



**Boosting the effects of a curriculum based injury
prevention program through a school
connectedness intervention**

Final report to NRMA-ACT Road Safety Trust

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April 2011



*The Centre for Accident Research & Road Safety - Queensland
is a joint venture initiative of the Motor Accident Insurance
Commission
and Queensland University of Technology*



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ACKNOWLEDGEMENTS

The authors would like to acknowledge the funding support provided by the NRMA-ACT Road Safety Trust and the ongoing assistance of Mr Eddie Wheeler.

In addition, we would also like to acknowledge:

- The staff and students in the participating ACT high schools
- The staff of the ACT Government Education and Training Department
- Cate Rawlinson, for her observation of classes during the program implementation phase of this project
- The two reviewers of this report.

EXECUTIVE SUMMARY

BACKGROUND & OBJECTIVES

Injury is the leading cause of death among young people (AIHW, 2008). A primary contributing factor to injury among adolescents is risk taking behaviour, including road related risks such as risky bicycle and motorcycle use and riding with dangerous or drink-drivers.

Injury rates increase dramatically throughout adolescence, at the same time as adolescents are becoming more involved in risk taking behaviour. Also throughout this period, adolescents' connectedness to school is decreasing (Monahan, Oesterle & Hawkins, 2010; Whitlock, 2004). School connectedness refers to 'the extent to which students feel personally accepted, respected, included, and supported by others in the school' (Goodenow, 1993, p. 80), and has been repeatedly shown to be a critical protective factor in adolescent development. For example, school connectedness has been shown to be associated with decreased risk taking behaviour, including violence and alcohol and other drug use (e.g., Resnick et al., 1997), as well as with decreased transport risk taking and vehicle related injuries (Chapman et al., accepted April 2011).

This project involved the pilot evaluation of a school connectedness intervention (a professional development program for teachers) to reduce adolescent risk taking behaviour and injury. This intervention has been developed for use as a component of the Skills for Preventing Injury in Youth (SPIY) curriculum based injury prevention program for early adolescents.

The objectives of this research were to:

1. Implement a trial School Connectedness intervention (professional development program for teachers) in ACT high schools, and evaluate using comparison high schools.
2. Determine whether the School Connectedness program impacts on adolescent risk taking behaviour and associated injuries (particularly transport risks and injuries).
3. Evaluate the process effectiveness of the School Connectedness program.

METHOD

Implementation

The School Connectedness program was piloted with teachers of Year 8 Health or Pastoral Care from three high schools in Canberra, and evaluated with a comparison group from three additional schools.

The six schools were assigned to one of four study arms, or groups:

- Group 1: School Connectedness program + SPIY curriculum (2 schools)
- Group 2: School Connectedness program only (1 school)
- Group 3: SPIY curriculum only (1 school)
- Group 4: Curriculum as usual Control (2 schools).

Implementation of the School Connectedness program involves an initial three-hour professional development session with teachers of Year 8 Health & PE or Pastoral Care.

Evaluation

Year 8 students and Year 8 Health & PE or Pastoral Care teachers participated in both an impact and a process evaluation stage for this research.

The impact evaluation consisted of:

- Baseline and 6 month follow up surveys with Year 8 students at all six schools (measures including injury, risk taking, school connectedness and demographics)
- Baseline and 6 month follow up surveys with Year 8 Health & PE or Pastoral Care teachers at all six schools (measures including qualitative items regarding perceptions of school connectedness and the strategies they use to increase connectedness).

The process evaluation consisted of:

- Classroom observation in the four program schools. An independent trained researcher, blinded to the allocation of schools to intervention or control groups, sat without interaction at the back of the classroom and commented on and rated the quality of the teacher-student interaction using behavioural indicators
- Surveys with teachers participating in the School Connectedness program immediately following participation, which asked about their perceptions of the program
- Focus groups with Year 8 students at the three schools participating in the School Connectedness program, which asked students about their perceptions of school and their teachers
- Focus groups with Year 8 Health & PE or Pastoral Care teachers at the four program schools, which asked about perceptions of the School Connectedness program and SPIY curriculum.

RESULTS

Impact evaluation

Change in student risk taking

The overall trend in these results showed an expected increase in risk taking behaviour among control school students, and no change among intervention students. Students in the control schools were significantly more likely to report riding bikes without helmets, riding with dangerous drivers, having driven cars on the road, and using alcohol six months after the program, while the intervention group showed no such increase in these behaviours.

Change in student injury

Students in the control schools were significantly more likely to report having had pedestrian related injuries at follow up than they were at the baseline measurement, while intervention school students showed no change. There was however a trend observed in terms of a decrease in bicycle related injuries among intervention school students, compared with a slight increasing trend in bicycle injuries among control students.

Change in students' connectedness to school

Overall scores on the school connectedness scale decreased significantly from baseline to follow up for both intervention and control students. A number of items on this scale however reflect a more whole-of-school approach to student wellbeing, which the intervention in its current format (professional development for small groups of teachers) is unlikely to have influenced. One item of the connectedness scale that essentially captures the aim of the program states "there's at least one teacher or other adult at this school I can talk to if I have a problem". The overall trend for this item showed a slight increase in agreement among intervention students, and a slight decrease among control students, however these changes were not statistically significant.

Teachers' understanding of connectedness

Teachers in both the program and control groups had clear and sophisticated perceptions about what the term "connectedness" means for students, even before the implementation of the School Connectedness program. Additionally, teachers mentioned a number of strategies that they already used to increase connectedness among their students.

Process evaluation

Quality of process (classroom observation)

Teachers in the School Connectedness program + SPIY curriculum group used more program connectedness strategies than teachers in either the SPIY or Connectedness only group. This was true in terms of their involvement in the class, their students' level of engagement and their use of the connectedness strategies covered in the program material.

Teachers' response (focus groups and surveys)

Teachers gave positive feedback following their participation in the School Connectedness program. They agreed strongly with statements including that the program was relevant to the school, that it was useful to them, and that they would recommend it to other teachers. Many teachers also commented that a particular benefit of the program was that it raised their awareness of the links between students' behaviour and their safety.

The current program targeted teachers of Year 8 Health & PE or Pastoral Care, and many of these teachers did indicate that they already had good relationships with the students. Several of these teachers indicated that the program would be useful for teachers either in other faculties or those just commencing their teaching careers.

Students' response (focus groups)

Students' were found to have strongly positive perceptions of Health & PE teachers. Health & PE teachers were mentioned by students as being the most popular within the school, for reasons that are consistent with the connectedness literature (e.g. friendly, fair and encouraging, understanding). Health & PE teachers were also the only teachers mentioned as those to whom students could go to for help with problems involving risk taking behaviour and injury.

Students' comments did not indicate that teachers' had changed in their interactions with students in the few months since the program; however their comments about the qualities of their Health & PE teachers indicated that these teachers do make use of connectedness strategies.

KEY FINDINGS AND FUTURE RESEARCH

The key findings arising from this research include:

- The SPIY program continues to show promising results in regards to prevention of students' transport related risk taking behaviour and injuries.
- There is limited evidence to suggest that the School Connectedness program contributed to promising SPIY results.
- School connectedness is an important factor to target in risk and injury prevention programs. However, programs may need to target other teachers and/or incorporate whole-of-school strategies.

In future research, we will build on this critical work by further refining the school connectedness program to increase its effectiveness for teachers and students. Further, CARRS-Q researchers will embark on a large scale effectiveness trial of the SPIY program (funded by the ARC and to be implemented from 2012), incorporating the following components:

- First aid
- Preventing/avoiding risk taking behaviour
- Peer protection
- School connectedness.

1. INTRODUCTION

1.1 BACKGROUND

1.1.1 Injury and risk taking in adolescence

Injury is the leading cause of death among young people (AIHW, 2008) and participation in risk taking behaviour, particularly road related risks including risky bicycle use and passenger behaviour, is one of the leading causes of injury. Transport risks account for the majority of adolescent injuries and for those among the target group of this study (12-14 years) transport related injuries accounted for 38% of all injury deaths (AIHW, 2008).

The risk taking behaviour of adolescents, whilst often being considered a normative developmental process, may have serious injury consequences. Pickett et al. (2002) found that 11-15 year olds who reported the highest number of risk taking behaviours were 2.46 times more likely to report medically treated injuries. Previous research with adolescents enrolled in Grade 9 in Queensland schools found that 53% had experienced at least one transport related injury in the past six months, the most common of which were bicycle related (42%), followed by motorbikes (18%) and being a passenger in a vehicle (14%) (Chapman & Sheehan, 2005).

Injury rates are seen to increase dramatically across adolescence. The Australian Institute of Health and Welfare reported that, in 2005, injury accounted for 38% of all deaths among 12–14 year olds, 66% of all deaths for 15–17 year olds, and 71% of all deaths among those aged 18–24 years (AIHW, 2008). Injury prevention and control strategies are essential to mitigate the major increase in incidence in injury and risk taking behaviour that begins in adolescence. School based approaches are a particularly effective and feasible method of delivery for prevention strategies (Perry, 1999).

