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Impact of extra-curricular activities on adolescents' connectedness and cigarette smoking: annual report

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Impact of extra-curricular activities on
adolescents' connectedness and cigarette smoking

December 2004

Child Health Promotion
Research Unit

School of Exercise, Biomedical and Health Sciences

child health
PROMOTION RESEARCH UNIT

Impact of extra-curricular activities on adolescents' connectedness and cigarette smoking

December 2004

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The Western Australian
Health Promotion Foundation**

child
health
PROMOTION RESEARCH UNIT

Health way

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UNIVERSITY

Annual Report to Healthway

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Project Title: **Impact of extra-curricular activities on adolescents' connectedness and cigarette smoking**

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1. INTRODUCTION

Cigarette smoking is the primary cause of preventable death in Australia, killing approximately 19,000 people every year.[8] Up to 90% of smokers begin smoking by 18 years of age.[9, 10] In spite of the obvious public health burden, current approaches have led to very modest decreases in adolescent smoking in the past 10 years.[11] The Smoking Cessation for Youth Project (SCYP)[4] was a cluster randomised control trial that resulted in lower cigarette smoking among Year 10 students who received a harm minimisation intervention over two years. This project also led to the identification of connectedness as a key mediator of cigarette smoking. In a subsequent formative evaluation, we have explored the role of extra-curricular activities in mediating school connectedness (details later). This longitudinal cohort study seeks to quantify the potential benefits of participation in extra-curricular activities, via increases in school, family and community connectedness, in reducing cigarette smoking and a range of other health compromising behaviours.

1.1 Cigarette Smoking Interventions

According to the most recent (2002) Australian Secondary School Alcohol and Drug (ASSAD) survey data, the prevalence of most cigarette smoking has declined significantly since 1999. A number of meta-analyses and reviews of school smoking and other drug education curricula interventions have been conducted.[13-28] However, reviews of the impact of school-based prevention programs have had modest success.[13, 14, 22, 25] New evidence- and theoretical-based approaches to address cigarette smoking and other drug use warrant investigation to further reduce prevalence and related harm.

1.2 The Impact of Connectedness on Smoking

Connectedness refers to the social bonding of an individual that may be protective of drug use and other health compromising behaviour.[6, 29] Connectedness to school, family and the community have been identified as important mediators of a number of health outcomes. Recently the important role school plays as a protective factor against cigarette smoking and other

drug use has emerged.[6, 29-31] McBride et al[29] identified the importance of the school environment in providing students with opportunities to increase their connectedness to school. **Extra-curricular activities provide an important medium for increasing school connectedness.[29]**

Adolescents who demonstrate less 'connectedness' to their families, schools and society are more likely to smoke, particularly regularly.[3, 6, 25, 30-39] Conversely, **stronger connectedness to school**[6, 29-32, 40] **has been associated with lower smoking prevalence.** Resnick et al[6] found higher school connectedness was associated with less smoking, alcohol and marijuana use, older age of sexual debut, less emotional distress and fewer suicidal thoughts or attempts.

In accordance with Problem Behaviour Theory,[3, 42-45] it is hypothesised that benefits related to extra-curricular participation will be mediated through the construct of school connectedness. There is substantial evidence that cigarette smoking, illicit drug use, school drop out, truancy, delinquency, and unsafe sexual practices among adolescents cluster.[3, 42-48] According to Problem Behaviour Theory, one reason why these "problem" behaviours cluster is that society views each of them as unacceptable, deviant, or rebellious.[3, 43, 45] Accordingly, adolescents who use drugs become disconnected from school, family and their community may be more likely to become part of the "deviant" subculture, where these behaviours are more prevalent and acceptable.[6] Conversely, universal or selective (specific to higher risk) **strategies to assist adolescents to feel they are important, contributing to and valued by their school, family and community are likely to reduce transition to health compromising behaviours.**[32, 43, 45]

1.3   What are Extra-curricular Activities?

For the purposes of this study, extra-curricular activities have been defined as: 'Activities which: are discretionary; are physically or mentally stimulating; are 'sponsored' by the school; engage students in an active role; and are conducted outside normal teaching times (to a large degree)' (Adapted from Larson & Verma[49]). In general terms, activities may fall into the categories of

sport, recreation, music, arts and service and exclude those which are compulsory and exclusively conducted during the school day. These themes were agreed upon during in-depth interviews conducted with key Western Australian education and health stakeholders. These activities may "provide adolescents with opportunities to participate in and gain recognition for constructive group activities."[50]

1.4 Participation in Extra-curricular Activities

According to the Australian Bureau of Statistics,[51] over two thirds of 14-year olds regularly participate in organised extra-curricular activities. Sporting activities were most common with 59% indicating they participated, and 29% participated in arts/cultural activities (some were active in both sports and arts/cultural activities). Only 30% indicated they participated in neither.[51] These participation rates are comparable to those reported in other countries. In the United States, 1997 US Youth Risk Behaviour Survey data indicate that 70% of males and 53% of females participated in team sports either at or out of school.[52] Similarly, data from the Dunedin Multidisciplinary health and Development Study (DMHDS: New Zealand) indicate that among 13 to 15 year olds, 62% participated in at least one organised sporting group and 47% participated in at least one cultural/youth group.[53]

1.5 Benefits of Extra-curricular Activities

Empirical evidence suggests extra-curricular programs are associated with increased connectedness to school.[54-60] In a longitudinal study, both sporting group and cultural group participation were significant predictors of parental, peer and school attachment as well as perceived personal strengths.[53] These relationships persisted after controlling for gender, socio-economic disadvantage, within family social support, early peer attachment and reading ability. Moreover, connectedness measures at 15 years of age predicted connectedness at 21 years. A measure of parental connectedness in adolescence was the strongest predictor of absence of suicidal ideation in early adulthood in DMHDS.

