

The Impact of the Safe Routes to Schools Program on Road Safety Knowledge and Behaviour in Victorian Primary Schools

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Biography

Peter Cairney has a background in psychology, and has worked on many aspects of driver behaviour and traffic safety. His early work focussed on road signs and markings, but since then he has worked on railway level crossings, trucks, pedestrians and cyclists, and Intelligent Transport Systems. Current projects include reviewing the possible benefits of daytime running lights in Australia and assessing the opportunities currently available through the integration coded crash and traffic data with asset management records. In addition to the project described below, he has been involved in the creation and evaluation of a major school road safety education program in Thailand.

Abstract

Safe Routes to School (SRTS) is a community-based multi-action program to reduce the incidence and severity of road crashes involving primary and secondary school aged children. This study was part of an overall evaluation of the SRTS program in Victoria, which also included an investigation of the changes in the crash pattern in the vicinity of SRTS Schools. The behavioural study involved a quasi-experimental comparison between SRTS schools and Comparison Schools. Five SRTS schools and five Comparison Schools were selected from the VicRoads metropolitan regions, matched on school size, type of road frontage and location in the same area. The study consisted of behavioural observations, interviews with principals, a road safety quiz for students, and a parental questionnaire. Interpretation of differences in crossing behaviour at SRTS Schools and Comparison Schools is complicated by the extent to which adults are present and available to act as models for appropriate behaviour, or to directly enforce it. Differences between morning and afternoon travel patterns also greatly influence the results in relation to parking behaviour. Despite these unanticipated differences between the two sets of schools, it was concluded that the effectiveness of SRTS programs evaluated in the project depends on a combination of changes to the physical infrastructure and mobilising parents to address road safety issues as they affect their children. Road safety education has not appeared as a distinguishing characteristic because there was a high level of road safety education in the Comparison Schools. Recommendations arising from the behavioural study include continuing provision of physical infrastructure as a key element of the program, reinforcing the role of parents/carers, improving the way the "STOP, LOOK, LISTEN, THINK" message is taught, and ensuring that any future behavioural studies were before-after studies comparing changes in behaviour at the same sites.

1. INTRODUCTION

Safe Routes to School (SRTS) is a community-based program which aims to reduce the incidence and severity of road crashes involving primary and secondary school aged children. It is a multi-action program applied at the individual school level, which combines engineering treatments, and education, supplemented by enforcement where necessary. The SRTS program has been in operation in Victoria since 1990.

Denmark was one of the first countries to pioneer SRTS, and early results suggested some success in reducing traffic speeds in the vicinity of schools (Nielsen 1990). An early description of the Victorian program was given by Healey (1995), but insufficient schools were participating at that time to allow effective evaluation in terms of crash numbers. Rose

(1999) reviewed SRTS programs implemented throughout Australia, focussing at both the program level and at the project level. At time of writing, Victoria and Western Australia had “mature” SRTS programs, the Western Australian program drawing on the original Victorian model, and South Australia was in the process of developing a program based on this model. Queensland was engaged in a fundamental reconsideration of the place of walking and cycling in the strategic transport planning process, and NSW was implementing a program which would reach all primary schools but which, unlike programs in the other jurisdictions, did not include engineering treatments as a core element of the program.

Amongst the issues highlighted by Rose at the program level are:

- The extent to which programs have wholly safety objectives in contrast to health, social or environmental objectives.
- The balance between engineering, encouragement, enforcement and education.
- Inclusiveness, ie aim to include all schools or concentrate on high-risk schools.
- Delivery through road/transport agency, local government agency or outsourced.
- Long-term maintenance.
- Evaluation, only process evaluation having been undertaken at that point.

More recently, Couch et al (2001) have evaluated the SRTS program in South Australia.. The South Australian program is characterised by the incorporation of wider health and environmental objectives and a lesser reliance on enforcement, but is otherwise generally similar to the Victorian program. Couch et al reported that most schools experienced an improvement in the traffic environment, which gave them confidence to tackle a wider range of safety issues. Transport SA’s approach to the program, was held to be a key factor in the success, incorporating flexibility, engagement with other stakeholders, responsiveness to evaluation findings, and a clear long-term commitment to the program.