1.1.2 Skills for Preventing Injury in Youth (SPIY)

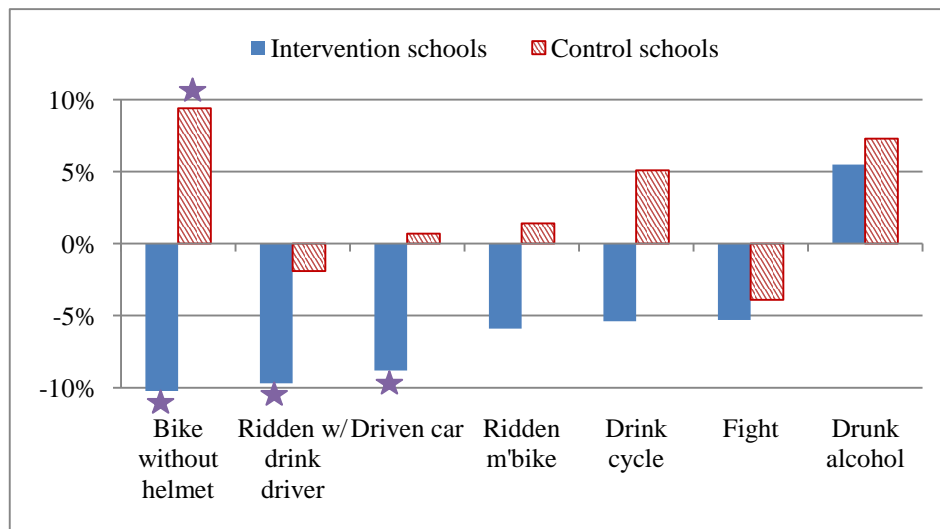
This project involved the pilot evaluation of a school connectedness intervention to reduce risk taking behaviour and injury. This intervention has been developed for use as a component of the Skills for Preventing Injury in Youth (SPIY) curriculum based injury prevention program for early adolescents.

This project formed part of a wider four-phase program of research:

- Phase 1 [funded by NHMRC; completed 2007]: Design and quasi-experimental trial of SPIY program.
- Phase 2 [funded by NRMA-ACT Road Safety Trust; 2008-09]: Refinement of SPIY based on trial impact and qualitative evaluation.
- **Phase 3 [current project]: Pilot evaluation of a school connectedness intervention; an associated social/ contextual component of SPIY.**
- Phase 4 [future research: funded by ARC]: Large scale cluster randomised trial of SPIY plus connectedness component.

In 2006, a quasi-experimental trial evaluation of SPIY was conducted in Queensland schools. The SPIY program is a curriculum integrated program implemented by teachers including eight once-weekly lessons in first aid and prevention strategies. The trial evaluation showed a meaningful and significant reduction in risk taking behaviour with particular traffic related benefits (Buckley, Sheehan & Chapman, 2009). Figure 1 shows the results regarding change in risk taking behaviour from the Queensland trial (Chapman et al., unpublished data). Intervention students reported less transport risks including riding bikes without helmets, riding with drink drivers and driving following their participation in the SPIY program. Meanwhile, the proportion of control school students who reported having ridden bikes without helmets increased significantly over this time.

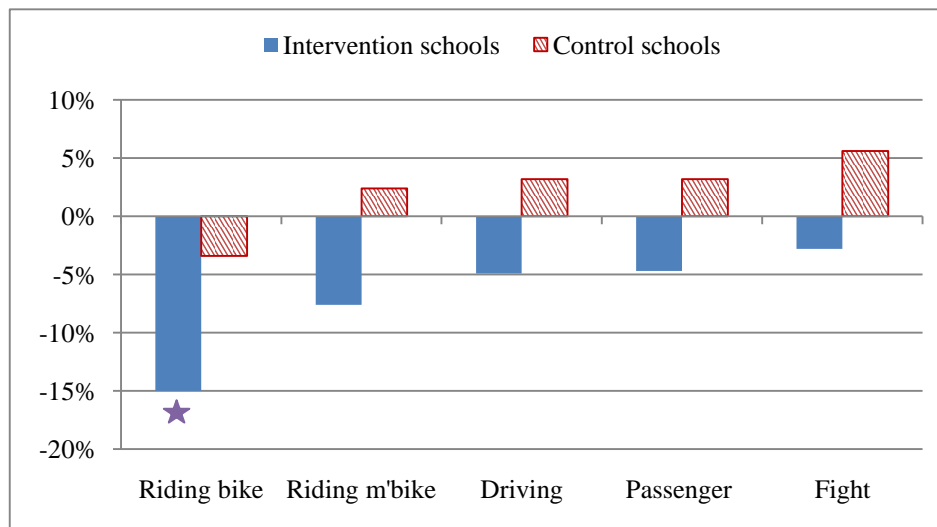
Figure 1: Percentage change in students reporting risk taking behaviours, baseline to follow up (Queensland trial of SPIY)



Note: ★ = significant change, pre to post SPIY program

Figure 2 shows the results regarding change in injury from the 2006 Queensland trial of SPIY (Chapman et al., unpublished data). Intervention students were significantly less likely to have been injured riding a bike following their participation in the program, while control school students showed no change in injuries over this time. The number of students riding a bicycle in this age group is high which enables a more sensitive and powerful estimate of change than other behaviours with lower numbers and associated less power.

Figure 2: Percentage change in students reporting injuries, baseline to follow up (Queensland trial of SPIY)



Note: ★ = significant change, pre to post SPIY program

The initial trial of SPIY therefore showed promising results and indicated the need for further research to determine program effectiveness. The original model for injury prevention and subsequent program review however also identified the need for social and contextual protection to support the individual attitude and behaviour changes currently targeted by SPIY. Additionally, teacher evaluations received during the Queensland trial indicated that teachers saw relationships with students as important in terms of predicting student behaviour and associated outcomes. Developmental work for SPIY also revealed that effective school based health promotion programs for adolescents need to function on a number of levels and should include: injury support services; relationships with peers and parents; student knowledge, behaviour and attitudes; and **school connectedness**.

1.1.3 School connectedness

School connectedness refers to ‘the extent to which students feel personally accepted, respected, included, and supported by others in the school’ (Goodenow, 1993, p. 80). The sense of connectedness goes beyond simply the relationships with individuals in the school setting and includes feelings of commitment to the institution and feeling connected to a larger community in a more global sense (Pittman & Richmond, 2008). Connectedness to school has been described as consisting of various dimensions, including affective (e.g., feelings of belonging in school and positive peer relationships), behavioural (e.g., academic engagement and extracurricular involvement), and cognitive (e.g., perceptions of teacher support, sense of rule fairness and perception of safety) dimensions.

1.1.4 School connectedness, risk taking behaviour and injury

School connectedness has been shown to be a critical protective factor in adolescence that is associated with decreased risk taking behaviour, including violence and alcohol

and other drug use (e.g., Resnick et al., 1997). Examination of the SPIY trial data has also indicated a significant relationship between increased school connectedness and decreased transport risk taking and vehicle related injuries (Chapman et al., accepted April 2011). Table 1 shows mean school connectedness scores according to whether students reported at least one, or no, transport risk taking behaviours or transport injuries (including in cars and motorbikes) in the past three months. Students who reported no transport risks or injuries were more connected to school than those who did report these behaviours or injuries.

Table 1: Mean school connectedness scores by sex and participation in risk behaviours and experiences of injury (Queensland trial data)

Mean school connectedness scores (range: 1-10)		
Transport risk behaviours		
	None	At least one
Males	5.92	5.51
Females	6.25	5.62
Transport injuries		
	None	At least one
Males	5.88	5.52
Females	6.03	5.94

A number of theories have been proposed to explain the relationship between connectedness to school and risk taking behaviour that causes injury. Social control theory as proposed by Hirschi (1969) is one such theory. Hirschi stated that bonds to people or institutions promote conformity and act as inhibitors to risk taking behaviour. Hirschi conceptualised bonding as being comprised of four primary dimensions. The four dimensions as they relate to school connectedness are:

- *Attachment*: Attachment - to the school as an institution and to school staff - refers to feelings about the school, liking for school, and respect, regard and liking for school staff. Hirschi (1969) theorised that students who experience positive relationships with school staff and like school more will be less likely to become engaged in risk taking and delinquent behaviour since they do not want to experience disapproval from people they care about.
- *Commitment*: School commitment refers to a students' level of personal investment in school and its priority in their lives (Cernkovich & Giordano, 1992). Hirschi theorised that individuals who invest more in the conventional activities of the school would be less likely to participate in risk behaviour, as they would have too much to lose by breaking rules.
- *Involvement*: School involvement is commonly defined in behavioural terms, and is represented by participation in school activities, including both during school hours and outside of school time (e.g. extracurricular activities and homework). Hirschi states that the greater the amount of time that students are involved in conventional school activities, the less time they have to participate in risk taking behaviours such as violence and road related risks.