Via the potential mediating factor of connectedness, extra-curricular programs have resulted in a number of positive benefits in educational, risk factor and mental health outcomes for students who participate (see Table 1).

Table 1   Benefits of Participation in Extra-curricular Activities

Area of benefits	Benefits associated with participation in extra-curricular activities
Risk factor reduction	Less smoking and illicit drug use (not alcohol use)[52, 61, 62] More seatbelt use[52, 61] Greater fruit and vegetable consumption[52] Less teen pregnancy[52]
Mental health	Lower risk of suicidal ideation[61] Less somatic complaints[61] More confidence in future[61] Better body image[61] Higher self-esteem, life satisfaction and sense of competence[5, 49, 57, 63-65] Higher self-perceived confidence[5] Greater perceptions of strengths[5]
Education and career	Higher academic self-concept, attendance and educational attainment[56-59] Considerably lower school 'drop-out'[66, 67] Lower subsequent criminal arrest (as young adults)[67]

While some have suggested that involvement in extra-curricular activities may interfere with student's education (see Marsh[57]), Marsh found participation in extra-curricular activities actually strengthened ties to school and educational outcomes, as well as social and athletic self-concept.[57]

A limitation of the findings of the majority of studies cited in Table 1 is that **benefits associated with involvement in extra-curricular activities have been drawn from cross-sectional studies**. These studies cannot illuminate the causal direction of the relationships. Proponents may argue that

participation leads to the benefits outlined above, however, the reverse may equally be true, i.e.: that reporting the benefits above may lead to increased participation.[68] Of the longitudinal studies reporting the prospective impact of extra-curricular involvement, Larsen[69] found no relationship between involvement in extra-curricular activities and self-esteem, however, Marsh[57] found participation improved a range of educational and school bonding outcomes. Mahoney and Cairns[66] reported considerable decreases in school drop-out especially among students with lower academic achievement and those who had behavioural difficulties.

1.6   How do extra-curricular activities work?

The Carnegie Corporation report, *A Matter of Time* (1992), argued that organised extra-curricular activities are of benefit especially to higher risk students because they displaced opportunities to become involved in risky activities (e.g. cigarette smoking), teach competencies and pro-social values and increase social supports and networks.[70]

Marsh[57] provides longitudinal data to support a **'commitment to school' hypothesis**, in which he argues that participation in extra-curricular activities improves academic self-concept.   In turn, improved academic self-concept mediates positive effects on a range of educational outcomes. Although not as strong a predictor, improved social self-concept also mediated outcomes.[57] It is hypothesied that both these mediators may be closely related to connectedness, and will impact on health as well as educational outcomes.

Few studies have addressed the impact of extra-curricular activities directly on cigarette smoking. Only one empirical study using an extra-curricular intervention program to address cigarette smoking was located. Brown et al[71] found their extra-curricular smoking prevention intervention reduced regular smoking among male never smokers. The intervention did not impact on females or students who had smoking experience prior to Year 8. The intervention comprised activities "inconsistent with smoking",[71] however, they required specific funding and would not normally be offered by schools without incentive.

1.7 Direction of this Research

Changes in the education system and increased teacher workloads in Western Australia, as well as recent rapid increases in the cost of public liability insurance have placed increasing pressure on extra-curricular programs provided by Western Australian schools. In our formative research in the area, **key education and health stakeholders have unanimously expressed concerns about decreases in the breadth and depth of extra-curricular programs being provided in Western Australian schools.**

This project aims to evaluate the potential positive impact of extra-curricular programs on a range of outcomes being measured. Should this research indicate a positive impact of extra-curricular activities, this evidence will be used to advocate that policy-makers direct resources into such programs. The health and educational benefits of extra-curricular programs have been recognised by the Western Australian Department of Education with their commissioning of a Taskforce to produce a strategic review document, *Investing in Government Schools: Putting Children First.*[77] Recommendations arising from the report include exploring strategies to provide more opportunities for increasing extra-curricular activities.[77] This project will provide timely evidence for the approach and has received strong support from the Department of Education. It also provides an ideal partnership opportunity between the health and education sectors due to the wide range of potential benefits that may result from extra-curricular programs (i.e. both positive health and educational outcomes).

2. OBJECTIVES

The aim of this study is to monitor the health and educational outcomes associated with participation in extra-curricular activities currently implemented in Western Australian schools using a longitudinal cohort of Year 8 students. Using a naturalistic intervention of students' participation in in- and out-of-school extra-curricular activities, the benefits of extra-curricular activities will be ascertained.

