



## COVER SHEET

---

**This is the author-version of article published as:**

Bates, Lyndel and Watson, Barry and King, Mark (2006) Competing or complementing: Driver education and graduated driver licensing. In *Proceedings Australasian Road Safety, Policing and Education Conference*, Gold Coast.

**Accessed from** <http://eprints.qut.edu.au>

# **Competing or complementing: Driver education and graduated driver licensing**

Lyndel Bates, Barry Watson, Mark King

Centre for Accident Research and Road Safety – Queensland  
School of Psychology and Counselling  
Institute for Health and Biomedical Innovation  
Queensland University of Technology

Contact: Lyndel Bates, lj.bates@student.qut.edu.au

## **ABSTRACT**

Driver education and graduated driver licensing are two countermeasures designed to help reduce the crash risk of young novice drivers. However, while driver education enjoys popular support there is a lack of evidence confirming that it reduces crash risk. In contrast, research has suggested there is a strong link between the introduction of stronger graduated licensing schemes, which includes restrictions such as limits on late night driving or peer passengers and crash reductions. This paper will present preliminary findings from a survey of novice driver experiences in Queensland. Implications for the better integration of licensing requirements and driving training are discussed.

## **INTRODUCTION**

Young novice drivers are at high risk of being involved in crashes compared to other age groups throughout the world. This risk commences, and is highest, during the first few months of driving alone. However, drivers on a learner licence have a low risk of crashing as they are driving under supervision, drive relatively infrequently and tend to drive in situations with limited risk (Williams, 2003).

Two countermeasures used frequently to address the crash risk of novice drivers are driver education and graduated driver licensing (GDL) (Gregersen et al., 2000). Driver education teaches focuses the skills required to drive a vehicle safely, including car control and hazard perception skills (Langford, 2002). GDL is a licensing system that gradually introduces new drivers to more complex driving situations as they progressively gain driving experience (Simpson, 2003) and its philosophy of gradually increasing exposure to risky situations distinguishes it from other licensing processes. GDL systems typically have three stages: a *learner*, *intermediate* (also known as a provisional licence in most Australian jurisdictions) and *full* licence (Williams & Mayhew, 2003).

## **Effectiveness of driver education**

Although the provision of formal driver education courses may make intuitive sense, research has failed to link this with a reduction in road crashes for improved safety outcomes (Hatakka,

Keskinen, Gregersen, Glad, & Hernetkoski, 2002). Traditional driver education courses have generally been one-off and had a strong focus on developing driving skill rather than the wide range of factors influencing novice driver crash risk (Watson et al., 1996). The effects of safety messages provided in these short, driver training programs are probably overwhelmed by the other influences including parental, peer and other social influences that shape the young driver's behaviour (Williams, 2006). Sagberg & Bjornskau (2006) argue that although teaching learner drivers their car control skills as well as road law knowledge is important, it is the higher-order skills that accounts for the difference in crash risk between novice and more experienced drivers. More recent education programs have attempted to help novice drivers develop their higher-order skills such as hazard perception and attitudinal factors such as overconfidence, although the effectiveness of such programs remains unclear (Christie, 2001).

Education is not a homogenous product and some programs may be more effective than others. For example, there is some evidence that insight training may reduce crashes and help new drivers realise the limitations of their driving skills. An insight training program focuses on the attitudes and motivations of the drivers rather than just the physical skills of driving in order to develop the drivers understanding of the various risks associated with driving including the factors that increase the risk of crashing (Senserrick & Swinburne, 2001). An evaluation of this training by Nolen and others (2002) showed that drivers aged 18 to 24 years were still affected by the initial training two years after they completed the course. The results indicated that the drivers reported that they left a greater distance between their vehicle and the vehicle in front, had better overtaking behaviours, used larger safety margins and were more likely to wear a seatbelt compared with drivers who did not undertake the training. However, the research was unable to identify if the changes in driving practice translated to crash reductions.

