

## **Good Practice Road Safety Education and Community Road Safety**

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### **Abstract**

Despite advice from the road safety agencies and their partners on best practice road safety education and resources/programs for new young novice drivers, many schools and community groups continue to implement programs and initiatives that have been demonstrated in research to be ineffective, inappropriate or, in some instances, have the potential to be detrimental.

There is significant research, advice and guidelines that provide schools and community groups with principles of best practice and issues relating to programs that are not considered effective by the key road safety agencies.

As well, the Victorian road safety partners have:

- developed a comprehensive road safety education strategy
- developed evidence based resources to schools and early childhood services
- provided funding to community groups to implement good practice road safety programs and projects
- invested in programs and research to determine effectiveness of young driver safety intervention.

In Victoria, all programs are designed to meet curriculum outcomes and/or support the graduated licensing system.

VicRoads and the TAC have recently reviewed the literature on best practice road safety education and community road safety programs targeting new young novice drivers and senior secondary school students. A summary and checklist has been prepared to help guide the development and implementation of road safety programs.

This paper will describe the literature review, consultation and development of the guide and checklist for school and community road safety education.

### **Keywords**

Youth, education, drivers, safety, prevention, community

## **1. Introduction**

Young drivers continue to be significantly over-represented in road crashes. The risk of crash involvement among young and novice drivers is due to factors that may include inexperience especially in complex driving situations, motivational factors, the effect of peers, and broader lifestyle factors across the young driver population.

Many community groups, schools and the general public are very concerned about the level of road trauma among young drivers and are motivated to address this. However, often the measures that these groups put in place do not reflect good practice, and programs that are not research based are implemented.

The aim of this project was to review the literature on effective programs for young road users and develop good practice summaries to guide and assist road safety practitioners developing and implementing programs for young road users in a school or community setting.

The scope of the review was limited to programs targeting senior secondary students, novice drivers and programs for young offenders. This project is a joint initiative between the Transport Accident Commission (TAC) and VicRoads.

## **2. Methodology**

The first phase of this project involved reviewing key literature. Relevant road safety, accident prevention, health promotion and forensic psychology literature was reviewed. Research articles from a range of peer reviewed journals and other reports to government agencies were examined as part of the review.

There are not a great number of scientifically robust evaluations of road safety programs. However there are more evaluations of programs in the broader health promotion and injury prevention fields and a considerable number of detailed evaluations of youth justice programs. In reviewing all of this literature, a number of conclusions were drawn which are applicable for road safety practice in schools and the community.

Based on the outcomes of the literature review, a summary of the key findings in terms of good practice for community groups were identified. In addition, initiatives or approaches that have been found to be ineffective have been identified and documented.

A series of summaries of good practice approaches schools and community groups should adopt when implementing initiatives for the involvement and engagement of young or novice drivers have been developed for distribution by VicRoads and TAC.

## **3. Key Findings**

### ***3.1 Effective school based approaches***

A number of reviews into school based road safety education (SDERA, 2009) as well as those that have reviewed school based health promotion programs (Booth and Samdal, 1997) and crime prevention programs (Gottfredson, 1997) have concluded that to be effective, schools should utilise the following approaches.

A comprehensive approach: Road safety content needs to be provided on a regular basis over a child’s school career to reinforce key concepts and introduce new skills as children develop. One-off visits or incursions or activities, regardless of their content, will not lead to lasting outcomes if they are not part of an ongoing integrated approach (Elkington, 2000).

Interactive programs: Interactive programs that involve a discussion format to explore content have been found to be between two and four times more effective than non-interactive approaches (Tobler and Stratton, 1997). Interactive programs that generate an exchange of ideas and experiences can provide a catalyst for change and opportunities to practice new skills and obtain feedback on the skills that are practised (McBride, 2003).

