

Road Safety Education in Schools: What to Do, What Not to Do

John Catchpole¹ (Presenter); Gayle DiPietro² (Presenter)
¹ARRB Transport Research; ²GDP Consultancy

Biography

John Catchpole joined ARRB Transport Research in 1988 and currently holds the position of Senior Research Scientist. He holds a Science degree with first class honours (majoring in psychology) from Monash University and a Science degree (majoring in mathematics) from the University of Melbourne. In 1997, he was awarded the degree of Master of Applied Science by La Trobe University for his research on accidents involving young drivers. Prior to joining ARRB Transport Research, John was a Research Assistant in the Psychology Department at Monash University, and before that a computer programmer in various commercial and government organisations in Australia and the United Kingdom. John is the author of over 100 published and unpublished research reports and conference papers on road safety issues.

Gayle DiPietro has extensive experience in the field of education. After a period as a teacher in a secondary school, Gayle was appointed as a lecturer in the Faculty of Education at Deakin University, where she taught at undergraduate and post-graduate levels. Gayle has undertaken both qualitative and quantitative research and authored and co-authored a broad range of road safety materials and support documents aimed at schools, community road safety councils and various levels of government. She currently works as an education and training consultant, focusing on road safety and adolescent mental health. Her areas of greatest interest and expertise are in health and safety education, and in particular road user education.

Abstract

Australasian jurisdictions remain committed to school-based road safety education programs in both the primary and secondary sectors. Despite the absence of outcome evaluations demonstrating that these programs are responsible for reductions in road trauma, they continue to occupy substantial amounts of curriculum time and new programs continue to be developed. Whilst the difficulties of conducting outcome evaluations appear daunting, the magnitude of the investment in such programs implies a responsibility to ensure, at the very least, that that program content is based on sound road safety principles and the methods used are based on sound educational principles and delivery practices.

Austrroads commissioned ARRB Transport Research Ltd to develop road safety content and educational methodology check lists for school-based road safety education programs and to use these check lists as the basis of a detailed audit of selected programs operating in Australasian jurisdictions. The development of the check lists was based on reviews of research on road safety and education and on a review of current school road safety education programs in Australia and New Zealand.

The paper describes the development of the check lists for road safety content and educational delivery practices. It also presents the major recommendations of the check lists regarding the content and delivery of school road safety education programs.

The Austrroads School Road Safety Education Check List can be used to identify the strengths and weaknesses of a school road safety education program in terms of its road safety content and the educational methods used to deliver the program. This information can be used to determine whether the program is suitable for a particular purpose and target

audience. It can also be used to determine whether partial or complete redevelopment of the program may be required to correct the identified weaknesses.

1. BACKGROUND

Most Australasian jurisdictions remain committed to school-based road safety education (RSE) programs in both the primary and secondary sectors. Despite the absence of outcome evaluations demonstrating that these programs are responsible for reductions in road trauma, they continue to occupy substantial amounts of valuable curriculum time and new programs continue to be developed. Whilst the difficulties of conducting outcome evaluations appear daunting, the magnitude of the investment in such programs implies a responsibility to ensure, at the very least, that program content is based on sound road safety principles and the methods used are based on sound educational principles and delivery practices.

Austrroads commissioned ARRB Transport Research Ltd to develop road safety content and educational methodology check lists for school-based RSE programs and to refine these check lists by using them to conduct a detailed audit of selected programs operating in Australasian jurisdictions. GDP Consultancy was engaged by ARRB to join the project team, providing specialist expertise in educational research and best practice.

It was agreed between the project team and the Austrroads project management committee that the focus should be on educational programs rather than educational resources. An educational resource is a product such as a book, video, CD-ROM or web site that is made available for teachers to use but does not include support for delivery. An educational program provides not only resources but also support such as visiting presenters, training for teachers in the use of the resource or assistance with planning.

2. DEVELOPMENT

The development process included a review of existing RSE programs operating in schools in every state and territory of Australia and in New Zealand as well as a review of the relevant road safety and educational literature.

