PATHS THAT CONNECT

Walking and cycling to school as an indicator of the level of social connectedness and trust in school communities

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INTRODUCTION

Children's Independent Mobility (CIM) is defined as a measure of the level of a child's freedom to explore and move about his or her local neighbourhood without direct adult supervision (Hillman et al., 1990). An example of CIM is a child walking to school without an adult. Active transport or active commuting is generally defined as walking or cycling, and CIM is a sub-set of those who actively commute to school and other places (Hume et al., 2008, Pabayo et al., 2009).

Researchers have observed a radical change in the travel behaviours of children over the last two generations. The level of active transport in children has been declining rapidly (Hume et al, 2008). Children have also suffered a significant loss of independent mobility, which has been well-documented in the UK (Hillman et al., 1990), and in Australia (Tranter, 1993)(Malone, 2007). What they have found is that the loss of the licence to roam has left children confined to smaller and smaller neighbourhoods and territory dependent on the 'parent taxi'. Tranter identified and studied five licences to travel around a neighbourhood without parental supervision in his study of children in Canberra in 1993 (Tranter, 1993). These licences include: the licence to cross busy roads, to ride a bicycle along a busy road, to travel on public transport, to go out of doors at night, and the licence to visit friends in the neighbourhood or same suburb. More recent studies measure the on-going loss of these licences, and the effects that this has on children's sense of connection to local environment and community (Tranter and Sharpe, 2007, Tranter and Malone, 2008).

The effect of any loss of independent mobility may manifest itself in lower levels of physical activity, resulting in poorer health, loss of independence, and greater reliance on the car for travel to all sorts of destinations (Kegerreis, 1993). One example is the decline in numbers of children walking to school. Recent studies have shown that walking to school has declined from 37% in 1985 to 26% in 2001. (Salmon et al., 2005) A recent study has shown that sustained active transport to school by young children results in a lower Body Mass Index (BMI) and fewer children who are overweight (Pabayo et al., 2009).

In light of declines in active transport (AT), CIM, and associated physical and social health outcomes, influences on this behaviour are important to examine, so that interventions can be better planned.

McMillan has developed a framework for understanding influences on active transport. That model states that factors which should be included in any conceptual model of active transport to and from school include age and sex of the child, parental views on safety in the area, the urban form in which the school is located, traffic volumes, community norms and attitudes, social demographics, transport options and the actual distance of the student from the school (McMillan, 2007).

Others disciplines use a more ecological model (Davison and Birch, 2001), which seems to be lacking in the urban planning field. The current study intends to use this ecological model, placing the child at the centre with his or her individual characteristics, and the various influences surrounding him or her in layers, beginning with the influence of parents and family, then neighbourhood and school characteristics including distance and community attitudes towards CIM and AT, and the outer layer being social, global and environmental influences. Each factor has its own niche and relationship with each other and the child.

In relation to the factors outlined above, the importance of social connectedness of the school community as a factor in shaping community attitudes towards CIM and AT, and enabling parents to allow their children to be

more independently mobile, has been recognised (Hume et al, 2008:641). Putnam's study of social capital or connectedness was groundbreaking (Putnam, 2000). For the purposes of understanding CIM in this context, Putnam defines social capital in a lean fashion as "social networks and norms of reciprocity" (Putnam, 2000). This definition is useful because it assists in understanding how communities achieve greater trust through the building of networks that are fuelled by reciprocal acts. This environment in turn results in children being able to pursue autonomy and legitimacy in their neighbourhood.

The work of Lewis (2010) in highlighting additional perspectives is also important to consider. The emphasis in the definition of social capital - "the resources embedded in social networks accessed and used by actors for action" - is that social capital is more than latent potential. It arises from the networks themselves i.e. being connected, and the purposes to which those links are put i.e. education, support of family, politics. It is complex, and is built primarily on the individual. Then group and societal links and actions including those of government come after this. The current paper will adopt that definition of social connectedness. According to Lewis, being connected in itself builds social resilience, and leads to better outcomes in health and wellbeing, knowledge and innovation (Lewis, 2010: 65). Levels of understanding and trust between individuals and within communities naturally are increased. So a socially connected community displays high levels of trust, which allows other events to take place – such as allowing children to walk to school without adult supervision. The potency is that trust or social capital is not actualised unless parents actually let their children walk and cycle to school. Others can then gain from the actions of the first, and children will get to know their fellow students better, and perhaps create opportunities for interactions outside of school.