- *Belief*: Belief in school refers to the students' commitment to the values, norms and rules of their school (Agnew, 1985). Hirschi theorises that the greater respect for and belief that students have in the school rules and values, the less likely they are to engage in risky behaviour or delinquent activities.

To place this theory in the context of transport risk behaviour, it may be that students who have positive relationships with adults in the school environment, and who are therefore exposed to those conventional norms and beliefs, may be more involved in school and school activities, and therefore spend less time and interest in pursuing risky and potentially injury-causing behaviours such as transport risk and associated injuries.

Research suggests that school connectedness is a potentially modifiable factor and that aspects of school connectedness may be targeted in school based programs. A number of school related factors have been identified as potentially being able to impact on students' connectedness to school, several of which have been operationalised and successfully evaluated in school based interventions. Interventions to increase school connectedness commonly incorporate an aspect of teacher training, designed to increase teachers' understanding of the importance of school connectedness and to develop strategies to enhance students' connectedness. One such program that served as a basis for the current project, is the Resourceful Adolescent Program for Teachers (Shochet & Wurfl, 2006). RAP-T is part of the Resourceful Adolescent Program (RAP), which was developed to build resilience and promote positive mental health in teenagers. RAP has been shown to be effective, particularly in terms of preventing depressive symptoms among adolescents, and is now endorsed as an evidence-based program by the Commonwealth Government (e.g. Shochet et al., 2001).

This project aimed to pilot a school connectedness program for teachers and evaluate its effect on students' transport risk behaviour and associated injury.

1.2 OBJECTIVES

The aim of this research was to evaluate the trial of a school connectedness professional development (PD) program for teachers from ACT high schools (called for the remainder of this report the "School Connectedness program"). The half day PD is designed to provide teachers with strategies to increase students' connectedness to school, with the aim of improving students' well-being and reducing students' risk taking behaviour and associated injury. This project was conducted to inform a future large scale trial of the school connectedness program in conjunction with a curriculum based injury prevention program, SPIY. An overview of the SPIY and School Connectedness programs can be found in Appendix A.

This research aimed to explore the process of implementation and impact of the School Connectedness PD program for Year 8 teachers, which was designed to be delivered in conjunction with the curriculum based injury prevention program, SPIY. The objectives of this research were to:

1. Implement a trial School Connectedness intervention (PD program for teachers) in ACT high schools, and evaluate using comparison high schools.
2. Determine whether the School Connectedness program impacts on adolescent risk taking behaviour and associated injuries (particularly transport risks and injuries).
3. Evaluate the process effectiveness of the School Connectedness program. Several research questions are associated with the process evaluation, including:
 - Are the connectedness strategies outlined in the teacher PD observed and implemented in the classroom?
 - How do teachers perceive the School Connectedness PD program and how do they perceive it as influencing their perceived teaching practices?
 - How do students perceive connectedness and the connectedness-related practices of their teachers?

The method and results for this research are described in the following sections according to these objectives.

2. METHOD

2.1 OBJECTIVE 1 – IMPLEMENTATION

2.1.1 Research design

The objective of the implementation stage of the research was to conduct a trial school connectedness intervention (PD program for teachers) in ACT high schools, and evaluate using comparison high schools.

The School Connectedness program was piloted with teachers of Year 8 Health or Pastoral Care from three high schools, and evaluated with a comparison group from three additional schools. Five of these schools are public high schools and the other is an independent school. All of these schools are located in the ACT.

The six schools were assigned to one of four study arms, or groups:

- Group 1: School Connectedness program + SPIY curriculum (2 schools)
- Group 2: School Connectedness program only (1 school)
- Group 3: SPIY curriculum only (1 school)
- Group 4: Curriculum as usual Control (2 schools).

2.1.2 Program implementation

The School Connectedness program was implemented for this research in three of the six schools, with two of the remaining schools acting as controls and the sixth school acting as a SPIY curriculum only comparison group.

Implementation of the School Connectedness program involves an initial three-hour professional development session with teachers of Year 8 Health/PE or Pastoral Care (depending on which curriculum stream the school preferred for SPIY program delivery). Depending on each school's group allocation, this was either implemented as a stand-alone session, or as part of a full day session including training in SPIY curriculum delivery.

Implementation of the School Connectedness program involves considerable facilitation to encourage group discussion and sharing of ideas among participants. The session involves some imparting of information on behalf of the facilitator, as well as individual activities in participant's workbooks and a number of small group activities and/or large group discussions. Following the School Connectedness program session, trained teachers in Groups 1 and 3 implemented the SPIY program in Year 8 classes over eight weeks of curriculum time (see Appendix A for program and implementation details).

The implementation and evaluation stages of the research were conducted over a period of approximately eight months, with the following approximate timeline:

- Beginning Term 1, 2010: Baseline surveys (teachers and Year 8 students; all groups)

- Beginning Term 1, 2010: School Connectedness program implemented (alone – Group 2; or in conjunction with SPIY curriculum training – Group 1). Feedback survey following program with all teacher participants
- Throughout Term 1, 2010: SPIY curriculum program implemented over eight weeks (Groups 1 and 3 only)
- Throughout Term 1, 2010: Independent observation of classes over eight weeks (Groups 1 – 3 only)
- End Term 1, 2010: Focus groups (teachers and Year 8 students; Groups 1 and 2 only)
- Term 4, 2010: Follow up surveys (teachers and Year 8 students; all groups).

In order to examine the effectiveness of the School connectedness program, evaluation measured (i) how the program was delivered and received (process evaluation) and (ii) change in outcome (outcome evaluation).

2.2 OBJECTIVES 2 & 3 – EVALUATION

2.2.1 Impact evaluation

The objective of this stage was to determine whether the School Connectedness program impacts on adolescent risk taking behaviour (particularly transport risks) and associated injuries.

Participants

Teachers and Year 8 students from all six ACT high schools were involved in the impact evaluation. These schools were:

- Group 1: School Connectedness program + SPIY curriculum (2 schools)
- Group 2: School Connectedness program only (1 school)
- Group 3: SPIY curriculum only (1 school)
- Group 4: Curriculum as usual Control (2 schools).

Year 8 students and Year 8 Health/PE or Pastoral Care teachers completed surveys prior to program implementation in Term 1, 2010 (baseline), and also six months later, in Term 4 (follow up). Table 2 shows the number of student participants at each survey stage, and Table 3 shows the corresponding numbers of teacher participants.

Table 2: Number of students participating in impact evaluation

	Number of student participants			
	Group 1	Group 2	Group 3	Group 4
Baseline	77	41	30	196
Follow up	92	13	25	207

Only students with parental consent who were present on the day of data collection were surveyed. Therefore, there are some discrepancies between baseline and follow up, with

more students in Groups 1 and 4 being present at the follow up data collection point than were present at baseline.

Table 3: Number of teachers participating in impact evaluation

	Number of teacher participants			
	Group 1	Group 2	Group 3	Group 4
Baseline	13	8	8	8
Follow up	4	3	5	6

Measures and procedure

Teachers completed surveys in their own time, while students were administered surveys in class. Active parental consent was obtained for participating students.

Measures included in the **student survey** were:

- *Injury* was assessed using the Extended Adolescent Injury Checklist (Chapman, Buckley & Sheehan, 2011), a measure of the types of injuries experienced by adolescents and the circumstances in which they occur in the last three months. It asks respondents to indicate situations and types of injuries, whether any required medical attention, and whether they occurred in the context of alcohol use. This scale included five transport-related injuries (e.g. injured while driving a car, riding as a passenger in a car, riding a motorbike).
- *Risk taking behaviour* was assessed by an Australian Delinquency Scale (Mak, 1993), with modifications by Western and colleagues (2003). A score is computed from students' responses to items (yes/no) that describe whether they had engaged in risk taking behaviours in the last three months. This scale included seven items related to transport risk taking behaviour (e.g. ridden in a car with a drink driver, driven a car on the road, ridden a bicycle on the road without a helmet).
- *Alcohol consumption* and experience was assessed using the Australian School Students' Alcohol and Drugs Survey (ASSAD, White & Hayman, 2006), with frequency items and a measure of intoxication developed and used in a number of comparable studies and the pilot SPIY (e.g. feel tipsy, can't walk straight, vomit, pass out).
- *School connectedness* was assessed using the Psychological Sense of School Membership scale (Goodenow, 1993) which provides a total score from eight Likert-type scaled items. Items such as "I feel like a real part of this school" are rated on a 4-point scale, with 1 being "almost never or never" to 4 being "almost always or always".
- Socio-demographics included sex, age, country of birth, ethnic background, household composition and residential mobility.