### **Effectiveness of graduated driver licensing**

A GDL system is not intended to stop new drivers from deliberately taking risks; rather, it aims to reduce the crash risk for inexperienced drivers by limiting their exposure to dangerous situations on the road (Waller, 2003). In the more comprehensive GDL systems, there are generally three licensing stages: learner, intermediate and full, with different restrictions and driving conditions placed on the drivers at each stage (Williams & Mayhew, 2003). The aim of the learner licence is to provide learner drivers with the opportunity to learn driving skills and to practise these skills under the supervision of a more experienced driver, such as a parent or professional driving instructor. After graduating from the learner stage, new drivers receive a provisional licence, which allows them to drive without a supervising driver but subject to certain restrictions. These restrictions vary between jurisdictions but may include late night driving and passenger restrictions, and lower alcohol limits (Lin & Fearn, 2003). After new drivers graduate from their provisional licence, they receive an open licence with full driving privileges. Williams & Mayhew (2003) suggest that an effective GDL system would contain a minimum six month learner phase with a required minimum amount of supervised driving, generally between 30 and 50 hours (some of which is allocated to night time driving), a night time and/or a passenger restriction for drivers on a provisional licence, and not issue an open licence before the age of 17.

In contrast to the lack of evidence for driver education, evaluations of GDL systems around the world have demonstrated reductions in crashes ranging from four per cent to 60 per cent (Simpson, 2003). This difference may be the result of different research methodologies, or it

might be differences within the GDL systems themselves. An evaluation of the comprehensive New Zealand GDL system introduced in 1987, which includes lower alcohol limits, night driving and peer passenger restrictions, found a sustained reduction of eight per cent in the number of drivers aged 15 to 19 years that were involved in crashes up until 1992 (Begg & Stephenson, 2003).

A feature of GDL systems is the extended length of time over which practice occurs. In this regard, it has been argued that driving practice is more effective if it is distributed over time rather than if it occurs at one time (Waller, 2003). In some jurisdictions, learner drivers must obtain a legislatively mandated amount of practice, generally 50 hours (Simons-Morton & Ouimet, 2006). Gregersen and others (2000) evaluated a Swedish system that allowed individuals to commence learning to drive at 16 years rather than 17 and half years. By age 18, when they were able to obtain their full licence those who started learning as 16 year olds completed almost 118 hours on average while those who started learning at 17 and half drove between 41 and 47 hours on average (Gregersen, 1997). The evaluation found a 40 per cent reduction in crashes compared with the pre-reform group of learner drivers that was statistically significant (Gregersen et al., 2000). Overall, the novice drivers who actively participated in the practice had reduced crash risk.

### **Competing or complementary systems?**

Historically, driver education and graduated driver licensing have been treated as separate countermeasures implying that they are independent of one other and to some degree competitors; however, in some jurisdictions they are now converging into a more complementary relationship. For instance, the Ontario driver education program consists of at least 25 hours of classroom training, 10 hours of practical training and provides learner drivers with a time discount for completion. An evaluation of the Ontario driver education and driver licensing system suggested that driver education undertaken in the learner stage reduced the risks of collisions during the time that the individual's licence was subject to a number of licence restrictions (Zhao et al., 2006). However, this result should be interpreted with caution as previous evaluations suggested that novices who had undertaken driver education in the Ontario system had a higher crash rate, possibly due to exposure differences. Zhao and colleagues (2006) attempted to control for the effects of driving exposure and driving experience in their study.

In Finland, learners must complete a set curriculum and a minimum number of lessons and drivers on an intermediate licence must complete a driver education program that involves a feedback session regarding safety-related aspects of the individual's driving. Activities that centre on driving more slowly in order to reduce crash risk and a small-group discussion that uses the group's driving experience in order to focus on safety issues are incorporated into the program (Harrison, 2004). This program is completed after drivers have had six months to two years of driving experience. If the novice program is not completed, the individual returns to a learner licence. Harrison (2004) reviewed the research relating to this program and concluded that the young drivers who completed it had reduced crash risk. However, further research is required to disentangle the effects of the program and other factors.

These two studies provide some preliminary evidence for the potential benefits of integrating driver education and GDL. With this in mind, this paper will present preliminary findings from a

larger study which is designed to improve our understanding of how individuals learn to drive in Australia by comparing learner drivers in Queensland with those in New South Wales. Its purpose is to identify the personal, social, legal (including licensing requirements) as well as socio-demographic factors that influence the experience of novice drivers during the learner phase, with a special emphasis on licensing and training practices. Queensland and New South Wales have been selected for this study because they provide examples of two different GDL systems within Australia. This paper presents some preliminary findings that enable us to describe learner driver experiences in Queensland.