One potentially important factor related to CIM is school type. Most studies assume that primary students attend a local primary school usually within one to two kilometres of home (Carlin et al., 1997, Harten and Olds, 2004). Catholic schools typically have larger catchments in order to be viable. Therefore they face particular issues when CIM is evaluated in their schools compared with government schools. While reporting the difference in numbers walking by school type, some studies do not take this issue into account (Carlin et al., 1997:289-90). It is important that we understand these differences, and the factors that may impact on student travel behaviours in schools of different type, including Catholic schools. If solutions are to be found for the challenges facing health and wellbeing of these children, schools and communities, the strengths of each may need to be utilised.

A strength of Catholic schools in Victoria is their community building capacity. Currently they are focussing on being more "outward-facing" in their relationships with the wider community. (CEOM SACSC Strategic Framework) This could be a path toward a solution for Catholic schools if it can be shown that the relationship between CIM and connectedness in Catholic schools is strong, and if travel behaviour programs can effectively tap into this strength. Little is known about this aspect of Catholic schools, which the current study sets out to address.

Therefore, this paper will 1) describe the current levels of active transport (AT) and independent mobility (IM) to / from school; 2) examine associations between distance and AT and IM to / from school, and 3) explore the socio-demographic factors influencing AT and IM to / from school including sex and urban classification.

Lastly, it will examine the attitudes and levels of trust in their neighbourhood through the various licences that they have to travel around independently. It compares these results with results of previous studies, and draws some conclusions about the relationships between social connectedness and the levels of active transport and independent mobility in those communities.

METHODS

Data for this study came from surveys of students which were drawn from a subsample of schools (n=13 of 29 schools) involved in the baseline data collection for a larger study examining CIM, social capital and the effectiveness of travel behaviour change programs among Catholic schools in Victoria. The schools were selected by convenience in a range of urban locations from inner city (n=3) middle (n=4) and outer suburbs (n=4), and regional locations (n=2), and a range of Socio-Economic Score (SES) values.

The urban classification were defined for the current study on various geographical and town planning criteria: 'inner' defined as being with a radius of seven kilometres from the GPO, 'outer' being any school within the Melbourne Urban Growth Boundary (UGB) located in one of the seven growth area councils, 'middle' being

those remaining schools within the UGB not in the other two groups, and 'regional' being those outside the Melbourne UGB.

SES is a measure of socio-economic advantage / disadvantage calculated from Census data in 2006 using the Ross-Farish methodology. This methodology requires the index to have a median score for all schools of 100, with a standard deviation of 10 points. This particular index was calculated by the Department of Employment Education and Workplace Relations (DEEWR) for all non-government schools. The average SES score for this sample of schools is 101.4. Therefore the final sample is a reasonably balanced sample of Catholic schools based on this measure of SES.

The surveys were distributed to families of year 4 to 6 students who provided a consent form to the school. In the thirteen schools, 882 students in total returned the survey of a possible total of 1882 students. This survey comprised two parts, a student section and a parent or guardian section. The surveys were completed prior to the school's involvement in a travel behaviour change program, so all participants were recording baseline attitudes and behaviours.

The research project received ethics approval in 2009 and was extended in 2010 from the Human Ethics Advisory Committee (HEAC) at the University of Melbourne. A further level of approval was received from the Catholic Education Office Melbourne to approach Catholic schools in the Archdiocese of Melbourne. The school principals provided consent for their school to be involved in the research, and student participants provided a signed consent form from their parents or guardians.

Measures

Student Variables
Student variables collected and used in this study include the actual mode taken to and from school on the day (Mode to/from School_student), the level of independence from adults during this journey (CIM_Student), the licences that they hold to travel around (Licences to Travel Around), and the level of knowledge of the neighbours and play in the street (Knowledge_of_Neighbours, Plays_often_with_children) (5 point likert scale), all self-reported in a survey completed at the start of the research at school.