The Primary outcome objective of this study is:

- To determine if regular cigarette smoking (within in the last week) is lower among students involved in extra-curricular activities (measured by items from the Australian Secondary Students Alcohol and Drug Survey[1]).

Secondary outcome objectives of this study are:

- To determine if connectedness to school is higher among students involved in extra-curricular activities (items from Resnicow et al.[2, 3], SCYP[4], Williams and McGee[5]).

- To determine if connectedness to family is higher among students involved in extra-curricular activities (items from Resnick et al.[6], SCYP[4]).

- To determine if alcohol and other drug use is lower among students involved in extra-curricular activities (items from Australian Secondary Students Alcohol and Drug Survey[1]).

- To determine if involvement in problem behaviours is lower among students involved in extra-curricular activities (School Problem Behaviour Index, Resnicow).

- To determine if educational outcomes (attendance, grades and academic aspirations) are better among students involved in extra-curricular activities (self-report).

3. PROGRESS

3.1 Project Management

A strong management team is responsible for overseeing this project. The Management committee is responsible for the day to day administration of the project and is comprised of (members of the Child Health Promotion Research Unit unless otherwise indicated):

Professor Donna Cross

Dr Greg Hamilton (Otago University, NZ)

Dr Marg Hall

Ms Stacey Waters

Ms Therese Shaw

Ms Tommy Cordin

Ms Simone Karner

3.2 Recruitment

Recruitment of schools to the study was conducted in February and March 2004. The selection criteria for schools to participate in this project were that schools:

- must be located in the Perth metropolitan area
- must have an enrolment of 50 or more students in Year 8 in 2003
- must not be a participating school in the Marijuana Education Project (24 Government schools).

To assist in the sample selection process a database containing all schools in Western Australia was obtained from the Department of Education. The SEIFA index was used as a measure of school socio-economic status. Prior to random selection, Perth metropolitan schools that met the above criteria (91 schools) were stratified by Government/non-Government status (60:40), school population size and socio-economic status.

The proposal was to recruit 21 schools into the study however after the Edith Cowan University Ethics Committee granted passive (rather than active)

consent, power calculations were revised to reflect a difference in the estimation of parental non-consent. The resultant calculations identified 18 schools would be adequate to recruit the required number of students to obtain sufficient power for this study.

Table 1
Stratified Random Sampling Procedure

	School size	Recruited Government schools (11)	Recruited non-Government schools (7)
Low SES	Small	3	2
	Large	2	2
High SES	Small	2	1
	Large	4	2

Schools were randomly selected from within the eight strata identified. The Principal of each selected school was sent a letter (Appendix 1) followed by a telephone call inviting their school to take part in the study. If schools declined, they were replaced by another school within the same stratum. This process was followed until enough schools had been recruited into the study (in accordance with the numbers required in each selection stratum. See Table 1). After a school Principal indicated interest in participating in the project, a staff member was nominated to coordinate the project within the school. This coordinator was also telephoned and provided with information about the project. Of the 30 schools approached, 18 agreed to participate, eight refused (most citing other priorities within the school or their involvement in other programs), with a further four schools undecided about their participation at the time of reaching adequate sample size. A letter of Agreement (Appendix 2) was sent to the Principal of each of the 18 recruited schools to sign (with a copy sent to the nominated school coordinator) outlining the school's expected involvement in the project and the CHPRU proposed commitment to the school.

All Year 8 students at participating schools were invited to participate in the study. Passive parental consent was sought for students to complete three questionnaires conducted annually over three years. A letter outlining the project with a consent form attached was sent to parents of all Year 8 students home addresses directly by the school (Appendix 3). Parents were asked to return the consent form in the reply paid envelope provided if they did not want their child to participate in the student surveys. Just over 3100 parent consent letters were mailed home to parents of Year 8 students via each study school. Refusal of consent for their child to complete the student questionnaires was received from 202 parents (6.5%).

3.3   Instruments

This research is reliant on student self-report data and whole-school audit information about extra-curricular activities offered at each school. The instruments developed to date include:

- Student questionnaire and administration protocol (Appendices 4 & 5)
- School Extra-curricular Activities Review - Terms 1 and 2, 2004 (Appendix 6)
- School Extra-curricular Activities Review Interview - Terms 1 and 2, 2004 (Appendix 7)
- School Extra-curricular Activities Review - Terms 3 and 4, 2004 (Appendix 8)

Student Questionnaire

Students were surveyed using a self-complete questionnaire. The questionnaire was designed to determine students':

- level of participation in extra-curricular activities
- cigarette smoking and other drug use
- attitudes related to their peer's drug use
- problem behaviours such as classroom behaviour
- suspension/expulsion and absenteeism
- connectedness to their school
- connectedness to their family.

The questionnaire was pilot tested with 79 students at a non-Government high school that had not been approached to participate in the longitudinal study. Changes were made to the instrument and further reliability testing was conducted through test-retest with 136 students at two non-Government high schools also not approached to participate in the longitudinal study. The test-retest procedure resulted in some changes to the length, organisation and wording of the Baseline student questionnaire.