## **METHOD**

This study is part of a larger cross-sectional study which involves interviewing novice drivers shortly after they have obtained their provisional licence. By adopting a cross-sectional design, it is hoped to obtain a higher response rate and thereby obtain a more representative sample. This will provide an interesting contrast to the samples collected in large cohort studies, which have typically lower response rates.

The 97 participants in this study were novice drivers who had passed their practical driving test in Brisbane, Queensland. The response rate was 74 per cent. Participants were generally young. The mean age was 20.4 years ( $sd = 5$ ), with the youngest participants aged 17 and the oldest participant 39. The median age was 18 years and the most common age was 17 years. Just over 60 per cent (62.8 per cent) of the sample were engaged in formal study. Of the participants, 54.6 per cent were male and 45.4 per cent were female.

Self-report data was obtained from participants regarding the supervised practice they completed whilst driving on their learner licence, information about when they first obtained their learner licence, access to a vehicle and their supervisors. They were also asked whether or not they had participated in a formal driver education course, who made the decision to participate in such a course and whether it was classroom or practically based.

Recruiters approached individuals after they had completed their practical driving test and had obtained a provisional licence. Potential participants were provided with details about the purpose of the study, the time commitment and offered a movie ticket as an incentive. If individuals agreed to participate, the recruiters asked participants for their contact phone number and the most appropriate times to call. Within a few weeks of recruitment, the structured interview was conducted by telephone, taking approximately 20 to 25 minutes. The Queensland University of Technology provided ethical approval for this study. The Statistical Package for the Social Sciences (SPSS) was used to obtain frequencies and cross-tabulations in order to describe learner driver experiences.

## **RESULTS**

The average income of the learner drivers who participated in this study was relatively low. Half of the sample (50.6 per cent) were earning less than \$10,000 a year before tax with a further 19.2

per cent earning between \$10,001 and \$20,000 gross per annum. Only 3.4 per cent were earning more than \$60,000 gross per annum.

As a general rule, most individuals passed the learner theory test with their first or second attempt. Half of the group (50 per cent) had sat the learner theory test once while 32.3 per cent had sat it twice. Almost 14 per cent (13.5 per cent) of participants sat the learner theory test three times, 3.1 per cent had attempted the test four times and one per cent made five attempts.

Access to a vehicle appears to be an issue for a significant group of learners. While many participants had access to a household vehicle in which they could practice, 11.3 per cent did not. A further 36.1 per cent had access to only one household vehicle, while 22.7 per cent had access to two vehicles, 19.6 per cent had access to three vehicles, and 10.3 per cent had access to four or more vehicles.

Most learners spent 12 months or less actively learning to drive. As shown in Figure 1, 38.1 per cent of learners spent six months or less learning to drive. A further 41.2 per cent spent between seven and 12 months. Just fewer than 10 per cent (9.3 per cent) of participants spent between 13 and 18 months learning to drive with a further 2.1 per cent of participants spending between 19 and 24 months. Of the remaining individuals, 2.1 per cent spent 25 to 30 months while 7.2 per cent spent more than 31 months or two and half years learning to drive.