Focus on the social competency of the students: Programs need to build and increase the competency of students to act in safe ways when presented with opportunities to engage in risky behaviour. This includes resistance-skills training to teach students about social influences and specific skills for effectively resisting these pressures alone or in combination with broader-based life-skills training. The aim of this is to help students develop resilience, refusal and coping skills. This is considered to be more effective than providing content or building knowledge in students (Buckley et al, 2012). In a review of alcohol and drug programs it was noted that programs that focused on decision making skills, coping skills, practising life skills, challenging social norms and resistance skills were the most effective (Cuijpers, 2002).

Delivery and training of educators: Trained teachers or specifically selected and trained peer educators have been found to be the most appropriate providers of health and safety programs in schools (Gottfredson & Wilson, 2003). Evaluations of some school based drug education programs have shown that programs operated solely by external providers such as emergency personnel have not been effective (Gottfredson, 1997).

Whole school approach and capacity building: Schools need to develop a whole school approach to health and safety (SDERA, 2009). In the road safety context this can include:

- Establishing a whole school commitment to training and supporting staff to deliver programs related to safety.
- Creating links and expectations with parents about being good road safety role models.
- Creating links with the local community organisations that promote safety and health behaviours among young people.
- Having sound traffic management strategies around the school at drop off and pick up times.
- Having a school policy that considers safe transport options – like only using buses with seat belts etc.

Encourage good school engagement and connectedness: School connectedness, which is the extent to which students feel accepted and included within a school community, is positively associated with school retention and good emotional health and well-being and negatively associated with adolescents’ involvement in risk-taking behaviours (Goodenow, 1993). Research has shown that students who had high levels of school connectedness were less likely to engage in risky behaviours, such as riding with dangerous drivers, with drink drivers and to engage in underage driving. Good levels of school connectedness was found to be a protective factor for risk-taking behaviours extending beyond the school setting to after children had left high school completely (Chapman et al, 2011).

Strategies most likely to enhance school connectedness include high expectations from teachers and parents for school performance and completion, consistent enforcement by school staff of collectively agreed upon disciplinary policies, effective classroom management, and having supportive and positive student–adult relationships within the school (Bergin and Bergin 2009; Voisin et al, 2005).

### ***3.2 Content of road safety education programs***

In terms of what content should be covered in road safety programs, most of the literature advises that road safety education programs should inform, support and encourage effective practices and policies. Specifically, programs for senior secondary students should support:

- The Graduated Licensing System

The Victorian Graduated Licensing System (GLS) is very comprehensive, with requirements for young people to hold a Learner permit for a minimum of 12 months, to acquire 120 hours of supervised driving experience prior to licensing and hold their probationary licence for four years. The interim evaluation of the Victorian GLS has found very positive results, with a 23% reduction in first year probationary driver crashes since the new GLS was introduced (Healy et al, 2012). While school and community based programs aren't directly involved in designing or managing the licensing system, programs that support and encourage compliance with the GLS among students, parents and the broader community is likely to be beneficial (Williams et al, 2012).

- Safer Vehicles

Recent research has also highlighted importance of vehicle safety for young drivers and their passengers. Australian research estimates that if all young drivers killed or seriously injured in crashes over the past five years had been driving the safest vehicle of the same age as the one they were driving when they crashed there would be a reduction of death and serious injuries of more than 60 per cent (Whelan et al, 2009).

- Enforcement and deterrence

Education both at a school and community level does have an important role to play in enabling and expanding interventions that work (McKenna, 2010). Australia has a range of effective road safety laws, such as drink driving and seat-belt wearing laws that have reduced road trauma significantly over the last few decades. For laws to be effective, especially at a deterrent level, the relevant population groups need to be aware of the laws and they also need to understand and accept that there is a reasonable chance of detection if they breach these laws and that penalties for breaking the laws will be applied (Homel, 1986). For young people, being aware of the relevant road safety laws, of the level of enforcement and of the legal consequences are important in creating the basis for effective enforcement systems. Providing this information to young people, especially if it supports effective laws, like the GLS, are likely to be worthwhile.