Measures included in the **teacher survey** were:

- Qualitative items asked teachers to indicate how they define the term 'School Connectedness', and the strategies that they personally use to enhance their students' connectedness to school.

In order to maintain confidentiality of the data but enable linking of the baseline to follow up surveys, individual linking questions were used for both the teacher and student surveys.

2.2.2 Process evaluation

The objective of this stage was to evaluate the process effectiveness of the School Connectedness intervention program. A process evaluation enables understanding of critical issues that can inform the improved, ongoing implementation of an intervention. Program researchers are in consensus that in the evaluation of educational programs a process evaluation is required to describe and identify how well a program has been implemented in comparison with the stated design (Hawe, Degeling & Hall, 1990).

There are a number different ways to comprehensively assess process evaluation. The process evaluation in the current study included an assessment of dose and adherence, quality of process and participant responsiveness (see Dusenbury et al., 2003). Dose refers to the amount of material received and assessing adherence involves an evaluation of the content of the material which is delivered. Most commonly the assessment of delivery through interactive processes is conducted through observer ratings and this provides a clear assessment of quality of process. Participant responsiveness can be viewed as the way in which participants are engaged by the program.

Participants

Four schools were involved in the process evaluation. These were:

- Group 1: School Connectedness program + SPIY curriculum (2 schools)
- Group 2: School Connectedness program only (1 school)
- Group 3: SPIY curriculum only (1 school).

Measures and procedure

Measures used for the process evaluation included:

- *Independent observations of classes*: n=8 Year 8 classes observed by an independently employed and trained researcher, during the program implementation phase:
 - 4 classes from Group 1 schools
 - 2 classes from Group 2 school
 - 2 classes from Group 3 school

Class observation provided information regarding the dose, adherence and quality of implementation processes in these schools (Dusenbury et al., 2003). An independent trained researcher sat without interaction at the back of the classroom for randomly selected classes. The observer was blind to allocation of schools to intervention groups (i.e. was unaware of which schools had received the School Connectedness program). Using a detailed observation proforma based on one described by Reeve, Jang, Carrell,

Jeon and Barch (2004), the observer commented on and rated the quality of the teacher-student interaction using behavioural indicators.

- *Teacher surveys*: n=19 teachers (11 female) completed surveys about their perceptions of the PD immediately following their participation in the School connectedness program
 - n=12 from Group 1 schools
 - n=7 from Group 2 school.

Teacher surveys asked teachers to rate the School Connectedness program in terms of its relevance, usefulness, importance, and indicate the benefits and barriers they saw to implementing strategies presented in the program. These surveys provided information regarding participant responsiveness to the program.

- *Focus groups with Year 8 students*: n=51 Year 8 students (25 female) participated in focus groups at the end of Term 1, following program implementation
 - n=33 from Group 1 schools
 - n=18 from Group 2 school.

In focus groups of approximately 45 minutes duration, facilitated by the researchers, students were asked questions such as “What do you like about school?”, “What makes a good teacher?”, and “Would you go to your teachers for help?”

- *Focus groups with teacher participants*: n=14 teachers (9 female) participated in focus groups at the end of Term 1, following program implementation
 - n=5 from Group 1 schools
 - n=7 from Group 2 school
 - n=2 from Group 3 school.

In focus groups of approximately 45 minutes duration, facilitated by the researchers, teachers were asked questions relating to their perceptions of both the School Connectedness program, and if relevant, the SPIY curriculum. These focus groups provided information regarding participant responsiveness to the program.

3. RESULTS

3.1 IMPACT EVALUATION

3.1.1 Student characteristics

The objective of this stage of the research was to determine whether the School Connectedness intervention program impacts on adolescent risk taking behaviour and associated injuries. As the objective was not to assess the impact of the SPIY curriculum alone, and considering the small sample size within Group 3: SPIY curriculum only (30 students participated at baseline and 25 at follow up), students in Group 3 will be excluded from analyses within this report.

A total of 314 students participated in the baseline survey across the remaining five schools. Table 4 provides baseline demographic data for these students.

Table 4: Student demographics at baseline

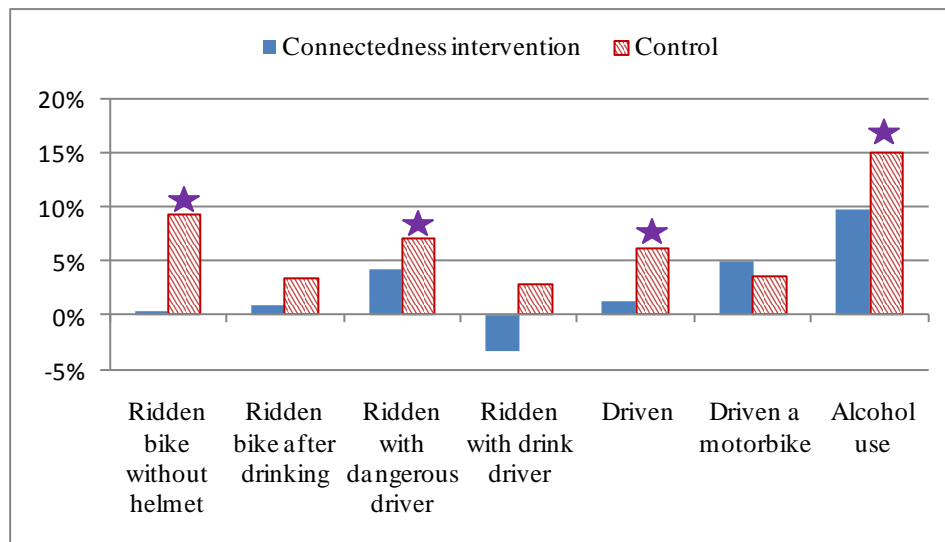
Variable	% (N=314)
Sex	
Female	50.8
Male	49.3
Age	
11	0.3
12	13.2
13	81.9
14	4.5
Country of birth	
Australia	93.0
New Zealand	1.0
Other	6.1
Ethnic background	
White Caucasian	64.3
Asian	11.8
Pacific Islander	1.0
Aboriginal	0.7
Torres Strait Islander	0.7
Other	21.6
Household composition (adults live with)	
Both parents	80.5
Mother and stepfather	7.3
Mother only	7.3
Father and stepmother	1.9
Father only	1.6
Other relatives	0.3
Other	1.0

3.1.2 Change in student risk taking

Group 2: School Connectedness program only has been combined with Group 1: School Connectedness program + SPIY curriculum for analysis, due to the small number of students participating in Group 2 at follow up. Further, including all students who received the connectedness intervention meets the objective of assessing whether the School Connectedness program impacts on adolescent risk taking and associated injuries (relative to a control group who received no intervention components).

Figure 3 shows the change in the percentage of students in the intervention and control groups who reported transport and alcohol risk taking behaviours from baseline to follow up. Group 3 students were not included in the analysis as the Control group was limited to schools in Group 4.

Figure 3: Change in student risk taking, baseline to follow up



★ = significant change, baseline to follow up.

The overall trend in these results shows an increase in risk taking behaviour among control school students, and no change among intervention students.

Students in the control schools were significantly more likely to report a number of risk taking behaviours at follow up than they were at baseline, including riding bikes without helmets, riding with dangerous drivers, having driven cars on the road, and using alcohol. There were no significant changes in transport risks or alcohol use from baseline to follow up among intervention school students. The results among control school students reflect previous research which shows an increase in risk taking behaviour over adolescence, including beginning experimentation with alcohol and taking risks on and around the road (CDC, 2010).

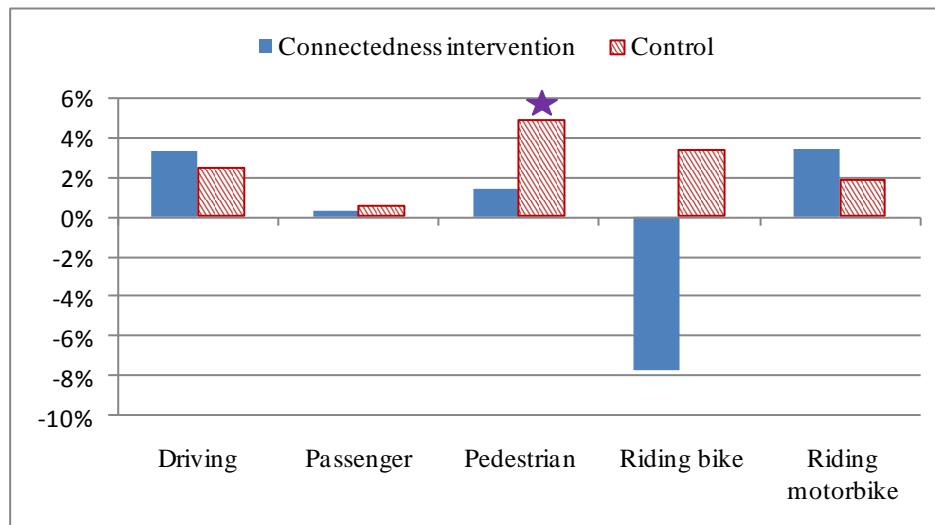
Interestingly, there was a slight decreasing trend in the proportion of intervention students who reported having ridden with a drink driver in the past 3 months, compared

with a slight upward trend among control school students, however the differences from baseline to follow up within these groups were not statistically significant.