Extra-curricular Activities Review

The Extra-curricular Activities Review was developed to obtain information from schools about the extra-curricular activities offered to students. The data collected will be used to triangulate with student's self-reported participation. Development of the review was based on the refinement of the audit instrument used in the Extra-curricular formative study in 2003. The Extra-curricular Activities Review asked schools to describe the range of extra-curricular activities available to Year 8 students (grouped by type of activity: Sport, the Arts, Recreation and Other), the numbers of students and staff participating in each activity, the time committed to each activity by both staff and students and the costs and resources involved in each activity.

The Extra-curricular Activities Review was piloted with staff from two schools involved in the test-retest of the student questionnaire. Staff members who completed the pilot Review were interviewed by telephone to assess the ease of completing the forms, the time taken to complete the forms, who they consulted with to help complete the forms and to identify any problems they had with the definition of extra-curricular activities.

The modified Extra-curricular Activities Review was posted to the Review coordinator at each cohort school (the staff member nominated by the Principal at recruitment and confirmed with the school Project Coordinator). The Extra-curricular Activities Review comprised of:
- a cover letter which included an outline of the Extra-curricular Activities Review, an explanation of its purpose and how the information would be used

- a 10-step action plan on how to complete the forms
- a clear and comprehensive definition of extra-curricular activities
- four sets of forms to be completed for all extra-curricular activities offered by the school, colour coded according to the category of the activity (Sport, the Arts, Recreation and Other).

The Review coordinator was asked to consult with colleagues, as required, for assistance with the completion of the Extra-curricular Activities Review forms. They were asked to complete a Personnel form providing the names of staff members with whom they consulted.

Extra-curricular Activities Review Interview

In anticipation of some schools having difficulties in completing the forms, for the Terms 1 and 2 Extra-curricular Activities Review each Review coordinator was asked to complete the forms and participate in a telephone interview before returning the completed forms to the CHPRU. The interview was designed to answer any questions about the definition of extra-curricular activities, to clarify the inclusion/exclusion criteria as well as collecting information about school camps and specialist programs.

3.4   Data Collection

Baseline

Student Questionnaire

Trained personnel from the Child Health Promotion Research Unit at Edith Cowan University administered the baseline student questionnaires in Year 8 classrooms to students with parental consent according to a strict procedural and verbal protocol (Appendix 5) in June and July 2004.

The pilot and test-retest processes had revealed some students, particularly those with low literacy skills, had difficulty completing some of the questions in the survey. Due to the complexity of some questions seeking information about participation in extra-curricular activities and the potential for students to struggle with the definition of these activities, the questionnaire administrator

read aloud the definition to the students before students began completing the questionnaire. Administrators 'walked' students through the steps involved in answering the first eight questions of the questionnaire (those questions measuring extra-curricular activities participation.

Teachers were asked to remain in the classroom to help with behaviour management during the questionnaire administration. Confidentiality was maintained by the use of identification numbers on questionnaires and teachers were asked not to look at students' responses. Student questionnaires were collated by administrators upon completion and returned immediately to the Child Health Promotion Research Unit at Edith Cowan University.

Table 2 presents the response rates for the Student baseline questionnaire.

Table 2
Student Questionnaire Response Rates

	n	%
Total Sample	3110	100
No consent	202	6.5
Total with consent	2908	93.5
Left school	49	1.7
Absent (not completed)	151	5.2
Non completed (other reason eg refused, low literacy)	8	.3
Completed (with consent)	**2700**	**92.8**

Extra-curricular Activities Review and Interview

Schools were sent the first Extra-curricular Activities Review 'pack' in June 2004 and asked to add details about the extra-curricular activities offered in Terms 1 and 2 of 2004. A telephone interview was conducted with the Extra-curricular Activities Review coordinator before returning the completed Review forms. Follow-up to encourage the completion and return of the Review forms included a reminder fax and a telephone call to the Review coordinator.

A second Extra-curricular Activities Review 'pack' was sent to schools in October 2004 asking the Extra-curricular Activities Review coordinator to provide information about the extra-curricular activities offered to students in Terms 3 and 4, 2004. Included with this 'pack' was a photocopy of the completed forms the school had provided for Terms 1 and 2 to be used as a reference for any activities still offered in Terms 3 and 4. Follow-up to encourage the completion and return of the Review forms included a reminder letter and a telephone call to the Review coordinator. No interview was conducted at this time point.

Table 3 presents the response rates to the Extra-curricular Activities Review for Terms 1 and 2 and Terms 3 and 4.

Table 3
Extra-curricular Activities Review Response Rates

	TERM	1 & 2	TERM	3 & 4
	n	%	n	%
Completed	15	83	10	55.5
Total Sample	18	100	18	100

4. RESULTS

Student involvement in school extra-curricular activities

The reported involvement of the surveyed Year 8 students in extracurricular activities during Terms 1 and 2 is presented in Table 4a. Three categories of activities have been identified, namely sporting activities, activities related to the arts and recreational and other activities. These have been separated according to whether the participation was at school level, community level or both.