### ***3.3 The aims of effective prevention programs***

Interventions for young people obviously need to influence and reach a wide range of diverse young people. The entire young driver population needs to receive programs that address the issues that face all young drivers, such as acquiring safe driving experience while a learner and solo driver, adhering to the Graduated Licensing System, and understanding road laws and the enforcement and penalty system.

However, there is a need to balance essential knowledge with behavioural change approaches. Students need some knowledge but this alone is not enough to change behaviour (Cahill, 2003). Behaviour change programs that are delivered in schools need to have a positive effect on students who are, or could potentially become high risk drivers.

Young people who are more likely to engage in risky behaviour need to be targeted in broader injury and crash prevention programs. Many of these prevention programs will be delivered to the entire population of young people, through schools or community programs. However, to be effective, these programs need to influence those young people with a higher propensity to engage in risky behaviours. Those who have a low propensity to engage in risky behaviours are very unlikely to be involved in unsafe road user behaviour.

The Australian Institute of Family Studies (AIFS) studied a cohort of over 1000 young people in Victoria from birth (in 1983) to adulthood. The data from when the young people were aged 19-20 years indicates that of the sample of young people, around 7% were high risk drivers, 29% were moderately risky and 64% were low risk (Smart et al, 2005).

This type of research enables practitioners to consider what groups need to be influenced by programs to improve road safety behaviours. While many of the low risk young people might enjoy, or learn from programs, to have road safety benefits, programs need to be effective in influencing the high risk and moderate risk young people.

### ***3.4 High Risk Young people***

Understanding which young drivers and pre-drivers are more risky than the average young person is important in developing effective preventative programs.

Harrison (2011) reported that among young drivers, it is possible to identify subgroups of drivers that have a higher than average level of crash involvement. Patterns of unsafe driving behaviour amongst some young drivers increase their risk of crash involvement over and above the already high risk for young drivers in general. Literature indicates that patterns of risky driving behaviour appear to be part of a broader pattern of problem behaviours (Smart et al, 2005), and drivers who engage in frequent unsafe driving behaviours also undertake behaviours that reflect an unsafe lifestyle (Blows et al, 2005). Individuals who have the following traits are more likely to be risky as road users.

#### High sensation seeking individuals and those with high impulsivity

Sensation seeking is described as a propensity to seek out and engage in intense experiences that are likely to produce rewarding outcomes. Impulsivity is described as behaviour which occurs without any foresight, planning or thought.

Australian research has found that sensation seeking, impulsivity and hostility in mid-adolescence is associated with risk-taking behaviour and risky driving in early adulthood (Hyder et al, 2010).

Those who have poorer attentional control than others.

Attentional abilities can range from having lower persistence than others to more severe conditions like hyperactivity. The longitudinal study of young people by AIFS found that common risk factors for unsafe or unlawful driving behaviours included a less persistent temperament style, higher aggression and hyperactivity (Smart et al, 2005).

Those with externalising disorders like conduct disorder or oppositional defiant behaviours.

Harrison (2011) reported that externalising disorders may be predictive of “high risk driving”. He reported that conduct disorder is diagnosed when there is a persistent pattern of behaviours that includes aggression, the destruction of property, deceit or theft, or serious rule violation. A longitudinal study involving a large representative sample of young people found that anxiety, depression and conduct disorder were associated with more severe offending behaviour (Copeland et al, 2007).

Having peers and associates who are engaging in alcohol or substance use.

A study in the US found young people with the poorest road safety outcomes had high levels of alcohol use, friends support for drinking, susceptibility to peer pressure, and tolerance of deviance. These results suggest a clear relationship between adolescent behaviours and peer contexts and road safety-outcomes (Shope et al, 2003).

Having negative family influences

Family connectedness is one of the most important factors which protects against poor health outcomes in adolescence. Family norms and attitudes strongly affect adolescent smoking, alcohol use and a range of sexual behaviours. High levels of parental monitoring help to protect young people exposed to peer violence and risk taking (Viner et al, 2012).

Research on the relationship between parenting practices and adolescent problem driving behaviours found that the parental monitoring variable was the most useful in predicting risky driving behaviours. This study also found that young drivers were two times more likely to have traffic offences if they had low parental control (Hartos et al, 2000).