3.1.3 Change in student injury

Figure 4 shows the change in the percentage of students in the intervention and control groups who reported transport related injuries from baseline to follow up.

Figure 4: Change in student injury, baseline to follow up



★ = significant change, baseline to follow up.

Students in the control schools were significantly more likely to report having had pedestrian related injuries at follow up than they were at the baseline measurement. Intervention school students meanwhile showed no significant change in pedestrian related injuries over this time.

There was however a trend observed in terms of a decrease in bicycle related injuries among intervention school students, compared with a slight increasing trend in bicycle injuries among control students. Analysis showed that these results were not statistically significant, however, which may be due to the small sample size of those reporting a bicycle injury within the intervention group.

Reports of all other transport related injuries, including driving, passenger and motorbike related injuries, remained consistent from baseline to follow up for both intervention and control school students. Of note, overall, there were few students with injuries in these areas (e.g. 1% driving and 6.5% injured on a motorcycle at baseline).

3.1.4 Change in student risk taking and injury – comparisons with QLD trial

Results from the 2006 Queensland trial of the SPIY program alone (without the School Connectedness program) showed reductions in key transport risk behaviours among intervention students, compared with controls (as shown in section 1.1.2). Additionally,

there was a trend in terms of reduction of transport related injuries, including a significant reduction in bicycle injuries, among intervention school students in this earlier trial.

The current research showed similar promising results to the Queensland trial. While there was an increase in transport risk taking behaviour among control school students in the current research (consistent with developmental trends shown in previous research) there was no such increase among intervention school students. Additionally, there was some increase in transport injuries among control school students, while there was a decreasing trend in bicycle related injuries among the intervention students.

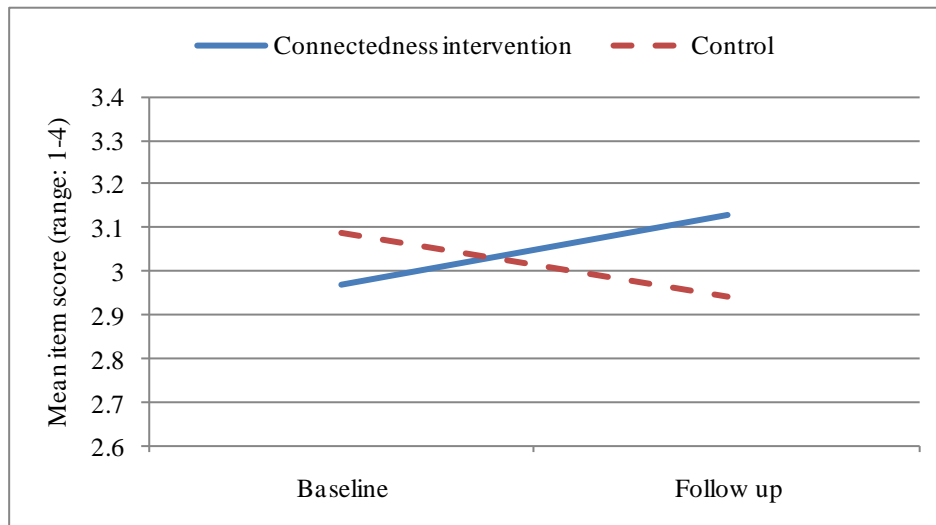
3.1.5 Change in students' connectedness to school

Students' connectedness to school was measured both at baseline and follow up using Goodenow's (1993) Psychological Sense of School Membership (PSSM) scale, which is one of the most widely used and accepted measure of connectedness. Overall scores on this scale decreased significantly from baseline to follow up for both intervention ($p < .05$) and control ($p < .001$) students. This is reflective of the fact that students' connectedness to school declines throughout adolescence (e.g. Monahan et al., 2010; Whitlock, 2004).

The School Connectedness program attempted to change students' connectedness through professional development for teachers, which taught teachers strategies for connecting with their students with an overall aim of influencing risk behaviour and injury. The program was however only delivered to small groups of teachers who delivered or planned to deliver the SPIY curriculum program to Year 8s (i.e. Year 8 Health & PE or Pastoral Care teachers). A number of items on the PSSM reflect a more whole-of-school approach to student wellbeing, which the intervention in its current format is unlikely to have influenced (e.g. "other students in this school take my opinions seriously"; "I am included in lots of activities in this school"). As such, it is not surprising that a positive change was not observed on the overall measure among students participating in the current intervention.

One item of the PSSM that essentially captures the aim of the program is an item stating "there's at least one teacher or other adult at this school I can talk to if I have a problem". As this item is central to the current program, separate analyses were undertaken which focused on change in students' responses to this statement. Figure 5 shows the change in students' responses from baseline to follow up on this item.

Figure 5: Change in students’ responses to the item “there’s at least one teacher at this school I can talk to if I have a problem”, baseline to follow up



The change from baseline to follow up in responses to this one item was not statistically significant for either the intervention or control school students. The overall trend, however, as can be seen from the figure, is for a slight increase in agreement with the item among intervention students, and a slight decrease in agreement among control students. It is recognised however that there are limitations in observing responses to a single-item measure.

3.1.6 Teacher characteristics

A total of 37 teachers participated in the baseline survey across the six schools. Table 5 provides baseline demographic data for these teachers.

Table 5: Teacher demographics at baseline

Variable	% (n=37)
Sex	
Female	56.8
Male	43.2
Age	
<30	32.4
30-39	35.1
40-49	21.6
50-59	10.8
Years worked as teacher	
0-5	43.2
6-10	18.9
11+	37.8
Main teaching area*	
Health & PE	50.0
Arts	11.1

Science	11.1
Technology	8.3
English	5.6
Mathematics	5.6
Other	8.3

*Those whose main teaching area was other than Health & PE all taught Year 8 Pastoral Care and were involved in the program through this stream.

3.1.7 Teacher perceptions of connectedness

Definitions of connectedness

The teacher survey asked participants to briefly indicate what they think is meant by the term “school connectedness”. Table 6 shows several responses from the baseline survey from both School Connectedness program and control teachers.

Table 6: Teachers’ definitions of “school connectedness”; baseline

School Connectedness program teachers
Student feeling valued and part of a school community where their opinion is heard, wanted and appreciated
If they feel like they are a part of the school and have a sense of belonging
How they feel in their relationships with all in the school community. Do they value being a member of the school?
How the students relate to school and their personal lives. How the students use the resources, staff etc. available at the school
The relationship. How comfortable the student is on the whole with staff, how safe they feel, willingness to seek support from staff etc.
How students feel about being at school - who they can go to to get help
Control teachers
How much they want to be here. Attachment to peers, teachers, culture
Their sense of belonging and involvement with their school, learning and the people in the school
Able to fit in and feel safe
Belonging, engaged, major part of life, ownership
Feeling welcome and a part of the community. Having school as a major and positive influence in their life
Feeling part of the school community. Students feeling as though they are in a safe and supportive environment.

It is evident that teachers in the program and control groups had clear and sophisticated perceptions about what the term “connectedness” means for students, even before the implementation of the School Connectedness program. Teachers mentioned aspects of connectedness that have been highlighted as important in the literature, including students’ sense of safety, their behavioural and emotional engagement and involvement, and students’ relationships with adults within the school. Additionally, one teacher in the

intervention group mentioned a key aspect of the current program; that students know who they can approach at the school in order to get help.

Strategies to increase students' connectedness

The teacher survey also asked participants to briefly indicate any strategies that they actively use to encourage students' connectedness to school. Table 7 shows several responses from the baseline survey from both connectedness intervention and control teachers.

Table 7: Teachers' strategies for increasing students' connectedness; baseline

Connectedness intervention teachers
Develop a relationship with them. Show interest in their lives and success. Offer groups and activities that cater for a variety of needs and interests
Take an interest in their personal/private lives and continue to track. Ask them how they are doing even if you don't teach them
I frequently socialise with students outside of class time, participating in sports and rec activities. Being year coordinator, I am able to spend time with students dealing with social/welfare issues
Pastoral care, regular catch ups, general chat with students. Ensure they know what supports are available at school
Always say hello; taking an interest as an individual (not just school work)
Talk to students; Joke with students; Be honest, be myself with students
Control teachers
Develop a relationship. Create modified timetables. Negotiate curriculum and assessment. Get families and communities involved
Discuss co-curricular, share weekend activities, enquire into hobbies, humour
Create positive relationships, create a positive environment, be approachable, be honest and open, value students thoughts and ideas, value colleagues strengths and ideas
Get involved in curricular activities. They can spend time with peers and teachers in a fun environment outside of the classroom
Involve and consult in decisions to develop ownership. Include students in all activities (inclusive behaviours) and encourage them to include others
Talk to and show an interest in students and their wellbeing. Provide praise and encouragement. Acknowledge their successes. Provide clear expectations and achievable goals with regards to performance, discipline, regard for others etc. Not accept inappropriate behaviour and/or attitude - work with students to build "positives" in their lives as opposed to "negatives"

Teachers' indicated a number of strategies that they were currently using to actively promote students' connectedness at the time of the baseline measure (prior to implementation of the School Connectedness program). A number of these were strategies that were further covered and built upon in the program, including developing relationships through showing interest, being inclusive, and focusing on students' strengths and successes.