Table 4a: **Student feelings involvement in school extra-curricular activities**

Type		n	%
Sports	School only	442	16.4
	Community only	581	21.5
	School and community	1078	39.9
	No involvement	601	22.2
Arts	School only	797	29.5
	Community only	303	11.2
	School and community	393	14.6
	No involvement	1209	44.7
Recreation and other	School only	50	1.9
	Community only	66	2.4
	School and community	19	0.7
	No involvement	2567	95
	TOTAL	**2702**	

The students predominantly participated in sporting activities with 78% involved in a sporting activity of some form either school-based, community-based or both. Students participated in community sport to a slightly greater degree than school extracurricular sports. The most popular sports in Term 1 were soccer, basketball, netball, swimming and cricket and in Term 2 were soccer, netball, football, athletics and basketball. Fewer students participated in arts-related activities (55.3%) and this involvement was more at school level than community level. Activities were varied but playing of musical instruments, involvement in performing arts and visual arts were most prevalent. Participation in recreational and other activities was mostly related to lunchtime activities at school and recreational clubs.

Student feelings concerning their involvement in school extra-curricular activities

Table 4b summarises student feelings associated with the amount of time they spent participating in school extra-curricular activities during Term 1 and 2.

Table 4b: **Student feelings concerning their involvement in school extra-curricular activities**

	n	%
Not enough, I'd like to do more	714	28.7
About the right amount	1156	46.5
Too much, I'd like to cut down	81	3.3
I have not done any extra-curricular activities	534	21.5
TOTAL	**2485**	**100**

During Term 1 and 2 of 2004, almost half of all Year 8 students (46.5%) surveyed felt they spent 'about the right amount' of time participating in extra-curricular activities. However, approximately 29% of students felt they weren't involved in enough and wanted to participate in more activities. Only 3% of students felt that they were involved in too many extra-curricular activities.

Attendance at School Camps

Table 5 summarises Year 8 student attendance at a school camp.

Table 5:   Attendance of a school camp in 2004

	n	%
No, have not attended a school camp	1684	70.5
Yes, have attended a school camp	705	29.5
TOTAL	**2389**	**100**

A significant proportion of the Year 8 sample (70.5%) did not attend a school camp during Year 8. Of the 29.5% students who did attend a school camp in 2004, the average duration of the camp was approximately three days.

Cigarette Smoking

Table 6a summarises the proportion of Year 8 students who reported smoking even part of a cigarette in their lifetime. This information is supplemented by data in Table 6b which outlines the proportion of students who smoked a cigarette (even a puff) in the past four weeks prior to being surveyed.

Table 6a: Tobacco smoking (even part of a cigarette) in a student's lifetime

	n	%
No, have never smoked even part of a cigarette	2024	81.5
Yes, just a few puffs	310	12.5
Yes, have smoked fewer than 10 cigarettes in my life	75	3.0
Yes, have smoked between 10 and 99 cigarettes in my life	40	1.6
Yes, have smoked more than 100 cigarettes (5 packets) in my life	34	1.4
TOTAL	**2483**	**100**

The majority of Year 8's surveyed (81.5%) had never smoked a cigarette in their lifetime. The remaining students (n=459; 18.5%) indicated they had smoked at least a few puffs in their lifetime. Of these 459 students, 67.5% had smoked a few puffs of a cigarette, 16.3% smoked fewer than 10 cigarettes and a further 16.1% had smoked more than 10 cigarettes in their life.

Table 6b: Tobacco smoking (even a puff of a cigarette) in the last four weeks

	n	%
No	2337	95.0
Yes	122	5.0
TOTAL	**2459**	**100**

The majority of Year 8's (95%) had not smoked a cigarette in the four weeks prior to being surveyed. In comparison, only a small proportion (5%) of students reported smoking at least a puff of a cigarette in the past month.

Alcohol Consumption

Table 7 shows data relating to two questions asked within the questionnaire relating to student alcohol consumption over the past month. The first question asked students if they had consumed alcohol in the last 4 weeks. Those students who responded 'yes' to this question were subsequently asked how many times they consumed potentially hazardous levels of alcohol in the past month (five standard drinks or more). This information is summarised in Table 7.

Table 7: **Number of times students drank 5 or more standard drinks at one time in the past four weeks**

	n	%
No alcohol in the last 4 weeks	2076	81.4
No times	191	7.5
One time	116	4.6
Two times	67	2.6
Three times	34	1.3
Four times	17	0.7
Five or more times	48	1.9
TOTAL	2549	100

A significant proportion of students reported they had not consumed any alcohol in the past four weeks (81.4%). Over 7 % of Year 8 students surveyed reported they had not consumed more than five standard drinks at one time in the past month prior to being surveyed. Approximately 11% of students indicated they had consumed more than five standard drinks at least once in the past four weeks prior to being surveyed.

Marijuana and Other Illegal Drug Use

Table 8a indicates the number of times students reported they used marijuana in their lifetime. Table 8b also summarises the amount of times students reported they used other illegal drugs (eg ecstasy, trips, amphetamines, cocaine) in their lifetime.

Table 8a: **Number of times students used marijuana in their lifetime**

	n	%
Never	2378	92.7
Once or Twice	90	3.5
3 to 5 times	31	1.2
6 to 9 times	13	0.5
10 to 19 times	14	0.5
20 to 39 times	9	0.4
40 or more times	31	1.2
TOTAL	**2566**	**100**

A significant proportion of Year 8 students surveyed (93%) had never tried marijuana, whilst approximately 7% of students had experimented at least once in their lifetime.