Parental variables
Parental variables utilised in this study included the modes that their child usually takes on the journey to and from school (Usual_ Mode_to/from_school), the level of independence on that journey (CIM), the estimated distance that the child lives from school in kilometers (Distance_Parent_Perceptn). These were collected in a survey sent home to parents at the start of the research.

Usual Mode of Travel
The outcome measure for this study was the child's usual mode of travel to and from school. The measure used the parent's response to the question of how the child usually travels to or from school. Options included walks all the way, cycles or rides a scooter, takes a bus, train or tram, is driven in a car, or a combination of the previous options. The measure is a close copy of that used by Tranter in his 1993 study in Canberra. Due to the low numbers taking public transport (PT) modes, other than the bus, these three combined for most analyses using the label PT.

Socio-demographic information
In the proxy-report survey, parents reported the child's age and sex.

Distance (Parent Perceived)
Parents' reported the estimated distance (km) their child lived from school.

Urban Classification
Urban classification was determined at the school-level during the sampling process.

Licence(s) to travel around
Data about the four licences for independent travel were collected in the student survey: 1. To ride a bicycle along main roads, 2. To cross busy streets alone or with friends, 3. To take public transport alone or with friends, 4. To visit friends alone in same suburb or town. Options were yes, no, or unsure (for licence 4 only). The form of these questions closely match those used in Tranter's research in Canberra (Tranter, 1993).

Outcome Variables

Active transport
Active transport (AT) included the modes of walking, cycling or taking public transport to or from school all the way, or a combination of two or more of these three modes.

CIM
Independent mobility (CIM) was affirmative if the parent indicated that the child either travelled alone to/from school or travelled with another sibling or friend, and an adult was not present. It did not require them to take an AT mode. This measure theoretically allowed some car journeys as an option. The form used matches that of Tranter's earlier study (Tranter, 1993). Using the definition of AT above which includes PT, CIM is almost entirely a subset of those who have chosen active transport modes for the journey to and from school.

DATA ANALYSIS

All data were analyzed in SPSS version 18 in 2011. Descriptive statistics for predictor variables were examined. Differences in CIM and AT frequency at baseline by sex, urban classification and distance. Means and standard deviations were calculated for the distance traveled versus the outcome variables.

A One-Way ANOVA test was performed on the Usual Mode to and from School and the parent perceived travel distance for each of two groups of students in TravelSmart schools and SRTS schools. These were kept separate due to data management issues dictated by the early stage of the research project.
A Pearson Chi-square test was performed on the variables (CIM_to_school and Mode and CIM_from_school and Mode). Cramers V test statistics were recorded.
A second Pearson Chi-square test was performed on the variables Sex and Usual Mode to School and Sex and Usual Mode from school). Cramers V test statistics were recorded
A third Chi-square test was performed on each of four Licence to Travel Around variables with the CIM to School variable for the two sets of students in the two programs (TravelSMart and SRTS). A combined test was not conducted at this stage. No assumption was made that the results of the two groups would vary from each other due to their later involvement in different programs.

At this stage no examination of the outcome variables by age was performed. This will be performed after in the research.

RESULTS

Descriptive characteristics

The participants comprise 860 students across year 4 to 6. Of these 51% were girls, and the remainder boys. They were distributed across the following year levels - 22% year 4, 35% year 5 and 36% in year 6, 6% were in an unknown year level. The sample of thirteen schools included in this study are summarised in Table 1 below.

Table 1: The urban classification of participants

Urban Classification	N
Inner	75
Middle	307
Outer	376
Regional	102
Total	860

Active transport and independent mobility
Table 2 shows the proportions of children in each category of travel mode to and from school. Only 12% of children report walking to school and 13% reported walking home from school. The vast majority of children (61-64%) reported being driven to/from school by car.