The first draft of the check list was used as the basis for a detailed case study of one selected RSE program from each jurisdiction. The program from each jurisdiction to be included in the case studies was nominated by the road or road safety authority, in some cases in consultation with other RSE stakeholders in the jurisdiction. The primary purpose of these case studies was to reveal any difficulties in using the check list and identify any major issues not addressed by the items in the check list.

In parallel with the case studies, comments on the draft check list were sought from representatives of several organisations that provide school RSE programs. Based on the experience gained during the case studies and the comments received from RSE stakeholders who reviewed the check list, the project team made a variety of improvements to the check list.

3. ROAD SAFETY CONTENT

Despite earlier beliefs to the contrary, Australian and overseas research in the 1990s has demonstrated that children aged six years or even younger can be taught to be safer pedestrians (Thompson et al 1996; Cross et al 1998; Elliott, 2000). To be effective, training in safe pedestrian behaviours for young children must be taught at the roadside rather than in the classroom. Learning proceeds from specific contexts to more general concepts, rather than the reverse. As a result, the improvements in knowledge and attitudes that can be

achieved through classroom teaching are not always accompanied by improved behaviour. Likewise, overseas research has shown that children as young as 8 or 9 years can be taught to be safer cyclists, provided the program is of sufficient duration (preferably several weeks) (Rivara, 1998, cited by Tonkin, undated; Elliott, 2000). Training for young pedestrians and cyclists should take place on the public road network. Purpose-built off-road facilities do not provide a sufficiently accurate simulation of the real traffic environment to ensure that learning is transferred to on-road behaviour.

A review by Christie (2000) investigated whether training of young cyclists and pedestrians should be conducted on the public road network or on simulated roads at specialised off-road centres. He reported that numerous off-road facilities were constructed in the 1950s and 1960s. However, scientific evaluations conducted in Europe in the 1970s and early 1980s revealed that off-road facilities did not adequately simulate the real traffic environment and were not effective in improving the behaviour of children who underwent training; training conducted in the real road environment was found to be significantly more effective than that conducted off-road.

The value of driver training for high school students has been a point of controversy over the years. Driver training in secondary schools became common in the USA and the UK in the 1960s. The largest, best-known and most carefully-conducted evaluation was undertaken in De Kalb County, Georgia (Stock et al., 1983, cited by Woolley, 2000). This study evaluated a 51-hour, state-of-the-art course that included sessions in the classroom, in a driving simulator, on a driving range and on public roads. Initial reports showed some reduction in crash and violation rates per licensed driver for students who undertook the course; however, subsequent re-evaluation of the data showed that these benefits were more than offset by students who took the course obtaining a licence earlier than students who did not. The final consensus was that high school driver training leads to earlier licensing and hence to increased exposure and accident involvement on a per capita basis. Several Australian studies have also failed to demonstrate reduced accident involvement for students of high school driver education courses. Two recent major reviews by Australian authors have concluded that high school driver training is not effective in reducing accident involvement and may even lead to increased accident involvement (Woolley, 2000; Christie, 2001).

Consideration of general principles for minimising road trauma and the outcomes of the published evaluations and reviews of school RSE programs led to the identification of the following seven principles for sound road safety practice in school RSE. Each has important implications for the content of school RSE programs.

(1) RSE should not result in increased exposure in high-risk categories.

- Programs for pre-drivers should not encourage or facilitate earlier licensing. School-based programs should not result in the award of a solo driver licence; nor should they lead to any reduction in the age at which a licence can be obtained.
- School-based programs for pre-drivers should not encourage or facilitate acquisition of a motorcycle learner permit.
- Programs for child cyclists, roller-bladers and scooter-users should not increase the likelihood of on-road travel.
- Practical skills training for primary students should be conducted at the roadside or on a footpath. It should not involve walking or riding along the roadway.
- Programs for students of all ages should not encourage the use of motorcycles, motorised scooters or motorised bicycles.
- Programs for children up to the age of about 9 years should not encourage increased pedestrian exposure when not accompanied by adults or older adolescents.

- RSE should build an understanding of the relative safety of different transport modes and encourage students to consider transport safety when choosing the transport mode(s) for their trips.