Of most immediate relevance to the present investigation is a review of the pilot SRTS program implemented in Dandenong in 1991–1992 (Penman 1997). Schools generally thought that the SRTS program had positive road safety outcomes, and were in agreement about parents as a key target for behaviour change, the importance and effectiveness of the engineering interventions, and the effectiveness of the education phase.

A number of different SRTS models apply across Australia at present. Where evaluations have been carried out, they have generally been process evaluations. SRTS has emerged well from these evaluations, with most schools being enthusiastic about the program and what it has delivered. Traffic management has been improved at most participating schools, and stakeholders believe safety has been improved.

However, no outcome evaluation appears to have been carried out, either in terms of examining crash reductions or investigating the behaviour. The present study is intended to fill the gap in relation to behaviour change. It ran in parallel with a separate project aimed at evaluating the SRTS program in terms of crash reductions.

2. METHOD

The study design was a quasi-experimental comparison between schools which had implemented a Safe Routes To School program within the last 2-3 years (SRTS Schools), and Comparison Schools which had not participated in the SRTS program. It was not possible to randomly select schools for inclusion as there were few SRTS Schools which met the criteria, and a limited number of suitable matched Comparison Schools were available.

Schools were compared on the following variables:

- Behaviour of students and parents in the vicinity of schools at drop-off and pick up times.
- Extent of road safety education delivered in the school.

- Students' understanding of road safety issues, measured by a quiz administered in the classroom.
- Parent's awareness of SRTS and self-report of behaviour.

Once a school agreed to participate, a letter was distributed to parents of classes in Years 3, 4, 5 and 6. The study design called for results from three classes in these years, the classes being selected by the school. The letter explained the nature of the study, requested permission for their child to participate in the road safety quiz, and asked the parent to complete an attached questionnaire asking about their awareness of the Safe Routes to School Program and how it has affected their own behaviour.

The research team visited each school on two days. On day 1, observations were made of students and parents at the pick-up time at the end of the school day, generally between 2.50 pm and 3.30 pm. On day 2, the team visited the school to observe students arriving, generally between 8.15 am and 9.15 am. One member of the team then stayed at the school long enough to administer the knowledge quiz for the two or three classes which were available, and to interview the principal or their representative regarding the extent and nature of road safety education in the school.

3. RESULTS

3.1 Differences in Behaviour and Knowledge between SRTS Schools and Comparison Schools

The behaviour of child pedestrians, accompanying adults, cyclists and drivers was recorded by a team of observers during one session in the afternoon as the school was closing and one in the morning as children were arriving. The nature and extent of road safety education was established through an interview with the principal or their representative. Children's knowledge of road safety issues was measured by a road safety quiz. Parent's views of road safety issues and self-reports of actions to improve their children's safety were obtained by a questionnaire distributed to parents of children participating in the road safety quiz.

3.2 Results of investigation of knowledge and Behaviour

The proportion of children who are accompanied by an adult is higher at the Comparison Schools, both morning and afternoon, and consequently the number who crossed while an adult was present was higher. More children at the SRTS schools used the school crossing, but fewer stopped at the kerb. The proportion of unaccompanied children at the SRTS schools who follow the correct scanning sequence is consistently higher, although the numbers who do so are small for both groups of schools. The results for following the correct scanning drill, maintaining a look-out while crossing, and running across the road, were mixed. The numbers of children recorded as looking appropriately is small and the reliable differences are confined to the findings relating to crossing use and stopping at the kerb.

A greater proportion of children rode a bicycle to school at the Comparison Schools than at the SRTS Schools. A higher proportion of cyclists at the SRTS schools wore their helmets correctly, but the numbers are small.

In the morning, the proportion of vehicles who parked on the wrong side of the road or who parked illegally was higher at the Comparison Schools. In the afternoon, there was a greater reduction in the proportion of children being picked up at the Comparison Schools, and no difference in the incidence of illegal parking or parking on the wrong side of the road.

The extent and nature of road safety education appeared to be broadly comparable in the SRTS schools and the Comparison Schools. It is therefore not surprising that a road safety quiz produced no differences between the SRTS schools and the Comparison Schools. However, there were significant differences in the responses to the parental questionnaire which indicated that the SRTS parents had greater concern with safety issues around the schools, that more SRTS parents thought that the road safety situation around the school had changed, and that more SRTS parents had taken steps to improve road safety outcomes for their children, such as changing the pick-up or drop-off point, encouraging their children to follow a different path from the car to the school, or teaching their children how to cross the road safely.