### ***3.5 Effective approaches with high risk young drivers***

It needs to be acknowledged that most of the literature about what is effective for high risk young people indicates that almost all of the effective interventions need to be delivered by highly skilled and trained professionals who specialise in this work. As such, involvement by community road safety groups in dealing with very high risk young people may be limited. However, there is some scope for community organisations to support some of this work through volunteering either to assist directly, or by providing funding or other ancillary support to the organisations conducting these specialist programs.

There is evidence to suggest that the following areas are more likely to be effective in assisting young high risk people and these should be supported by community road safety groups:

- Initiatives to reduce and limit social disadvantage in the driver licensing system by assisting and encouraging local L2P mentor driving programs.
- Community based programs that are designed to minimise general risk factors among young people – such as proven youth mentoring programs or preventative programs that encourage school completion and employment for at-risk young people (Tolan et al, 2009 and Broadbent & Papadopolous, 2009).

Community groups should also look for ways to support and acknowledge specialist groups and individuals who are working with high risk young people who are utilising proven measures. The most effective approaches to working with young offenders are cognitive-behavioural therapy (Andrews & Bonta, 2010), motivational interviewing (Nelson et al, 2008) and family based interventions (Greenwood, 2008).

### ***3.6 Working at a community level***

While community based or population level road safety programs are common in Australia and many other countries, there are relatively few evaluations of community level programs addressing health behaviours in general (Jepson et al, 2010).

The available research indicates that effective community road safety initiatives need to be multi-faceted and be delivered consistently over a sustained period. They also need to be based on sound research and to utilise this in all of their approaches. In many instances, the most effective programs utilise proven programs and adapt them to suit their own community needs (Hallfors et al, 2002).

To improve the safety of young road users in local communities, groups should focus on:

- Researching the needs of the community and address these using planned approaches that rely on evidence based interventions.
- Promoting and implementing effective multi-faceted community wide programs and policies.
- Delivering consistent and sustained approaches that are more likely to change the safety culture of communities and, in turn, have a positive impact on the safety of community members.
- Taking measures to engage and inform key community leaders.
- Evaluating program outcomes.

### ***3.7 Approaches that should be avoided***

A number of program approaches targeting young people have been evaluated and found to be ineffective. Despite this research, many of these approaches are still utilised by schools and community groups working in road safety with both mainstream and young offender groups. These include the following.

#### Information based programs

Injury prevention programs that primarily focus on providing information or building knowledge in students about health behaviours have had little success in achieving positive behavioural change.

Research evaluations of road safety programs (Christie, 2001) as well as the alcohol and drug education programs in schools (Gottfredson, 1997) have found the same results.

Some information about safe driving and the licensing system is needed and the delivery of this information can occur in a school or community setting. However, just providing information about safety, what is safe and what is dangerous or risky does not address the range of reasons why young people engage in risky behaviours. Programs need to recognise the underlying motivations and expected outcomes among young people of the risky behaviour and address these, as well as a range of other factors, such as the influence of social norms, the self-belief of the individuals to adopt certain behaviours as well as a young person’s social skills and ability to adopt safer behavioural strategies (Niremberg et al, 2013).

One reason why just raising awareness of the risks is not always successful is that it appears that many adolescents are already aware of the risks of dangerous driving. In a detailed review of adolescent risk taking across a range of health behaviours, Reyna and Farley (2006) reported that several studies have shown adolescents who engaged in higher-risk activities often seemed to be aware that they were at higher risk but engaged in those behaviours anyway. As such, a lack of awareness is not what is causing these young people to be risky.

#### One day or one off events

Some communities invite schools to participate in one day events or forums that may involve a range of speakers or personnel from emergency services or related fields to speak to students about their role and experience of road trauma and some may include mock road crash scenarios.