(2) *RSE should promote injury reduction countermeasures that are known to be effective.*

- Programs for pre-drivers should encourage or facilitate earlier acquisition of the motor car learner permit.
- Programs for learner drivers should encourage or facilitate acquisition of increased amounts of supervised driving experience.
- Programs for students of all ages should promote the use of seat belts, bicycle helmets and other protective equipment such as knee and wrist pads for roller-bladers.

(3) *RSE should provide children at each age with the skills and knowledge required to perform safely the road-related activities in which they are likely to be engaged.*

- Programs for early primary children should provide the skills and knowledge needed for safe pedestrian and play activities.
- Programs for late primary children should provide the skills and knowledge needed for safe cycling, walking and playing near roads; independent travel; and use of public transport.
- Programs for early secondary children should provide the skills and knowledge needed to choose the safest route for each journey.
- Programs for late secondary students should lead to an understanding of strategies to assist learner drivers to get maximum benefit from the learner permit period.
- Programs for early primary children should build an understanding of traffic management devices including signals, signs, road markings and crossing supervisors.
- Programs for late primary children should build an understanding of the causes of traffic accidents.
- Programs for primary students and late secondary students should provide the knowledge and skills needed to travel safely as a passenger in a motor vehicle.

(4) *Scarce RSE resources should not be devoted to programs that are known to be ineffective in reducing accidents and casualties.*

- Practical skills training for primary students should be provided at a safe location on the road network, such as on a footpath or at the roadside, not at specialised off-road facilities.
- Driver training in vehicle control skills should not be provided at specialised off-road facilities.
- Driver training in vehicle control skills should not be provided through schools, except in communities where most students do not have opportunities to be trained by fully-licensed family members, friends or commercial instructors.
- Students should not be encouraged to undertake defensive/advanced driving courses before or after they acquire a licence.

(5) *RSE should not lead students to become overconfident about their ability to cope safely with hazardous driving situations.*

- Programs for learners and newly licensed drivers should not teach advanced vehicle control skills, such as skid control.

- If driver training in vehicle control skills is provided, it should focus on avoidance of hazardous situations rather than skills to cope with them.
- Programs for learners should be promoted as an adjunct to, not a substitute for, on-road experience supervised by a fully-licensed family member, friend or commercial instructor.

(6) *RSE should provide students not only with the knowledge and skills required to be able to behave safely, but also with the motivation to do so.*

- Programs for late secondary students should lead to an understanding of the penalties associated with illegal driving behaviours.
- Programs for late primary and all secondary students should provide (age-appropriate) information about the costs and impacts of road trauma for its victims and the community.

(7) *RSE should provide students with knowledge that will help them to make sense of their experiences once they leave the school system and help to make them safer road users throughout their lives.*

- The causes of traffic accidents, especially those involving young and/or inexperienced drivers, including the contribution of drivers, road environment and vehicles.
- The dangers associated with high risk driving behaviours such as speeding, driving/riding/walking when affected by alcohol or other drugs and driving when fatigued.
- Alternatives to high risk road user behaviours.
- Identifying hazards in the traffic environment.
- Skills for recognising and coping with peer and media influences.
- Physiological and motivational factors that can increase a person's risk of being involved in a traffic accident.
- Road rules.
- The responsibilities associated with car ownership (licensing, registration and insurance requirements).

4. DELIVERY OF ROAD SAFETY EDUCATION IN SCHOOLS

According to the Global Road Safety Partnership (GRSP, 2000), one reason why children and young people are killed or injured in road accidents is because they do not have the necessary knowledge and skills that allow them to deal with the hostile traffic environment. Receiving road safety education as part of their normal school curriculum is recognised as being one of the most effective ways of providing children with this type of knowledge. Despite this, neither the Australian nor the New Zealand education system has mandated or strongly recommended the inclusion of a road safety education program in curriculum programs during the compulsory years of schooling.

In both New Zealand and Australia the school curriculum is crowded with core and elective subjects during the compulsory years of schooling. In addition there are other imperatives or designated priorities, such as the acquisition of literacy and numeracy skills and social education programs such as drug education and anti-bullying and harassment programs. To include another program, such as a RSE program, means that curriculum time must be taken from somewhere else. It would be very unusual for any learning area to give up time for the inclusion of a subject such as road safety education that some consider to be important but others think is not the responsibility of the school.