Table 8b: **Number of times students tried illegal drugs in their lifetime**

	n	%
Never	2406	97.1
Once or Twice	35	1.4
3 to 5 times	11	0.4
6 to 9 times	9	0.4
10 to 19 times	3	0.1
20 to 39 times	4	0.2
40 or more times	11	0.4
TOTAL	**2479**	**100**

A small proportion of the Year 8 students reported they had used other illegal drugs. Only 2.9% of the students had ever had some sort of experience with using other illegal drugs in their lifetime. Fewer students reported having tried illegal drugs in their lifetime compared with marijuana (n=73, 2.9%; n=188, 7.3% respectively).

Academic Achievement

A summary of student self report of their academic achievement, in relation to other students in their year group, is provided in Table 9.

Table 9: **Student perception of their school results in comparison to others in their year group**

	n	%
Better than most other students in my year group	717	28.9
About the same as most other students in my year group	1555	62.6
Not as good as most other students in my year group	212	8.5
TOTAL	**2484**	**100**

The majority of students believed their school results were similar to other students in their year group (63%). Approximately 30% believed they performed better than others whilst only a small proportion (9%) reported they didn't perform as well as other students in their year group.
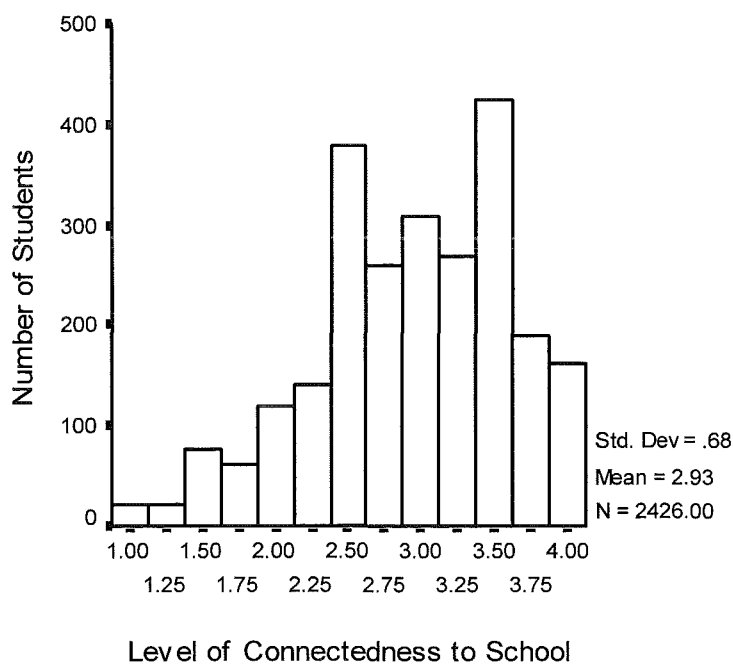
School Connectedness

To assess school connectedness students were asked to report to what extent they felt close to people at school, a part of the school, were treated fairly and felt happy and safe.

Students reported their feelings of connectedness toward these factors on a Likert scale from one to four (1=never connected, 2=sometimes connected, 3=usually connected and 4=always connected).

Figure 1 shows a mean score of 2.9 on this connectedness to school scale where a score of four indicates students felt a high level of connectedness to school.

Figure 1:   Student feelings of connectedness towards their school

Std. Dev = .68
Mean = 2.93
N = 2426.00

Level of Connectedness to School

Teacher Connectedness

To assess teacher connectedness, students were asked to report to what extent they felt a teacher or some other adult at school really cared, noticed, listened, praised or supported them.

Students reported their feelings toward teacher connectedness on a Likhert scale from one to four (1=never connected, 2=sometimes connected, 3=usually connected and 4=always connected).

Figure 2 shows a mean score of 2.9 on this connectedness to teacher scale where a score of four indicates a high level of connectedness.

Seventy one students from the sample had no opinion (reporting 'unsure' for each of the statements) in relation to their level of connectedness towards teachers. This was not unexpected given that at the time of the survey the students were in Term 2 and may not have had an opportunity or time to form strong relationships with their teachers.

**Figure 2:   Student feelings of connectedness towards teachers**

Std. Dev = .74
Mean = 2.90
N = 1929.00

Level of Connectedness Towards Teachers
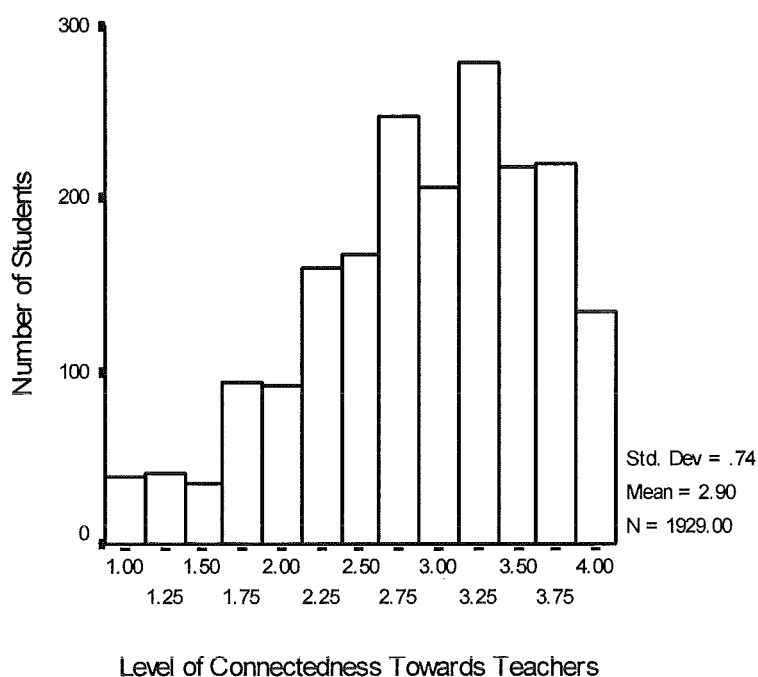
Family Connectedness