Table 2: Usual mode of travel to and from schools

Mode	To school	Home from school
	%	%
Walking	12%	13%
Cycling/Scooter	9%	9%
Bus	4%	5%
Car	64%	61%
Tram or Train	0.4%	0.6%
Combination of modes	10%	12%
Unknown	0%	0%
Total	99.4%	100.6%

Table 3 shows children's mode of transport to and from school, according to whether these trips were independent or not. For the trip to school, 18% of the respondents indicated their child usually travelled to school independently of adults, either a parent or another adult(s). For the trip home, 24% of the respondents indicated that their child usually travelled from school independently. A Pearson Chi-square test confirmed that a highly significant ($p<.001$) and extremely strong relationship exists between the two variables (CIM_to_school and Mode and CIM_from_school and Mede) (Cramers V test 0.737). The size of the independently mobile cohort in proportion to the total percentage choosing active transport modes was notable (CIM to School 18% v 26% active transport (AT); CIM from school 24% v 28% AT). Active transport modes and independent mobility appear to be strongly associated.

While parents and other adults accompany walkers to some degree on the journey to and from school (43% and 35% respectively), other AT modes are uniformly dominated by independent mobility. An analysis of the residuals in the chi-square test identified almost every modal category (including those who walk) as representing a highly significant difference in frequency from the total. The exception was the combination of modes, which reflected expected values except for the journey to school where independently mobile students were under-represented in this category ($p<.05$).

Table 3: Usual mode of travel to and from school according to whether trips were independent or not

Mode	CIM_to_School		CIM_from_School	
	Not independent	Independently mobile	Not independent	Independently mobile
Walking	6%	36%	6%	36%
Cycling/ scooter	3%	37%	3%	30%
PT	1%	20%	1%	18%
Car	78%	2%	78%	6%
Combination of modes	12%	5%	12%	10%

The phenomenon of some students being classified by parents as independently mobile when they were driven to school or home from school is interesting. The only logical way to understand these results is if an older sibling drove them. These siblings may be students themselves and not regarded as 'adults' by the parent.

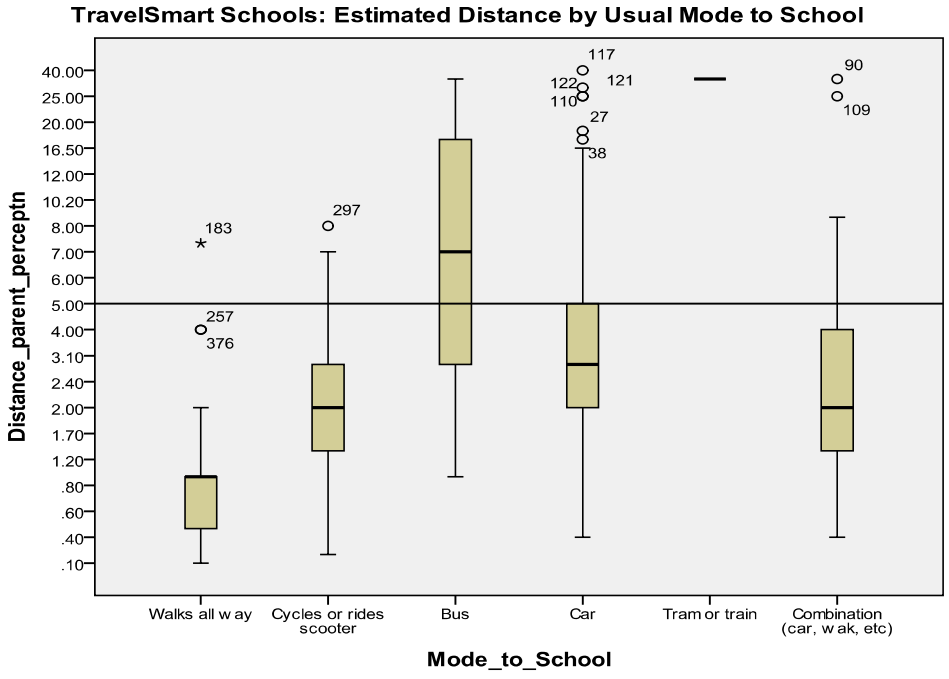
Associations between travel modes and distance to/from school