The inclusion of road safety education programs in the school curriculum is considered important by the education systems in both Australia (www.sofweb.vic.edu.au) and New Zealand (www.ltsa.govt.nz). Both systems use road crash data to build a rationale for having

road safety programs in the curriculum – particularly because many crashes occur on the way to school and on the way home from school, as well as in local communities. The repercussions of children being killed or injured have a profound impact within school communities.

But what is road safety education? RSE as a subject or study is not clearly defined in the literature. Proponents can clearly state why RSE is important (drawing on statistics) and what it aims to do, (make people safer road users) but not what a study in road safety is about and what are core or essential learnings. RSE appears to be one of those subjects that everyone knows something about – because we are all road users in some guise or other – but the knowledge is based upon personal experiences and perceptions, whether accurate or not. The complexity of the road system and how the human interacts in it cannot be fully understood or taught effectively unless, like other subjects, there is clear agreement about what a study entails and what bodies of knowledge the framework, content and key skills are drawn from.

In New Zealand the teaching of road safety skills and content is planned and scheduled into the daily program at particular times of the year – usually a two to four week intensive slot that involves roadside practical application with Police Education Officers. In many Australian schools RSE is also often thematic, intensive and supported by visitors, such as Police in Schools; Road Safety Education personnel in VicRoads; RTA in NSW; Education, Transport and Roads departments in State governments; and service organizations such as the RACV and RACQ.

In the absence of a distinct curriculum space to deliver RSE, the suggestion by educational systems in New Zealand and Australia is to provide learning opportunities through existing learning activities. Both Australian and New Zealand systems suggest taking an integrated and cross curricula approach. This suggestion is also made by the DETR (1998)

To help pupils make sense of the complicated nature of road safety issues schools need to employ a cross-curricular and integrated approach to road safety education. Road safety education can provide a wide range of examples from the pupil's everyday world that support the attainment of education objectives across the curriculum.

Taking a cross curricula approach to RSE is a better option than having no RSE program at all. But the implications of taking a cross curricula approach are that RSE belongs to no one learning area or teaching body, and that the incorrect emphasis or ineffective methodology may be applied to its delivery. Having no 'home' makes it difficult to raise issues in curriculum decision making bodies and other influential committees in the school community or to promote or defend the subject when necessary or an opportunity presents. It also can mean that the subject doesn't have an allocation in the school budget for professional development and the acquisition of resources and materials. Further, a cross curriculum approach will probably mean that the program per se has no distinct goals, planned sequentiality, learning outcomes or associated assessment tasks.

Taking a cross curricula approach can also lead to a RSE program being topic/knowledge driven rather than skills based. The interpretation of skills here means not only the physical skills required to ride a bike or cross a road, but also the diverse skills required to be a safer road user – such as decision making, problem solving, effective communication, negotiation, conflict resolution, hazard recognition, hazard management, managing difficult emotions and internal and external pressures, multi tasking and taking responsibility for self and others.

To be effective, RSE in schools should be developmentally and culturally appropriate. The growth and development patterns (particularly physical, cognitive, moral and psychological) of children and young people need to be considered along with social and cultural norms and

patterns. Usual patterns and stages (not ages) then need to be linked to aspects such as the usual or available mode of travel and the associated morbidity and mortality data and associated analysis of risk and preventative factors.

New knowledge and new skills need to be rehearsed and applied in environments closely representing the environment, or even in the actual environment, in which it will ultimately be used. By learning the skills in an actual, but safe, road environment children and young people will not only learn from their errors but also become cued into the dangers that randomly present. This view about learning has not changed over the last two decades. It is confirmed in the work undertaken by the child development theorists Piaget and Vygotsky and the perceptual motor development theorist Gibson, who emphasise that learning occurs through the acquisition and refinement of specific actions in specific contexts which is subsequently generalised to new and other contexts.

Learning to be a safer road user involves acquiring a range of practical skills. This is unlikely to be effective unless it occurs in a real world environment – meaning that a classroom, off-road or school based program alone will be ineffective.