Figure 1: Length of time learners spent actively learning to drive in months

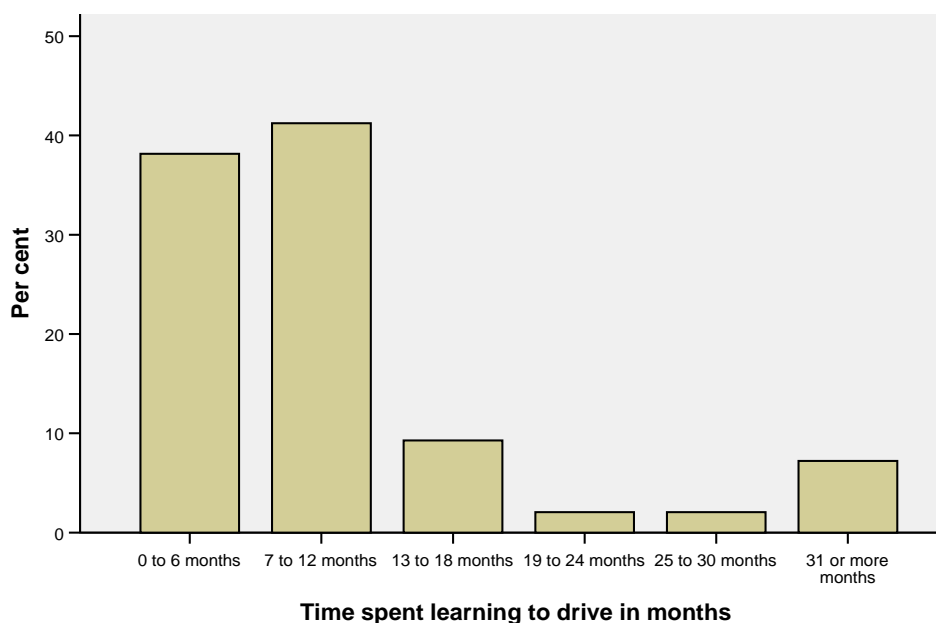
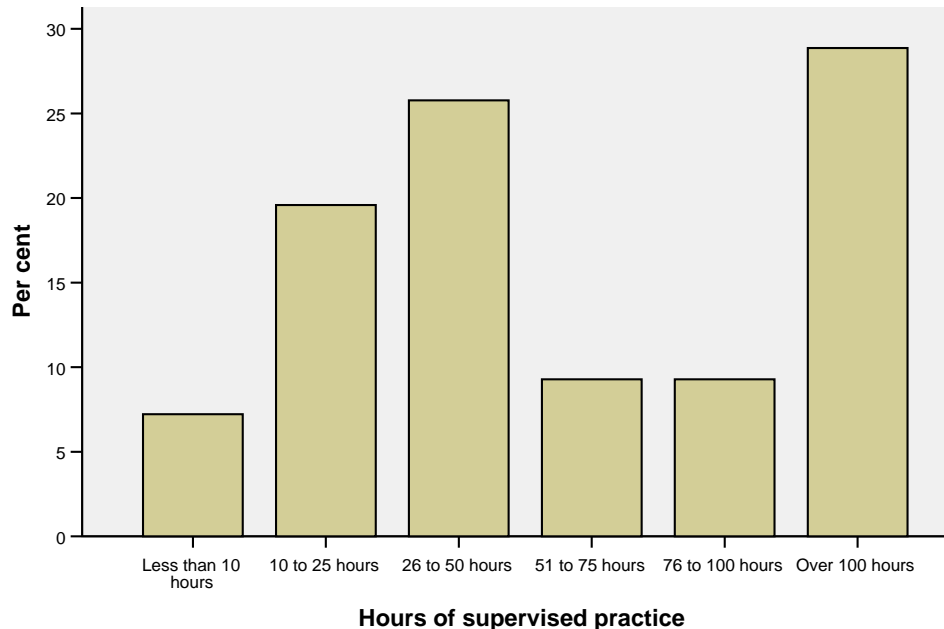


Figure 2 shows the number of hours learners estimated they spent learning to drive under supervision. Some participants (7.2 per cent) successfully completed the practical driving test with reportedly less than 10 hours of instruction and practice, 19.6 per cent of participants obtained 10 to 25 hours of instruction and practice, 25.8 per cent completed between 26 and 50 hours, 9.3 per cent between 51 and 75 hours, and 9.3 per cent between 76 and 100 hours. The

largest group in the sample was those participants who obtained over 100 hours worth of instruction and practice (28.9 per cent).

Figure 2: Hours of supervised practice and lessons completed while driving on learner licence



Participants spent more time practising with parents and friends than undertaking lessons with professional driving instructors. The mean amount of time participants spent learning with professional driving instructors was 14.7 hours (sd = 21.6 hours) while the median was 9 hours. The mean amount of time participants spent with private driving supervisors was 51.4 hours (sd = 54). The median was 35 hours. Within the sample, 6.3 per cent did not practice with parents or friends at any time. This compares with 2.1 per cent who did not undertake supervised driving with a professional driving instructor while on their learner’s licence.