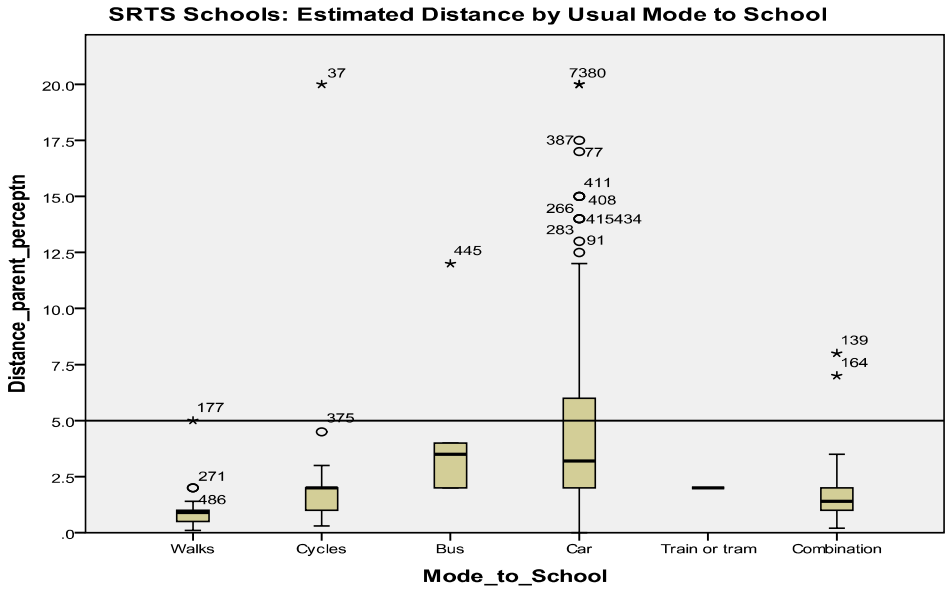
Table 4 shows the parents' perceptions of travel distance according to the travel mode their child takes to and from school. On average parents perceived the distance their child travelled to or from school was 4.29km. The shortest travel distance was reported for those children who walked to or from school (1.01-1.68km), and the greatest distance was for those children who travelled by public transport.

Table 4: Usual mode of travel to and from school and travel distance

	To school		Home from school	
Mode of travel	**Perceived travel distance**		**Perceived travel distance**	
	Mean	SD	Mean	SD
Walking	1.01	1.43	1.68	4.18
Cycling/ scooter	2.42	2.60	2.48	2.63
PT	9.09	8.56	8.45	7.96
Car	5.05	6.25	5.12	6.24
Combination of modes	2.93	4.39	2.96	4.11
Other	2.01	1.43	2.44	2.29
Mean	4.29	5.80	4.29	5.80

The mean distance a child is estimated to have to travel for both groups is surprisingly consistent, being 4.39kms and 4.19 kms respectively for the journey to school, and 4.42 kms and 4.18 kms for the journey home, even though each group comprises quite a different mix of schools. The table does show that within each category of travel mode to school there are marked differences in mean distance for each group. These are logical to an extent, and are demonstrated clearly by the two box plots of cases for Mode to School shown below.





These two figures show fairly clearly that distance is highly related to the mode of travel chosen. A One-Way ANOVA test was performed on both data sets, which showed between groups that there was a high degree of significance in both cases ($p<.001$).

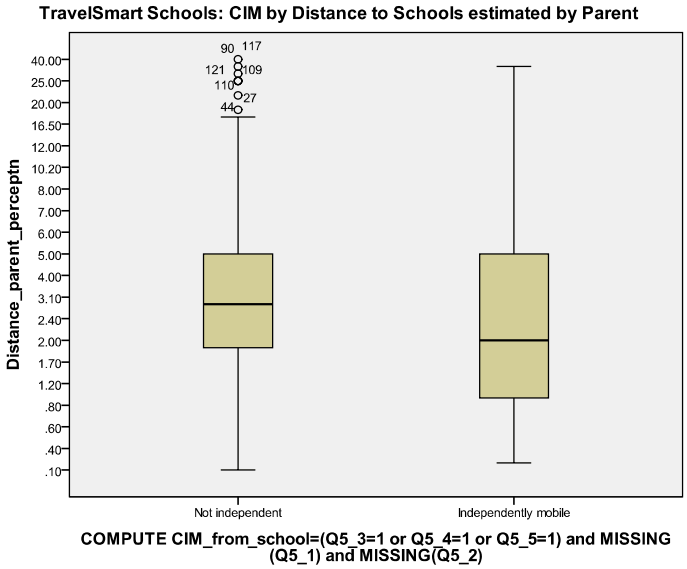
Associations between travel modes, independent mobility and distance to/from school

The results of a cross-tabulation of perceived travel distance with CIM within the same two groups of students are listed in Table 5 below.

