicle control skills, insight training mainly aims to produce awareness of the individual's limitations in crash-threatening circumstances (Gregersen 1999). The intended result is a driver who drives with greater safety margins than those produced by conventional training. Early evaluations have been both promising (Siegrist 1999; Keskinen et al. 1999) and less than enthusiastic (Nolen & Nyberg 2001).

4 POLITICAL, SOCIAL AND OTHER FACTORS ASSOCIATED WITH YOUNG DRIVER TRAINING

> Despite decades of research indicating driver education does not reduce crash involvement amongst beginning drivers, it still has tremendous popular appeal as a means to improve driver safety. … For example, a survey in the United States found that 86% considered driver education courses as 'very important' in training new drivers to drive safely. Only 2% thought it was not important. When the young driver problem is addressed in public forums, there inevitably is an appeal for more or better driver education (p. 4) (Williams & Ferguson 2005).

There remains a widespread belief that increased training of young drivers should work, just as training works in many other areas of human behaviour. This tendency is strengthened by parents' concern for the safety of their children as they approach licensing age. They are keen that intuitively sensible solutions be implemented to reduce young drivers' alarming crash rate. The appeal for better novice driver training can also be seen as part of the practice of attributing the blame for crashes to defects in the user rather than the road system or vehicle features – thereby allowing attention to be shifted from the latter components.

The expectations for driver training notwithstanding, the promotion of conventional programs, together with the costs that would be imposed on young drivers or their parents, cannot be defended in view of the lack of positive research evidence.

5 CONCLUSIONS

Whilst the issue of young driver over-involvement in road crashes represents a major road safety issue, the research suggests that conventional training programs are unlikely to lead to safety benefits. Other options, such as extension of practice during periods of supervised driving and the further development of graduated licensing schemes are generally viewed as more promising priorities in this area.

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