Table 1 provides a breakdown of the participants in terms of the amount of professional training and private practice they reported obtaining while on their learning licence. As shown, 80 participants (83.3 per cent) had less than 20 hours lessons with a professional driving instructor. Only two people (2.1 per cent) had 100 or more hours with a professional instructor. Although lessons with professional instructors was less than 20 hours for the majority of the sample, nearly one quarter of this group (23.8 per cent) obtained 100 or more hours of practice with private instructors such as parents or friends as well as their professional driving lessons. In contrast with the amount of time spent in lessons undertaken with professional instructors, the amount of practice undertaken with private instructors is spread more evenly. Thirty-three participants (34.4 per cent) had 19 hours or less practice with parents or friends while 22 people (22.9 per cent) completed 100 or more hours with private supervisors.

Table 1: Structure of supervised practice with professional driving instructors and private supervisors (number of individuals)

		Hours spent with a private supervisor							Total individuals
		0 hours	1 to 20 hours	20 to 39 hours	40 to 59 hours	60 to 79 hours	80 to 99 hours	100 hours or more	
Hours spent with a professional Instructor	0 hours	0	1	0	0	0	0	1	2
	1 to 20 hours	1	23	13	9	8	6	18	78
	20 to 39 hours	2	2	2	1	1	0	1	9
	40 to 59 hours	2	0	0	1	0	0	0	3
	60 to 79 hours	0	1	0	0	0	0	0	1
	80 to 99 hours	1	0	0	0	0	0	0	1
	100 hours or more	0	0	0	0	0	0	2	2
	Total individuals	6	27	15	11	9	6	22	96

Fourteen per cent of the sample reported that they had driven unaccompanied while on a learner licence. The amount of time that this group drove unaccompanied ranged from 2 minutes to 100 hours (mean = 11.7 hours, sd = 26.4, median = 1). However, the one person who had driven 100 hours was an extreme example.<sup>1</sup> The second largest amount of time that any individuals drove unaccompanied was 20 hours.

Of the participants, 8.3 per cent had completed a formal driver education course in addition to their driving lessons with either a driving instructor or private tutor. The decision to complete this course was made privately (either by themselves or their parents) in 50 per cent of the cases while schools made the decision in a further 37.5 per cent of the situations. Other people (not the learner driver, parent or schools) made the remaining 12.5 per cent of decisions. The participants attended a range of courses including defensive driving and advanced driving courses. Half of the courses (50 per cent) had both practical and classroom components. Twenty-five per cent of the courses had only a practical component while a further 25 per cent were only classroom based.

## **DISCUSSION AND CONCLUSIONS**

The results suggest that driver education and the GDL system in Queensland appear to have evolved so that the form of driver education that learner drivers most utilise is that suited to assisting them obtain their driver licence. This means that while significant numbers of learner

<sup>1</sup> This person reported having experience driving overseas without a licence.



drivers undertake professional driving lessons and private practice with parents and friends, very few take part in formal driver education courses.

Research conducted on the Ontario and Finnish licensing systems has provided some preliminary evidence supporting the complementary nature of driver education and GDL systems (Harrison, 2004; Zhao et al., 2006). However, very small numbers of participants (8.3 per cent) within this study undertook a formal driver education course while on their learner licence. This result could be expected, as this type of education is not compulsory or encouraged (for example by offering incentives or benefits for completion) within the Queensland GDL system. Unlike the Ontario licensing system, learners in Queensland do not receive a reduction in the minimum time a learner licence must be held for completing an education course. In Ontario, 54.2 per cent of learners within the study sample had taken or were completing a driver education course (Zhao et al., 2006). The incentive of reducing their learner licence period from 12 months to 8 months with the completion of a formal driver education course probably encourages greater numbers of learner drivers into this type of training in Ontario when compared with Queensland. This provides an indication of the importance of the GDL system in shaping the decisions of learner drivers and their parents regarding the most appropriate methods of learning to drive. However, the potential benefits or drawbacks of these incentives requires further research.

Given the lack of incentives for completion of a driver education course, the cost may act as an additional deterrent for learner drivers, particularly when their income is considered. Just over 50 per cent of learner drivers earn \$10 000 or less per annum. This means that a driver education course, if they pay for it themselves, represents a significant financial investment, particularly if they do not receive any financial support from their family.