Table 5: CIM to and from school and Travel Distance estimated by Parent

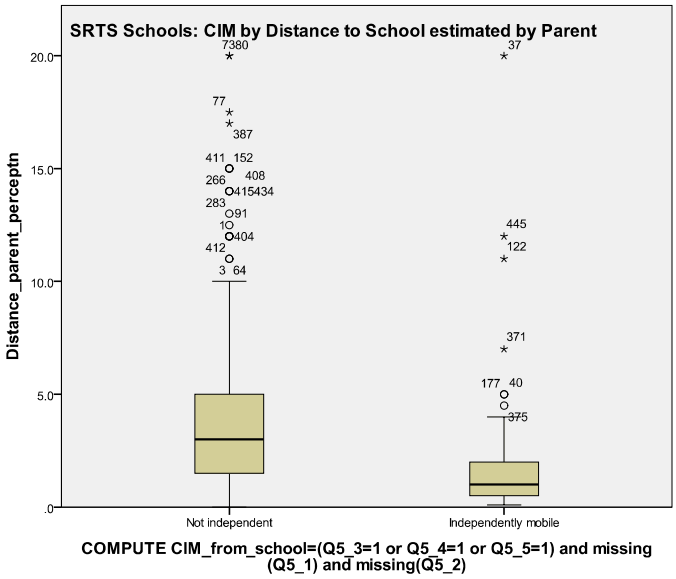
CIM_to_school	Perceived travel distance					
	TravelSmart			SRTS		
	Mean	N	Std. Deviation	Mean	N	Std. Deviation
Not independent	4.43	244	5.21	4.40	369	6.25
Independently mobile	4.19	102	5.88	2.08	44	3.39
Total	4.36	346	5.41	4.15	413	6.05
CIM_from_school						
Not independent	4.46	229	5.35	4.53	346	6.40
Independently mobile	4.16	118	5.52	2.15	69	3.07
Total	4.36	347	5.40	4.13	415	6.04

The results show that the mean distance travelled for TravelSmart schools was consistent across both independent and non-independent travellers. On the other hand, for SRTS schools, there is a noticeable difference between the two groups. These can best be seen in the graphs below.



A One Way ANOVA test performed on both data sets for students to school indicated that there was a significant difference in means ($p<.05$) between independent and non-independent travellers in the case of SRTS schools, but there was no significance identified in the case of the TravelSmart data set.

The TravelSmart data set suggests that all students might enjoy the possibility of independent mobility given access to appropriate skills and conditions. It needs to be noted that at this stage there has been no test for the environmental conditions in which students in the two groups travelled to and from school, especially for busy roads and inclines on the trip home. Given the presence of outliers in the data at this stage, the mean distances for Independently Mobile and Non-independently Mobile students are much higher than the median value for both groups. Larger school catchments might be more walkable and cycle-able than the means suggest.



Associations between travel mode and sex

The results were also analysed for the relationships between sex of the child and mode to and from school. Table 6 shows the proportions of boys and girls in each of the main travel modes. A similar Pearson Chi-square test was performed on Sex and Usual Mode to and from school. It confirmed that a significant ($p<.05$) but relatively weak relationship exists between the two sets of variables (Cramers V test 0.108). There were few

differences in the travel modes between boys and girls, although interestingly more boys cycle to and from school compared to girls.

Table 6: Usual mode of travel to and from school according to sex

Mode	To school			From school		
	Boys	Girls	Total	Boys	Girls	Total
Walking	13%	11%	12%	14%	14%	14%
Cycling/ scooter	12%	6%	9%	12%	6%	9%
PT	4%	5%	4%	4%	6%	5%
Car	61%	66%	64%	59%	61%	60%
Combination of modes	10%	11%	11%	11%	13%	12%
Total	100%	100%	100%	100%	100%	100%

Associations between travel mode and urban classification

The influence of other factors such as urban classification on travel mode to/from school was examined. These are summarized in Table 7, below.