Due to the small sample size at follow up (six intervention teachers participated and provided responses to this item at follow up), the responses from the second survey have not been provided in detail. However, some key aspects that were mentioned by those six participants that were not reported at baseline included “promote a sense of uniform standard and fairness” and “leadership for students”, both of which were discussed and covered within the program material.

3.2 PROCESS EVALUATION

3.2.1 Research question 1: Implementation quality

The process evaluation focused on three key research questions. The first research question was:

- Are the connectedness strategies outlined in the teacher PD observed and implemented in the classroom?

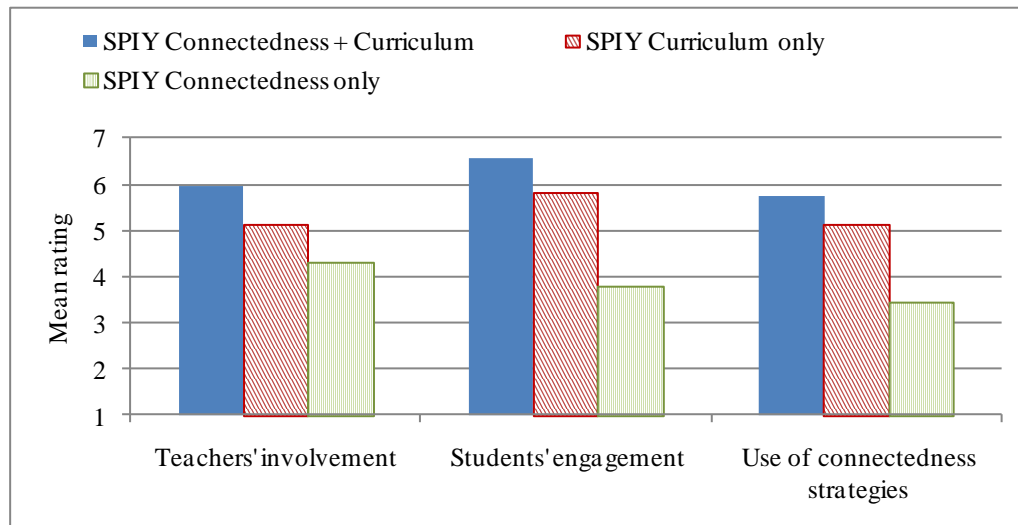
Dose and adherence

All Year 8 teachers from the targeted departments (Health & PE or Pastoral Care) within the four intervention schools (n=19) received the intervention components as delivered by the researchers (i.e. full or half day PD program, depending on the school’s group allocation). Additionally, all teachers except two received all components of the intervention content (using interactive delivery of a standardised manual). One teacher from the school assigned to Group 2 (School Connectedness Program only) left the PD session one hour prior to completion of material, due to classroom scheduling. One teacher from a school assigned to Group 1 (School Connectedness Program + SPIY curriculum) left half an hour prior to completion, due to external commitments. All teachers received a workbook, however, which these teachers were asked to read in their own time. Workbooks were provided to all participants to ensure program content received was as consistent as possible across all teachers, as well as to encourage program sustainability through a resource that could be referenced at any stage.

Quality of process

Observer ratings were used in the current study to evaluate quality of connectedness strategies used by teachers following participation in the intervention. The observer used a detailed observation proforma based on one described by Reeve, Jang, Carrell, Jeon and Barch (2004), which includes indicators relating to teachers’ involvement in the class (e.g. teachers’ knowledge of students; teachers’ apparent enjoyment of class), students’ engagement (e.g. attention; effort; participation) and use of connectedness strategies as covered in the School Connectedness program (e.g. engagement of students in conversation; consistency in praise and discipline). Figure 6 shows the mean ratings by group for each of the three dimensions observed – teachers’ involvement, students’ engagement and use of connectedness strategies. Higher ratings on a scale from 1-7 indicated greater observed involvement, engagement and use of connectedness strategies, respectively.

Figure 6: Classroom ratings of teachers' involvement, student engagement, and teachers' use of connectedness strategies, by group



As can be seen from the figure, the process of classroom observation revealed that teachers in the School Connectedness program + SPIY curriculum group used more program connectedness strategies than teachers in either the SPIY or Connectedness only group. This was true in terms of their involvement in the class, their students' level of engagement and their use of the connectedness strategies covered in the program material.

3.2.2 Research question 2: Teachers' response

The second research question was:

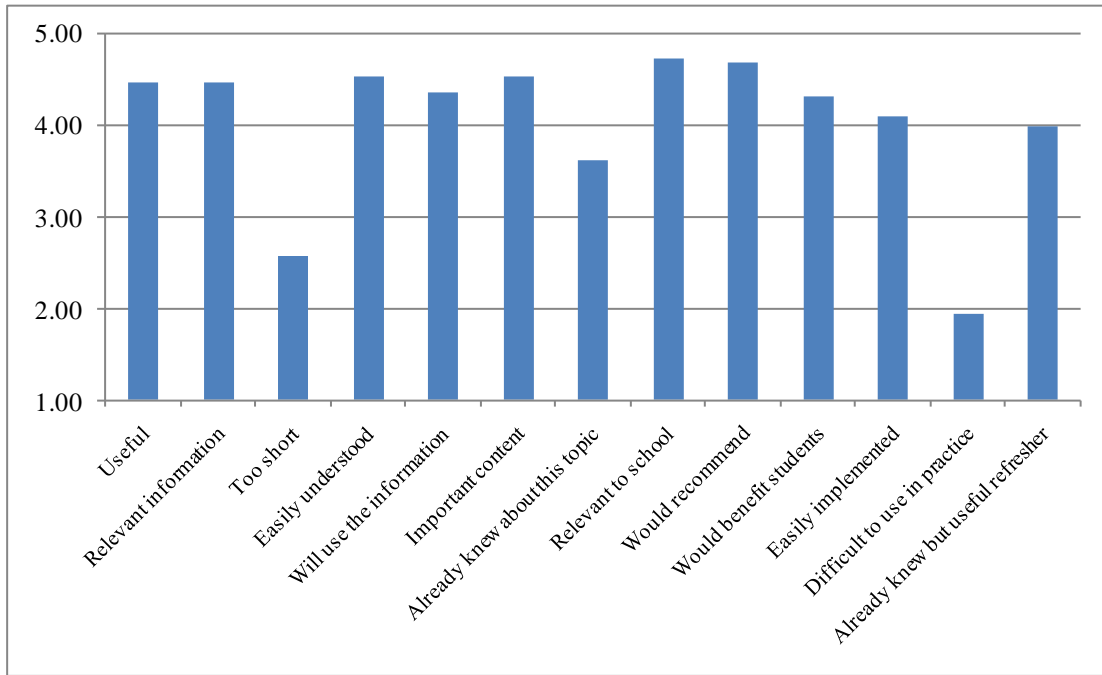
- How do teachers perceive the School Connectedness program and how do they perceive it as influencing their perceived teaching practices?

Teacher surveys and focus groups were used to answer this question, in terms of participant responsiveness to the program.