Traffic safety education programs consisting of theoretical instructions alone, without practical training, have limited effectiveness.... Hence it is imperative that a traffic safety program for pedestrians include practical training on the road and in the local environment. (Roberts 1980, p.19-20).

According to Roberts (1980), the more the teaching situation differs from the “real” situation the worse are the results. Work undertaken by Christie (2000) attests to this for child pedestrians and cyclists and for learner drivers.

Effective road safety education programs also grow from the characteristics of the particular age group being targeted. The diversity of physical, social, emotional, and intellectual development demonstrated by young people during their school years is enormous. The differences in development are also reflected in variable learning rates, abilities and styles. If good practice principles are applied in the development and delivery road safety education programs then it is likely that the program will be effective in achieving its stated outcomes. Good practice road safety education is a community issue where schools (teachers and students) work in partnership with parents and carers and other key stakeholders that have a concern for keeping young people safer by informing and empowering young people.

There is also a need for co-operation and liaison within schools, and also between different schools, through which the students progress. Collaboration would ensure that programs are developmentally appropriate, not repetitive, and also consistent across communities.

Effective RSE programs require a clear structure within a recognised curriculum with a planned, sustained and coherent program of learning.

According to the DETR (1998) it is important to see RSE as part of the wider issue of health, safety and risk management rather than isolation. This reflects the view of Sussman (1995) and Harris and Murdock (1996).

Having said that road safety needs to be seen in the context of general health education programs (and other personal development and health promotion programs) and that it can be reinforced by using a cross curricula approach, it also needs to be explicit in its own right. If road safety links or topics are not explicit in a general program then the students may not be able to make the link themselves.

To be highly effective some principles of good practice need to be followed and the program should be supported by other road safety measures: driver training, providing safe crossing places and enforcing safe driver behaviour.

An effective road safety education program involves teaching children and young people to be safer road users. It does so by developing:

- Knowledge and understanding of road traffic and the environment in which it is found
- Behavioural skills necessary to survive in the presence of road traffic
- An understanding of students' own responsibilities for keeping themselves and others safe
- Knowledge of the causes and consequences of road accidents
- A responsible attitude to their own safety and to the safety of others.

According to GRSP (2000), a best practice road safety education program should:

- Begin at the pre-school level and educate continuously throughout the child's school life
- Base the education on practical training in a realistic road environment
- Use teaching methods which follow the principles of child and adolescent development
- Base its training needs to be regular, frequent and combined with practice
- Be tailored to take account of education, cultural, transport and financial circumstances
- Have a formal place in the school curriculum
- Be reinforced by community safety schemes.

In summary,

- Good practice in RSE is developmental, progressive and relates to the stage of development of the child. Poor practice is non-incremental, repetitive and unrelated to the child's development
- RSE programs are developed and delivered by partnerships between teachers, parents and key agencies.
- RSE programs for use in schools should have a good balance between theory and practice.
- RSE resources need to include support to schools and teachers to deliver programs.

5. CURRENT STATUS

The project team's report on the development of the check list has been circulated to all Austroads member authorities for comment. At the time of writing, we are still awaiting final feedback. Comments received from the Austroads member authorities may lead to some changes to the report and/or the check list. Once any changes arising from this process have been made, the final check list is expected to be published in .pdf format on the Austroads web site, where it will be available for download by road and education agencies and others with a need to purchase, develop, update or evaluate road safety education programs for use in primary or secondary schools. It is expected that the report of the development process will also be published on the Austroads web site (www.austroads.com.au).

6. CONCLUSION

The Austroads School Road Safety Education Check List has been developed to provide a convenient method of assessing a school RSE program to ensure that the road safety content and the educational delivery methods of the program are consistent with what is currently believed to constitute good practice in the field. The check list is intended to be used by people working in road safety or education who have responsibility for purchasing, commissioning or developing new RSE programs for schools or reviewing existing programs. It can be used to identify the strengths and weaknesses of a program, thereby assisting in making decisions regarding continued support, partial or complete redevelopment or termination of the program. The check list can also assist in identifying gaps in the coverage provided by the range of programs available in a particular jurisdiction, thereby suggesting

directions for future program development or for the adaptation of existing programs from other jurisdictions.

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Keywords

Road safety; education programs; program evaluation and review