This study identified that schools made the decision to attend a driver education course for 37.5 per cent of those who completed a course. This suggests that schools are an important influence on students when they encourage or support attendance at driver education. It would be interesting to identify if differences exist between those who voluntarily attend driver education in Queensland and those who do not. For instance, those who attend driver education may come from higher socio-economic backgrounds. The small numbers of individuals who attended formal driver education courses within this sample meant that it was not possible to compare the two groups. However, this can be examined in the future as part of the larger study. It is important that if education is formally linked to a GDL system, rather than being indirectly influenced by it, that the right driver education course is linked to the correct licensing stage. This is because, as demonstrated in the Ontario and Finnish examples, the impact of driver education courses may depend on how and when it is delivered within the GDL system (Zhao et al., 2006).

The GDL system in Queensland appears to encourage the use of professional driving lessons and private supervision, often in tandem. As stated in the results, most all participants (97.9 per cent) within this study had at least some professional driving instruction. Of the two participants that had no lessons with a professional driving instructor, one had substantial (100 hours or more) with private supervisors. The other person passed the exam with less than 20 hours of supervised practice. Most participants (93.7 per cent) had practice with a private supervisor. Of the six that did not have this type of practice, five had at least 20 hours of professional driving lessons. As it is only possible for a learner to drive a car legally when accompanied by a licensed driver, this result is expected. The large number of participants that combine professional instructors with

private supervisors suggests that many learners and their parents identify some value in combining these during the learner licence period. This may occur because learners believe that a professional driving instructor is more effectively equipped to help them pass their exam. The anecdotal comments provided by participants during the interviews support this. For instance, several learners advised that their professional driving instructor taught manoeuvres, corrected their mistakes and provided an opportunity to obtain experience on the roads that licensing officials use during the test. Other anecdotal comments suggest the importance of their private driving supervisor with participants stating that these supervisors provided them with opportunities to practice. This mix of professional driving instruction and private supervision may result from the perceptions that learners and their parents have of Queensland's GDL system, although, further research is needed to confirm that the reason so many learners undertake professional lessons is because they believe it gives them an advantage when completing the practical driving test.

This study has several limitations. The sample size of 97 is relatively small and may not be representative of novice drivers in general. The larger study, which includes participants from both regional and metropolitan locations in Queensland and New South Wales, will be able to examine further many of the issues raised in this study. The sample reported here only includes participants recruited in Brisbane, Queensland and the results are indicative only. The size of the sample also prevented comparisons between those learner drivers who undertook a formal driver education course and those who did not.

The self-report nature of the interview is a limitation. The number of hours of supervised practice may not be completely accurate as participants may have inflated or were unable to remember the amount of practice they undertook. However, self-report data on a number of behaviours, including drink driving and collisions, by young people is considered to have an acceptable level of validity when it is collected anonymously and there are no consequences associated with providing the information (Zhao et al., 2006). This was the situation with these interviews.

Further research is needed to compare the self-report nature of the data collected using these types of interviews with data collected using other methods. Additional research is needed in order to identify whether there are any socio-demographic differences between individuals who voluntarily choose to undertake formal driver education programs with those who do not make this choice. Future studies should examine the factors that are most likely to predict whether a learner driver will voluntarily participate in a formal driver education course, and to what extent this may impact on the outcomes of such courses.

This ongoing research should assist road safety professionals to identify how individuals learn to drive now. This will enable them to make comparisons between the current situation and best practice. It will also assist road safety researchers and policy makers by providing a baseline in Queensland and New South Wales that will enable evaluations comparing learner driver behaviour before and after the introduction of new or amended driver education or licensing measures.

The experiences of learner drivers in this study suggest that the GDL system is the dominant partner in the relationship between driver education and GDL. The licensing system has an important role in determining how this group learns to drive, whether they undertake professional

driving lessons, private supervised practice or participate in driver education programs. This suggests that there is an indirect complementary relationship between driver education and GDL. If a formal driver education program is supported as part of a licensing program, either as a compulsory component (as with Finland) or with incentives for participation (as with Ontario), learners are more likely to attend. This means that changes to a GDL system will impact on the type of education that learner drivers receive. While evaluations of the Finnish and Ontario systems provide some early indications of the benefits of formally linked complementary driver education and GDL systems, it is important not to encourage driver education programs that increase the crash risk of new drivers (Zhao et al., 2006). Given the limited research linking driver education programs with crash reductions, only programs with a scientifically valid evaluation demonstrating positive road safety benefits should be linked with GDL systems. Reducing the amount of time that a driver spends on a learner licence is likely to be a counterproductive incentive to use as a link between GDL systems and driver education programs, as this may licence some drivers earlier than would have otherwise occurred increasing their exposure to the road and as a result, their risk of crashing. Hence, further attempts to better link driver education and GDL systems, whether international or Australian, need to be closely evaluated to establish their crash reduction benefits.