Teacher survey: Perceptions of program

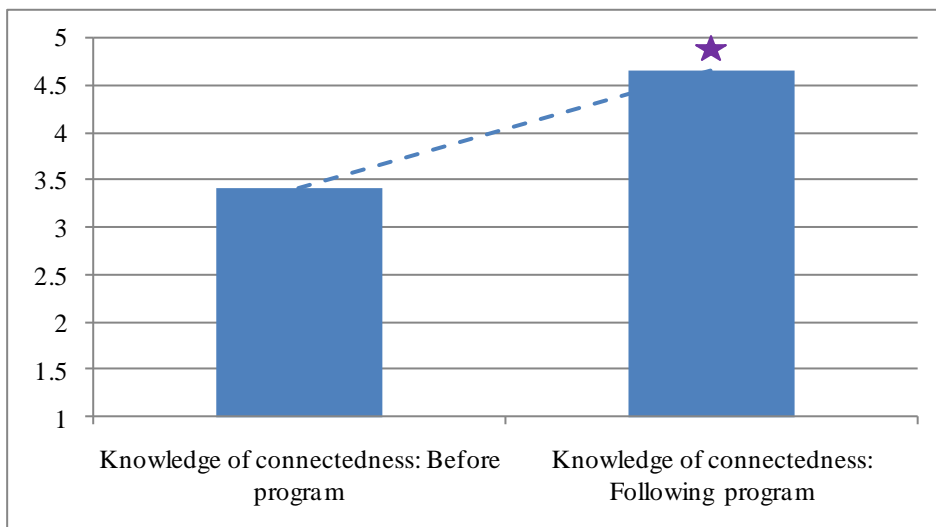
Teachers gave positive feedback following their participation in the School Connectedness program. Figure 7 shows mean ratings from the 19 participating teachers regarding perceptions of the program (where items were rated on a scale from 1 – 5, where 1 = Strongly disagree and 5 = Strongly agree). Teachers agreed strongly with statements including that the program was relevant to the school, that it was useful to them, and that they would recommend it to other teachers. For example, 94.7% of the teachers agreed or strongly agreed with the statement: *I will use most of the information presented in this program*, and 100% agreed or strongly agreed with the statement: *I would recommend this program to other teachers*.

Figure 7: Teacher ratings, perceptions of School Connectedness Program



Teachers were also asked to rate their knowledge of school connectedness and its benefits to students, both before and after the program (on a scale from 1 – 5, where 1 = Basic and 5 = Extensive). Teachers’ self-rated knowledge of school connectedness significantly increased from before to after the program, with a paired samples t-test showing that knowledge following the program was rated as significantly higher than knowledge prior to the program ($p < .001$, see Figure 8).

Figure 8: Teacher ratings, knowledge of connectedness, before and after participation in School Connectedness program



Note: ★ = significant change

Teacher survey: Benefits to students (Risk and injury)

Finally, the survey completed by teachers immediately following their participation in the School Connectedness program asked them to comment on any benefits they saw in improving students' connectedness to school. Many comments focused on student behaviour and safety, for example:

- “Less injury, better school performance, improved social skills”
- “Awareness of risky behaviour, basic first aid knowledge”
- “Better relationships with students, reduced risk taking behaviours. Better outcomes for the student”
- “Greater engagement in learning; Lowering incidence of risk taking behaviour; Better coping strategies”
- “Happier, safer, connected kids; decrease in negative behaviours and increase in engagement”
- “Relationships - even more time to build. Students - self worth and confidence. Party and live safe”
- “Safer, friendly environment; Pride in the school”

Focus group results

Focus groups with teachers, three months after their participation in the School Connectedness program, focused on their perceptions of the program and the benefits they saw arising from their participation. Table 8 shows a number of quotes from teachers made within the focus groups. Many teachers had positive general comments about the program, and several identified some positive impacts in terms of teacher interaction and student behaviour that had or had the potential to arise from the program.

Table 8: Teacher focus group quotes

General program comments

“It’s nice to put be able to put a positive spin on the risk, like to actually think about connecting”

“I think the best thing about it for me was it was probably one of the first times we’ve actually been able to get out as all year 8 pastoral care teachers and talk about a few little things. And by one of us saying, oh this works for so and so, and they’re like oh well I don’t find that I find this, and everyone can make their own connectedness as teachers”

“There’s some practice stuff that’s good, but the interesting thing for me was looking at the number of kids who are high risk takers, like it was the injuries, the first aid, like that kind of stuff, like you just go, oh that’s right, like making that connection between that”

“I think it’s good because it creates awareness around it too, because it’s not something that, I don’t know I remember being told or being taught what that, to do it all”

“Yeah I really enjoyed the PD and I think it was really well done, and you weren’t stuck for information. So I thought it was really good”

“I think the connectedness thing is a really good concept”

“Can definitely see the benefits”

Positive impact of program

“It’s another way of identifying certain students that you would normally gloss over or not really worry about... You look at all our boys injuries that are stupid or hospitalised and you just go, oh it’s just those boys, but (now) you go, oh yeah you’re actually not connected at school. So it’s, you know, then taking on another thing from there... how do I get them connected at school? it’s not, how can I stop them being stupid, it’s how can I make them feel that this is their environment, this is secure for them”

“If they were to do something like this, you know, from year 5, onwards, I think that that would significantly reduce the kind of risk taking and things that they do”

“I could see a difference in Pastoral Care compared to last year - More interactive in their PC classes”

“A couple (of teachers) already have those kind of relationships with their kids but others really got value out of it and tried out some of the things with their groups”

Targeted teachers already have good relationships with students

“This is an awesome thing and doing it in PE is the right thing, because I genuinely believe that we, our whole staff, have such good relationships with the school here, and if they’re going to listen to anyone they will listen to us, and I guess I don’t feel like I connected any more with the students after doing this than I did before, yet I still think this is an excellent thing”

Interviewer: “Does the connectedness program help with how classes are managed?”

Teacher: “Yes, definitely. But those involved with the program already had a background with the kids”

“Health & PE teachers are already doing a lot of connectedness stuff”

Would benefit other teachers/whole of school

“Would be good to have that kind of workshop with those that don’t have those skills, but you can’t single out. Would be good to have a whole of school. (I’m) thinking whole school”

“I think if you were a teacher though that was maybe new, didn’t have that kind of connection with the kids it might be a really good resource for them to have”

“School connectedness PD would suit pastoral care teachers. They need consistent professional learning, so even though they try to connect with students already they can still learn things”

“PE teachers comfortably deliver anything. Other teachers would need additional support”

SPIY Connectedness as an addition to the SPIY curriculum

“It gave me a massive opportunity; the thing that the kids loved most was to talk about all the stupid things I’d done and injuries and stupid things you know in cars ...and stuff that we’d done. I was able to talk about burns and ...scars and all this sort of thing through personal experience and they were just absorbed by the stories of the stupid things that I’d done and you could relate them to this. And I think that was probably the most invaluable thing because in our other health units I don’t think you know we’ve really had the chance to talk about that sort of stuff”

“Some (of the connectedness work) is handy to do before delivery of the (curriculum) program, to give them a different perspective”

“Connectedness is a good concept. Don’t really know how it connected with the

(curriculum) program, though”

As also shown in Table 8, the current program targeted teachers of Year 8 Health & PE or Pastoral Care, and many of these teachers did indicate that they already had good relationships with the students. Health & PE teachers in particular were seen by participants (including teachers and students) as already having positive connections with students across the school. These teachers did however see value in the program and several commented that it was either a useful refresher or affirming program for them, or that it would be useful for teachers either in other faculties or those just commencing their teaching careers.

Some teachers also indicated that the School Connectedness program was a useful addition to training for the SPIY curriculum delivery, as it allowed teachers a greater insight into and perspective of injury and risk behaviour and their determinants. Additionally, one teacher commented that a positive aspect of the SPIY curriculum, as it related to connectedness, was being able to relate and engage with students on issues relating to risk behaviour. Another teacher did however initially comment that he was unsure how the School Connectedness program fit with the SPIY curriculum.

3.2.3 Research question 3: Students’ response

The third research question was:

- How do students perceive connectedness and the connectedness-related practices of their teachers?

Student focus groups were used to answer this question. Focus groups were held approximately two months following implementation of the School Connectedness program. Students were asked questions including, “What do you like about school?”, “What makes a good teacher?”, and “Would you go to your teachers for help?” Table 9 shows some quotes from students made within focus groups in response to these questions.

Table 9: Student focus group quotes

What do you like about school?

Female: “I reckon the PE teachers are good.” Interviewer: “What makes the PE teachers good?” Female: “They’re so laid back.”

Male: “When like you say you might pick up a couple papers and the teacher like notices”

Male: “When they (teachers) actually notice that you’re actually doing stuff it’s good”

Female: “People being nice to you”

What makes a good teacher?

Female: “They actually talk to you when you’re not in your class. And actually if they see you on the playground they say hi”

Female: “They understand if you don’t know how to do something and they will help you and they don’t get angry at you when you don’t do anything wrong”

Female: “They talk to you out of your classes”

Male: “They like, are sort of open to discussion and they sort of know what the kids want.” Male: “PE teachers in other words.”

Male: "Because they're open to discussion, mostly they're PE teachers, and they engage the kids more than the other ones."

Female: "They interact with students more." Male: "Even outside of class, they talk to you outside." Male: "PE teachers."

Male: "They don't mind, like they're not so eager to finish class work, like they won't care if you're a lesson or 2 behind work or if you talk a bit. But they have boundaries and if you cross that boundary, you know when you've done something."

Female: "The popular teachers are, yeah they are the PE teachers....because they're like, they're like big kids that never actually grew up so they're more easier to talk to."

Female: "Teachers that actually care about; like you know that they care about you and they encourage you and stuff."

Male: "Our PE teacher talks to us about what sports we like to do out of school and stuff."