A Pearson Chi-Square test examining travel mode to/from school according to urban classification was significant at p<.001 level. The vast majority of children in all areas were driven to and from school by car (42-73%). A substantially greater proportion of children living in inner areas walked to (28%) and from school (33%) compared with those from middle, outer and regional areas (0-13%). In contrast, cycling was more prevalent among those from middle (14-15%) and regional areas (16-18%) than the other two groups (4-5%).

Table 7: Usual mode of travel to and from school and urban classification

Mode	To School				From school			
Urban Classification	Inner	Middle	Outer	Regional	Inner	Middle	Outer	Regional
Walking	28%	12%	11%	0%	33%	13%	12%	2%
Cycling/ scooter	5%	15%	4%	16%	5%	14%	4%	18%
PT	1%	2%	4%	20%	7%	1%	3%	25%
Car	59%	61%	73%	42%	48%	60%	71%	32%
Combination of Modes	7%	11%	8%	22%	7%	12%	10%	23%

CIM and Licences to Travel

The previous results highlight the importance of CIM as a characteristic in opening up the possibilities of travel to and from school rather than becoming a constraint on travel. The culmination of the various travel behaviours seen over the preceding sections is found in the Licenses that children are given by their parents to travel around their own neighbourhoods, in and out of school hours (Tranter, 1993). The data is provided by the children themselves, and was collected in the last part of the first survey. The cross-tabulation of these four licenses with CIM are summarised in Table 8.

Table 8: CIM to school and Licenses to Travel Around

Licenses to Travel around	CIM To School	SRTS			TravelSmart		SRTS			TravelSmart	
		Yes	No	Unsure	Yes	No	Yes	No	Unsure	Yes	No
1. To Ride Bicycle along main roads	Not Independent	61	276		144	188	18%	82%		43%	57%
	Independently Mobile	24	20		106	95	55%	45%		53%	47%
2. To Cross busy streets alone or with friends	Not Independent	101	259		187	163	28%	72%		53%	47%
	Independently Mobile	24	20		134	80	55%	45%		63%	37%
3. To Ride on PT alone or with friends	Not Independent	22	341		28	325	6%	94%		8%	92%
	Independently Mobile	5	42		39	174	11%	89%		18%	82%
4. To visit friends alone in same suburb/town	Not Independent	90	183	89	204	147	25%	51%	25%	58%	42%
	Independently Mobile	31	10	6	159	54	66%	21%	13%	75%	25%

Chi Square analyses indicate that significant results were found in the following table cells[i]:

- Travel Smart:
  - Licence to travel on PT – Independently Mobile cells were significantly higher and Not Independent cells were lower than expected in the Yes cells.
  - Licence to visit Friends - Independent cells were significantly lower and Not Independent were higher than expected in the No cells.
- SRTS:
  - Licence to cross busy Streets – Independent cells were significantly higher and than expected in the Yes cells.
  - Licence to visit Friends - Independent cells were significantly higher in the Yes cells and significantly lower than expected in the No cells.

CIM_from_school statistics mirror these closely. These will be made available in further publications.

The general trend within Table 8 is clear. The independently mobile students (CIM) generally perform better than their non-independent classmates in each of the licences, although their numbers are smaller. This is even true in the case of use of PT, where neither group has large percentages using PT. The independently mobile students utilise PT at double the rate of their fellow students.

This is particularly relevant in the fourth licence, the licence to visit friends alone who live in the same suburb or town. In some sense the other three licenses combine to make a visit to another friend living reasonably close possible. Independently mobile students hold this licence at two to three times the levels of their non-independently mobile classmates. The inference is possible that a social connection has been facilitated by the skills that they have acquired while independently journeying to and from school.

DISCUSSION

The aim of this paper was firstly to describe the current levels of active transport (AT) and independent mobility (IM) to / from school; secondly to examine associations between distance and AT and IM to / from school, and thirdly to explore the socio-demographic factors influencing AT and IM to / from school including sex and urban / rural location. Finally, it aimed to examine the attitudes and levels of trust in their neighbourhood through the various licences that they have to travel around independently. This was an important study as Catholic schools were not differentiated from other types of schools in previous research, yet there were clear indications that the patterns of travel behaviour would be quite different due to the wider distances students lived from schools. As distance is an important factor in the choice of mode, then the level of AT in those schools could be lower, affecting the levels of health and fitness, independent travel and reliance on cars for transport in an age of peak oil. Were the strengths of Catholic schools in connectedness able to play a role in mitigating this situation?