4. CONCLUSIONS

It seems that crossing behaviour at the school is complicated by the extent to which adults are present and available to act as models for appropriate behaviour, or to directly enforce it. Differences between morning and afternoon travel patterns also greatly influence the results in relation to parking behaviour. Despite these unanticipated differences between the two sets of schools, the study supports the following conclusions in relation to behaviour and knowledge: the detailed individual conclusions are as follows:

- At SRTS schools, a greater proportion of children used the school crossing, but fewer stopped at the kerb.
- At SRTS Schools, a greater proportion of children maintained a lookout while crossing the road, both when an adult was present and when one was not.
- For unaccompanied children, at the SRTS schools, a greater proportion carried out each of the recommended scanning actions (ie Look left, look right, look left again), although the absolute numbers are small.
- There was no clear pattern of difference between the SRTS schools and the Comparison Schools in terms of running across the road.
- A higher proportion of cyclists at the SRTS schools wore their helmets correctly, but the numbers are very small.
- In the morning, parking was more orderly at the SRTS than the Comparison Schools, but there was no difference in the afternoon. This is attributed to the relatively greater demands at the SRTS Schools in the afternoon.
- The content and extent of road safety education appears to be similar at SRTS Schools and Comparison Schools.
- There was no difference in knowledge of road safety issues, measured by the road safety quiz developed for the project, between SRTS students and Control students.
- The “Stop, Look, Listen, Think” message does not appear to be well recalled by students, despite its key importance in road safety education and wide exposure as part of SRTS treatments.
- Parents at SRTS schools were more aware of road safety issues, and were more likely to think that the road safety situation around the school had changed in the last few months.
- More parents at SRTS schools reported taking steps in recent months to improve their children’s safety such as changing the pick up or drop-off point, encouraging their children to follow a different route between the car and the school, and actively teaching safe road crossing.

The two aspects of the SRTS program which most influence behaviour are the changes to infrastructure and the efforts to engage parents in the process. Infrastructure changes appear to have resulted in more orderly traffic behaviour at the SRTS Schools in the morning, but the extent of the provision does not appear to be sufficient to cater for the high demand concentrated in a short time period in the afternoon. Parents at SRTS school are more aware of traffic problems, more likely to believe there have been recent changes in the traffic safety situation outside the school, and more likely to have taken action to improve road safety for their children. It is not certain to what extent these changes in perceptions

and behaviour are a direct result of changes to infrastructure. It is possible the increased awareness of safety issues and a changed situation around the school are responses to, or are at least influenced by, changes to the physical environment. It is also possible that changes to the environment force or encourage parents to drop off children at different points or to encourage them to change their route between the drop-off point and the school. However, it seems unlikely that changes to the physical environment would have directly encouraged them to engage in teaching safe crossing behaviour.

It therefore seems reasonable to conclude that the effectiveness of SRTS programs evaluated in the project depends on a combination of changes to the physical infrastructure and mobilising parents to address road safety issues as they effect their children. Road safety education has not appeared as a distinguishing characteristic because there was a high level of road safety education in the Comparison Schools. However, it is worth noting that little road safety education was conducted at one of the SRTS Schools and one of the Comparison Schools. There appears to be scope to improve the consistency with which SRTS Schools undertake road safety education.

5. RECOMMENDATIONS

Recommendations arising from the study were:

1. Physical infrastructure provision should continue to be a key element in the program where such provision is appropriate.
2. The role of parents/carers as key participants in SRTS should be reinforced.
3. Consideration should be given to improving the way the “STOP, LOOK, LISTEN, THINK” is taught.
4. The SRTS program should be subject to a benefit cost analysis in order to determine the extent to which the program is supported in the future.
5. Any future behavioural studies should be longitudinal studies.

References

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Acknowledgment

The author wishes to thank all those principals and other school staff who so willingly assisted with this study. Special thanks are due to Barry Scott who acted as VicRoads project manager for most of the project, and to Phil Roper of ARRB Transport Research for supervising the fieldwork.