Female: "Yeah PE teachers show interest in most of the kids." Interviewer: "And no other teachers?" Male: "They do, but what they talk about is related to schoolwork, like, how do you feel like you're going in a subject or what have you done with this assignment, like they don't talk out of the area that they teach in."

Male: "They don't think that they're the boss, but they think that they're the director but not like all the rest are worthless." Interviewer: "So they treat you as a real person."

Male: "Yeah, not as low as like a student, you know."

Female: "Someone not being like biased between kids"

Would you go to your teachers for help?

Male: "If they make you feel comfortable."

Female: "PE teachers I would." Second female: "They're like, more understanding."

Female: "They (PE teachers) would give you advice like gently, they wouldn't push you into doing something whereas I think some of the stricter more formal teachers would be like 'now you need to go do this and you need to stop doing that'."

Students' comments indicated that good teachers are those who are friendly, fair, encouraging and understanding, as well as those who notice students' work and take the time to talk to them, even outside of class. These qualities are all among those mentioned within the literature as encouraging students' connectedness to school.

PE teachers are mentioned by students as being the most popular within the school, for reasons that are consistent with the connectedness literature, including their fairness, their friendly behaviour toward students, and their respectfulness and inclusiveness. Health & PE teachers were also the only teachers mentioned as those to whom students could go to for help with problems involving risk taking behaviour and injury.

Students' comments did not indicate that teachers' had changed in their interactions with students in the few months since the program; however their comments about the qualities of their Health & PE teachers indicated that these teachers do make use of connectedness strategies. These were strategies discussed in the School Connectedness program; however there is insufficient evidence to determine whether teachers' behaviour changed as a result of the program or whether these teachers were already using such strategies to engage their students prior to their participation.

4. KEY FINDINGS AND FUTURE RESEARCH

This project aimed to evaluate the trial of a school connectedness professional development program for high school teachers in terms of its impact on students' transport risk taking behaviour and injury, as well as the process of program implementation. The School Connectedness program was designed to be implemented as part of the curriculum based injury prevention program for Year 8 students, Skills for Preventing Injury in Youth (SPIY).

The key findings arising from this research include:

- **The SPIY program continues to show promising results in regards to students' transport related risk taking behaviour and injuries.**
 - Results from the 2006 Queensland trial of the SPIY program alone (without the School Connectedness program) showed reductions in key transport risk behaviours among intervention students, compared with controls. Additionally, there was a trend in terms of reduction of transport related injuries, including a significant reduction in bicycle injuries, among intervention school students in this earlier trial.
 - Earlier research funded by the NRMA-ACT Road Safety Trust (Buckley & Sheehan, 2008: The development of an effectiveness trial of the SPIY Program) revealed key links with the ACT curriculum for the SPIY program, and this research supported that study by showing that it can be effectively implemented in ACT high schools.
 - The current research also showed similar promising results to the Queensland trial. While there was an increase in transport risk taking behaviour among control school students in the current research (consistent with developmental trends shown in previous research) there was no such increase among intervention school students. Additionally, there was some increase in transport injuries among control school students, while there was a decreasing trend in bicycle related injuries among the intervention students.
- **There is limited evidence to suggest that the School Connectedness program contributed to promising SPIY results.**
 - The results of the student survey showed that students' connectedness to school decreased among both intervention and control school students, from before to six months following program implementation. This is consistent with previous research showing that students' connectedness to school declines throughout adolescence (e.g. Monahan et al., 2010; Whitlock, 2004).
 - There may have been some impact on students' perceptions of having a teacher in the school that they could go to for help (which was a key aim of the current program). There was a trend to increasing agreement to this statement among intervention students, with a corresponding decreasing trend among control students.

- Teachers in the current research already had good knowledge of connectedness and its importance, as well as reported a number of strategies they used to encourage students' connectedness, prior to their participation in the program. Additionally, the teachers targeted in the current research (Health & PE and Pastoral Care teachers) are already seen by both themselves and adolescents as fostering positive relationships with students. The School Connectedness program may therefore be more relevant and effective for other school staff.
- **School connectedness is an important factor to target in risk and injury prevention programs. However, programs may need to target other teachers and/or incorporate whole-of-school strategies.**
 - Previous research and the results of the current study have shown that connectedness to school declines throughout adolescence, at the same time as risk taking behaviour and injuries are increasing. The consistent relationship between school connectedness and adolescent risk taking behaviour (including transport risks as well as alcohol use and violence) suggests the need for programs to continue to target this important protective factor.
 - Teachers indicated the importance and benefits of programs targeting school connectedness, and had positive feedback regarding the current program. They also indicated a number of benefits for students in terms of behaviour and safety. They perceived the program as being more relevant for teachers who had less knowledge of the importance of connectedness, however, because as Health & PE and Pastoral Care teachers they already perceived themselves as having positive relationships with their students.
 - Additionally, considering the definitions of connectedness as found in the literature, which suggest that the sense of connectedness goes beyond relationships with individuals in the school setting and includes feelings of commitment and connectedness to the school as a whole (Pittman & Richmond, 2008), school connectedness programs may need to take a whole-of-school approach. Such an approach might include components targeting students themselves as well as teacher professional development.

Future research

In future research, we will build on this critical work by further refining the school connectedness program so that it is likely to be most effective. Further, CARRS-Q researchers will embark on a large scale effectiveness trial of the SPIY program, incorporating the following components:

- First aid
- Preventing/avoiding risk taking behaviour
- Peer protection
- School connectedness.

A randomised control trial will be used to evaluate the program at this next stage, with the SPIY program itself made available as staged entry. Funded by the ARC, this large scale effectiveness trial will commence from 2012.

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APPENDIX A: PROGRAM DESCRIPTIONS

SKILLS FOR PREVENTING INJURY IN YOUTH (SPIY) CURRICULUM PROGRAM

(Buckley, Chapman & Sheehan, 2008a; Buckley, Chapman & Sheehan, 2008b)

The Skills for Preventing Injury in Youth (SPIY) curriculum program is an injury prevention program for early adolescents with three main aims:

- Reduce risk taking behaviour
- Increase protective behaviour toward peers
- Increase first aid skills.

The SPIY curriculum program was designed to be integrated into the Year 8 Health curriculum and is delivered over eight once-weekly 50 minute lessons by trained Health or Pastoral Care teachers. It involves considerable student interaction and is based on cognitive behavioural strategies. Each lesson is in three parts:

- Scenario: A brief story of friends' risk taking and injury (e.g. teens riding motorbikes; crash leads to a broken bone) is presented to contextualise learning in the next sections.
- First aid: Students learn practical responses for dealing with the injury.
- Prevention: Students develop skills to prevent their own and friends' risk taking and injury. The focus is on increasing protective peer behaviour and having students look out for their friends.

SCHOOL CONNECTEDNESS PROGRAM

(Chapman, Buckley & Sheehan, 2009; Shochet & Wurfl, 2006)

This project initially involved the development of a school connectedness intervention in the form of a PD session for teachers of Year 8 students. The school connectedness PD was developed based on a previously designed and evaluated workshop-style program, the Resourceful Adolescent Program for Teachers (RAP-T, see Shochet & Wurfl, 2006). RAP-T was chosen as a basis for the development of the School Connectedness program as it aims to increase teachers' recognition of the importance of school connectedness and to develop strategies to promote students' connectedness. These aims align with the aims of the current research.

The RAP-T program is ultimately, however, a program for student mental health and wellbeing, and includes content relevant to these issues. In order to integrate with the SPIY injury prevention curriculum, the program was extensively revised to be made relevant to the goals of the wider SPIY program, including focusing content on risk taking behaviour and injury among adolescents and the ways in which connectedness can impact on student risk behaviour.

The resources developed for the School Connectedness program included a facilitator's manual, participants' workbooks, and presentation slides. Two project researchers trained in psychology facilitated the program over three hours. Part of the session involves presentation of slides, however the majority of the session involves participants actively engaging in discussions and/or completing activities in their workbooks, often within small groups, as guided by the facilitators.

The School Connectedness program incorporates the following content:

- The problem of injury and risk taking
 - What is the extent of the problem among adolescents?

- Understanding school connectedness
 - What is school connectedness?
 - What makes up school connectedness?
 - ACTIVITY: The benefits of school connectedness (Group discussion)
 - Benefits for students
 - Benefits for teachers.
 - How does school connectedness influence risk taking and injury?

- Identifying what we do to promote school connectedness
 - ACTIVITY: Teachers' strengths in promoting school connectedness and introduction to the WISE model (Written exercise, group discussion and brainstorming activity)
 - Some ideas from teachers for implementing the WISE model
 - Teachers' views on promoting connectedness

- Putting your strengths into practice
 - ACTIVITY: Revisiting our strengths list and focusing on risk and injury prevention (Written exercise and group discussion)
 - ACTIVITY: Being a protective school – identifying and connecting with high risk students (Individual or paired written exercise)
 - ACTIVITY: Where to from here? (Group discussion)