Family connectedness was assessed by the extent to which students felt close to their family, if there were parents home before and after school and if they believed someone in their family cared what happened to them and was available to discuss problems.

Students reported their feelings toward statements relating to these factors on a Likert scale from one to five (1=Strongly Disagree, 2=Disagree, 3= Neither Agree nor Disagree, 4=Agree, 5=Strongly Agree).

Figure 3 shows a mean score of 4.3 on this connectedness to family scale where a score of five indicates a high level of connectedness to family.

**Figure 3:   Student feelings of connectedness towards their family**

Std. Dev = .61
Mean = 4.28
N = 2591.00

Level of Connectedness Towards Family
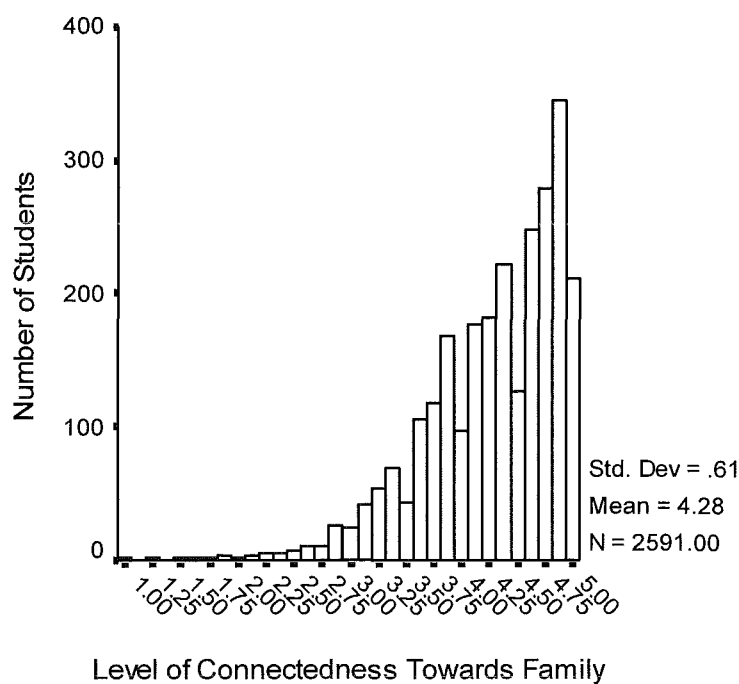
Classroom Management Climate

Classroom management climate was assessed by the degree to which students related to their teachers and other students, and their attention levels within class time.

Students reported their feelings on classroom management climate on a Likert scale from one to four (1=never had trouble 2=sometimes had trouble, 3=usually had trouble and 4=always had trouble).

Figure 4 shows a mean score of 1.9 where a score of 1 indicates no difficulty experienced in relation to teachers and peers at school (eg the student 'never' had trouble getting along with teachers, other students etc).

Figure 4:   Classroom Management Climate

Std. Dev = .60
Mean = 1.94
N = 2510.00

Level of Classroom Management Climate
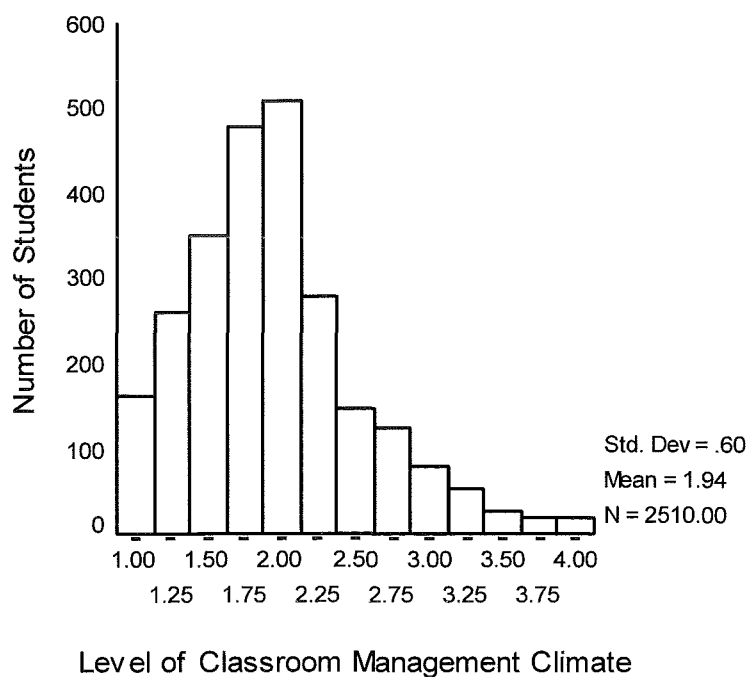
5. EFFECT OF RESEARCH ON PROFESSIONAL DEVELOPMENT

This project has and will continue to provide training opportunities for a significant number of students at Edith Cowan University.