## ACKNOWLEDGEMENTS

The authors acknowledge the support of the Australian Transport Safety Bureau for the provision of a research grant that is enabling this research.

## REFERENCES

- Begg, D. J., & Stephenson, S. (2003). Graduated driver licensing: the New Zealand experience. *Journal of Safety Research*, 34, 99-105.
- Christie, R. (2001). The effectiveness of driver training as a road safety measure: An international review of the literature, *2001 Road Safety Research, Policing and Education Conference*. Adelaide.
- Gregersen, N. P. (1997). *Evaluation of 16-years Age Limit for Driver Training* (No. VTI Rapport 418A): Swedish National Road and Transport Research Institute.
- Gregersen, N. P., Berg, H.-Y., Engstrom, I., Nolen, S., Nyberg, A., & Rimmo, P.-A. (2000). Sixteen years age limit for learner drivers in Sweden - An evaluation of safety effects. *Accident Analysis and Prevention*, 32, 25-35.
- Harrison, W. (2004). *Just call me Thomas: Incredulity, evidence and the hype surrounding insight-based training for novice drivers*. Paper presented at the Road Safety Research, Policing and Education Conference, Perth.
- Hatakka, M., Keskinen, E., Gregersen, N. P., Glad, A., & Hernetkoski, K. (2002). From control of the vehicle to personal self-control: Broadening the perspectives to driver education. *Transportation Research Part F: Traffic Psychology and Behaviour*, 5(3), 201-215.
- Langford, J. (2002). Using the research to reduce novice driver crashes, *Proceedings of the Developing Safer Drivers and Riders Conference*. Brisbane: ACRS and Travelsafe Committee.
- Lin, M.-L., & Fearn, K., T. (2003). The provisional license: nighttime and passenger restrictions- a literature review. *Journal of Safety Research*, 34, 51-61.

- Nolen, S., Engstrom, I., Folkesson, K., Jonsson, A., Meyer, B., & Nygard, B. (2002). *Pilot - Further Education of Young Drivers* (English summary No. VTI Rapport 457). Sweden: Swedish National Road and Transport Institute.
- Sagberg, F., & Bjornskau, T. (2006). Hazard perception and driving experience among novice drivers. *Accident Analysis & Prevention, 38*, 407-414.
- Senserrick, T. M., & Swinburne, G. C. (2001). *Evaluation of an Insight Driver-Training Program for Young Drivers* (No. 186). Melbourne: Monash University Accident Research Centre.
- Simons-Morton, B., & Ouimet, M. C. (2006). Parent involvement in novice teen driving: a review of the literature. *Injury Prevention, 12*(suppl\_1), i30-37.
- Simpson, H. M. (2003). The evolution and effectiveness of graduated licensing. *Journal of Safety Research, 34*, 25-34.
- Waller, P. F. (2003). The genesis of GDL. *Journal of Safety Research, 34*, 17-23.
- Watson, B., Fresta, J., Whan, H., McDonald, J., Dray, R., Bauermann, C., et al. (1996). *Enhancing driver management in Queensland*. Brisbane: Queensland Transport.
- Williams, A. F. (2003). Teenage drivers: Patterns of risk. *Journal of Safety Research, 34*, 5-15.
- Williams, A. F. (2006). Young driver risk factors: successful and unsuccessful approaches for dealing with them and an agenda for the future. *Injury Prevention, 12*(suppl\_1), i4-8.
- Williams, A. F., & Mayhew, D. R. (2003). *Graduated Licensing: A Blueprint for North America*. Arlington: Insurance Institute for Highway Safety.
- Zhao, J., Mann, R. E., Chipman, M., Adlaf, E., Stoduto, G., & Smart, R. G. (2006). The impact of driver education on self-reported collisions among young drivers with a graduated license. *Accident Analysis & Prevention, 38*(1), 35-42.