Many of these programs need to be fairly didactic in nature as large numbers of students are involved. They mostly aim to increase awareness of the dangers of high risk driving with the hope that this awareness will lead to less risky behaviours. However, this approach is not effective for the reasons outlined above. Other short-comings of this approach are that:

- One-day or one-off events can only ever be of value if they are integrated with a longer-term multi-faceted approach (Elkington et al, 2000).
- Relying on a range of external experts to provide information can be difficult, as it relies on the experts having a sound understanding of effective health promotion approaches, and being able to engage and interact with students, which means they need specific training (Gottfredson, 1997).
- Developing and co-ordinating the event and getting students to the event is very resource intensive and limited resources could be used in more effective ways (Rafferty & Wundersitz, 2011).

In a detailed review of effective measures to reduce injury among young people, Elkington et al (2000) concluded that lasting behaviour change and ultimately a reduction in injuries experienced by young people is beyond the scope of one-off educational programs.

#### Using fear appeals

Many road safety approaches have traditionally relied on fear based appeals. A fear appeal is defined as a persuasive communication attempting to arouse fear in order to promote a self-protective action. This can be in the form of advertisements, messages, images or discussions.

Fear appeals are typically used in health campaigns to vividly show people the negative health consequences of life-endangering behaviours so young people will be motivated to moderate their current risky behaviour and adopt safer alternative behaviours (Ruiter et al, 2001).

However, a large body of research has found that in general fear appeals do not lead to positive behaviour change (De Hoog et al, 2005; Ruiter et al, 2001). Research has found that some people accept the fear appeal message, whereas others reject it (Witte & Allen, 2000; Ruiter et al, 2001). Those people who are already motivated to behave safely are more likely to accept the fear appeal message. However, these people are usually behaving in a safe manner already. In contrast, for some risky people, fear appeals tend to invoke defensive mechanisms like denial (“that is not true”); ridiculing the message, neutralising (“it won’t happen to me”) or minimising (“that message is exaggerated”) (SWOV, 2011). It is not surprising that females seem to be more likely to accept fear appeal messages than males (Lewis et al, 2007), and research has found that fear appeals in some instances have led to an increase in risky driving (Taubman Ben-Ari, 2000).

Despite this, many programs that operate in schools and the community are broadly based on using fear appeals to try to change behavior. Programs based to some extent on fear or emotional appeals have not generally led to positive behavioural outcomes for participants.

Taking students or young offenders to visit trauma wards is becoming an increasingly popular program approach. Of the few evaluations that have been undertaken of these types of programs there have been mixed results. A randomised controlled trial was conducted to assess the outcomes of the Canadian IMPACT program that involves senior high school students visiting a trauma hospital and participating in a number of awareness raising activities. The evaluation found increases in knowledge among the students who participated in the program, but no change in road safety behaviours (Stewart et al, 2009). Another study compared the level of injury presentations at hospitals of a group who attended the PARTY program in Canada compared with those who did not, over a 10 year period. While they found that the program group had less traumatic injuries than the control group, this included all traumatic injuries, rather than just vehicle crashes (Bandfield et al, 2011).

Other published evaluations of trauma ward programs have involved young offenders, also with mixed results. One small scale evaluation found less re-offending occurred among a treatment group who participated in a trauma ward program in the USA, but the effect did not last longer than 12 months (Ekeh, et al 2008). Ho et al (2012) reviewed the outcomes of a one-day trauma ward program operating in Western Australia that involved a small, select group of young offenders and found a reduction in re-offending among the treatment group, but the sample was not randomly selected.

A larger evaluation indicated that a trauma ward visit program had no effect on the participants’ later offending behaviour (Nirenberg et al, 2013). This study randomly allocated 990 young offenders to one of three 20 hour interventions: a community service activity, motivational interviewing alone and motivational interviewing combined with a visit to a trauma ward. The researchers found that the combination of a trauma ward experience together with motivational interviewing did not result in better outcomes (that is less re-offending behaviour) than motivational interviewing alone.