The Project Director is developing project and personnel management and financial skills as she oversees the implementation of this project according to the objectives of the research.

The Project Coordinator will be enrolling as a Master of Health Promotion student in 2005 and completing her Research Dissertation at the Child Health Promotion Research Unit whilst continuing to assist with the Extra-curricular project. Through her work on the Extra-curricular project this year she has gained valuable experience and skills in school-based research that she will continue to build on in 2005.

Seventeen undergraduate health promotion students from Edith Cowan University completed volunteer work on the project in the areas of labelling and packing questionnaires, administration of student questionnaires, preparation of questionnaires for data entry and general administrative tasks. All volunteers of the CHPRU work towards the research unit's Research Competency Program.

6. IMPLICATIONS FOR HEALTH PROMOTION / LINKING RESEARCH TO HEALTH OUTCOMES

Connectedness refers to the social bonding of an individual that may be protective of drug use and other health compromising behaviour.[6, 29] Connectedness to school, family and the community have been identified as important mediators of a number of health outcomes. Recently the important role school plays as a protective factor against cigarette smoking and other drug use has emerged.[6, 29-31] McBride et al[29] identified the importance of the school environment in providing students with opportunities to increase their connectedness to school. **Extra-curricular activities provide an important medium for increasing school connectedness.**[29]

Adolescents who demonstrate less 'connectedness' to their families, schools and society are more likely to smoke, particularly regularly.[3, 6, 25, 30-39] Conversely, **stronger connectedness to school**[6, 29-32, 40] **has been associated with lower smoking prevalence**. Resnick et al[6] found higher school connectedness was associated with less smoking, alcohol and marijuana use, older age of sexual debut, less emotional distress and fewer suicidal thoughts or attempts.

The Extra-Curricular Project has the potential to significantly impact on these factors in a positive way by:

- determining appropriate mechanisms for measuring extra-curricular activities offered by schools and participated in by students
- further exploring the protective role connectedness plays in adolescents' lives
- demonstrating links between Western Australian school children's participation in extra-curricular activities and this impact on problem behaviours
- determining which extra-curricular activities have the greatest protective impact on problem behaviours
- conducting cost-benefit analyses of extra-curricular activities offered by schools in relation to student involvement in problem behaviours.

7. COMMUNITY BENEFITS FROM THE RESEARCH

The major benefits of the project can apportioned to three groups:

Researchers and Practitioners

This research will allow the practical benefits, in terms of reducing adolescent cigarette smoking, associated with extra-curricular activities to be quantified. As small reductions in prevalence rates have resulted from traditional programs, innovative strategies that target mediators of cigarette smoking warrant exploration. This approach has a potential number of concurrent benefits resulting from hypothesised effects on students' connectedness to school, family and community, including health (reductions in other drug use, reductions in problem behaviours and improved mental health) and educational outcomes (improved attendance, grades and academic aspirations and decreased 'drop-out'). This project will also enhance researchers' understanding of the effect of the 'commitment to school' hypothesis. These benefits will be disseminated to education and youth health practitioners as well as the scientific community.

Schools and Education Systems

While this project may lead to additional research, it will assist schools and education systems to make informed decisions regarding the investment of resources into providing extra-curricular activities. In particular, data will be obtained regarding thresholds for benefits of participation in extra-curricular activities (i.e.: How much is enough? How much is too much?). The relative merits of different types of activities will be elucidated (e.g.: in-school vs out-of-school, physical vs cultural, team vs individual).

Children

Ultimately, this research will reduce adolescents' cigarette smoking and other health compromising behaviours and improve their mental health.

8. DISSEMINATION

A systematic plan for dissemination of this project will be developed in consultation with key collaborators in relevant government and non-government agencies. The findings of this study will be disseminated to the Department of Education and Training, Catholic Education Office and the Association of Independent Schools.

The results of this study will be disseminated to all project schools, at a community forum, within local media, conference presentations, project reports and peer-reviewed journals.

As this is the first year of the project, only one presentation has been conducted, however more are planned for the remaining two years of the study.

Hamilton, G., & Cross, D. (2004, June-July). *Health effects of extra-curricular activities*. Paper presented at the Public Health Association of New Zealand Conference, Christchurch, New Zealand.

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10. APPENDICES

APPENDIX 1

Letter to Principals

APPENDIX 2

Letter of Agreement with Schools

APPENDIX 3

Parent Consent Letter

APPENDIX 4

Student Baseline Questionnaire

APPENDIX 5

Student Baseline Questionnaire Protocol

APPENDIX 6

Extra-curricular Activities Review – Terms 1 and 2, 2004

APPENDIX 7

Extra-curricular Activities Review – Interview

APPENDIX 8

Extra-curricular Activities Review – Terms 3 and 4, 2004