Utilising the resources of a hospital trauma ward is expensive and can raise some ethical issues in allowing students or young offenders to see patients who are not able to fully consent to participating in the program due to their injuries or illnesses. Such an approach would need to demonstrate very significant positive behavioural effects on a consistent basis to warrant the costs and imposition on patients. As this is not the case, these approaches are not recommended.

At the more extreme end of the fear appeals program scale are programs that take students or offenders to visit prisons, which are more popular in the US than Australia. The outcomes of numerous evaluations have shown that this approach is ineffective, and in some cases led to an increase in offending behaviour by participants (Pettrosino et al, 2004).

#### Some types of simulation activities

The use of driving simulators as a tool to assist young drivers is often suggested and low grade simulators are promoted by some community organisations as a road safety initiative for young people. Driving simulators attempt to reproduce some or all of the perceptual experiences of driving a motor vehicle. Research shows that driving simulators cannot faithfully reproduce all the experiences of driving a real motor vehicle on a real road in real traffic (Johanssen & Nordin, 2002). It has been concluded that in most cases, using real cars on real roads is cheaper, more realistic and more effective in training terms than building and using simulators (Christie, 2008).

A very low level of simulation that is used in some road safety and alcohol prevention programs involves using fatal vision goggles or ‘beer goggles’. The broad aim of activities using these goggles is that participants potentially experience the negative effects caused by drinking and ultimately change their views and behaviours as a result. However, an evaluation of this type of program found that this prevention strategy is not effective in creating behavior change (Jewell and Hupp, 2005).

#### Driving skills programs

These programs mostly involve young people undertaking driving sessions on off-road tracks or circuits. They may be targeted at learner drivers, novice drivers or young offenders. Systematic evaluations of these programs have all concluded that the programs had little or no positive effect on the road safety behaviour of the students who participated in them (Christie, 2001; and Lonaro, 2008).

These programs were regarded to be ineffective because they predominately focus on driving skills. While it is acknowledged that all novice drivers need to master basic car control skills to become licensed and drive safely, providing an increasing emphasis on driving skills does not lead to better safety outcomes (Lonaro, 2008 and Christie, 2001). Other off road programs for novice drivers, especially those that include skid control training were found to either have no positive effect or to have negative effects on those who completed them (Williams, 2006 and Hatakka et al, 2002). This outcome may have been due to the fact that some of the young drivers who completed these programs felt that they were more skilled drivers than they had been previously. As a result, their confidence and level of risk taking as a driver increased, leading to a greater involvement in crashes. This outcome was more evident in young male than young female drivers (Christie, 2001).

#### **4. Discussion**

Developing and implementing effective road safety programs for young people at a school or community level requires a commitment to implement only programs and approaches that have a sound evidence base. To be effective at both a school and community level, programs need to be multi-faceted and to be sustained over time.

Schools need to implement programs that are comprehensive, are developmentally appropriate, are interactive and reinforce effective interventions such as the GLS. Schools also need to build the capacity of the staff, parents and local community to improve young road user safety and to enhance school connectedness among their students.

One of the inherent limitations with community level programs historically is that they don't always focus on effective interventions. Perhaps one of the most serious concerns is the tendency for community groups to gravitate toward less-effective interventions that while not supported in the prevention science literature, have high intuitive appeal.

In order for programs to be effective at a community level, they need to reflect the needs of the community and should be about achieving obtainable goals. After the needs and goals are established, the most critical step is to ensure that any measures that are implemented have a sound evidence base. As shown in this literature review, a number of interventions that have good community and intuitive appeal have no effect on the safety behaviours of young people, and a few approaches seem to make some young people more risky.

Establishing and implementing well researched and sound programs is the only way to have a positive outcome for young people. The issue of opportunity cost in road safety and community health settings is very important. If the limited resources of a community are utilised on programs with little or no chance of being effective, the opportunity for the community to have implemented a more effective program is lost.

#### **5. Conclusion**

Ensuring that programs are evidence based and evaluating the outcomes of the program will ensure that community resources are well utilised, and that program or interventions can be either improved or replaced with more effective approaches if they do not lead to positive road safety outcomes.

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