Firstly Catholic school students have relatively low levels of AT and are above average in terms of the percentage that are car dependent for the trip to and from school. In this study, 64% of children were driven to

school and 61% driven home, as compared to- 60% and 55% respectively as measured by Carlin et al in a 1997 study in Melbourne government schools. (Carlin et al., 1997).

Similarly, a low percentage of students walking to and from Catholic schools has been measured in this study when compared to Carlin et al's 1997 study - 12% compared to 27.7%. This is partly compensated for by a higher percentage riding bicycles and scooters (9% compared to 3% in Carlin et al.) Overall 26% to 27% of children take active transport modes to and from school all the way, and 10% to 12% of children use AT for part of the way. This contrasts to the 36% measured by Carlin (Carlin et al, 1997:288).

The proportion of students using a combination of modes is 10% in this study, compared to 0.4% as measured by Carlin et al in 1997. This suggests that the message introduced in recent years by health authorities that "part way is ok" has been reasonably successful.

Importantly, CIM is a real option chosen by 18% of students in Catholic schools for the journey to school, increasing to 24% of students going home. The majority of students taking AT modes are independently mobile.

The distance Catholic students travel to school is larger than for government school students, with the average distance estimated in this study at 4.29 kms. Whilst the average distance that government school students must travel to school has not been calculated, a distance of one to two kilometres is often assumed. Tranter also found that Catholic students had almost twice as far to travel as government school students (Tranter, 1993).

There is also a very strong association between the distance one lives from a Catholic school, and the mode chosen. The closer one lives, particularly inside 2 kms, the more likely the child will walk.

The association between distance and CIM is not so clear. As the average distance that Catholic children travel to these schools is over 4kms, there are many children who will not be able to walk. However the level of independent mobility in the TravelSmart schools, and the equivalent mean distances of independent and non-independents travellers in this group, suggests that CIM is not necessarily limited to students with short distances to travel. It provides hope that students may choose alternative modes despite the distance they live from the school. This finding could be a distinct advantage for Catholic schools as peak oil approaches.

Gender had little influence on the modes other than the finding that girls were not as likely to choose to ride bicycles as boys. This reinforces Gill's (2005) finding that boys are more likely to be given the license to ride bicycles independently. Although not significant statistically, girls in this study were more likely to use PT than boys. This may fit with the findings by Mackett and Brown in the UK, which include the finding that girls are more likely to travel in groups and tend to travel further than boys (Brown et al., 2008, Mackett et al., 2003).

The results in this study indicate that there is a significant association between a student's travel mode to and from school and their location in terms of urban classification, although the effect size was weak to moderate. Inner urban locations are strongly associated with walking, and outer suburban and regional school locations have much lower proportions walking. Cycling is strongly represented in middle and regional locations, and PT in regional locations is high as compared to other locations. The use of cars is mostly likely in the outer suburbs.

The importance of the results about CIM is that it is positively associated with the take up of the four licenses that Tranter defined in his study of Canberra in 1993 (Tranter, 1993), and that were related to an earlier study of Hillman et al in the UK and Germany (Tranter and Malone, 2008, Hillman et al., 1990). A child's freedom to roam his or her neighbourhood to visit friends and play with them will be constrained if the license to cross busy roads, ride bikes along busy roads, or use PT without adult supervision is not available to children. This freedom to travel creates connections with friends, activities and builds trust.

CONCLUSIONS

This first report on the findings of research on Social Capital and Child Independent mobility in Catholic Schools in Victoria is limited and preliminary in nature. The levels of AT and CIM in students travelling to and from Catholic schools are better understood, especially the role that distance plays to determine modes chosen, but not limit independent mobility necessarily. The current study has demonstrated how different Catholic primary schools are to government schools, having catchments double the size of government school neighbours. A different approach could be required if they are to achieve higher levels of active commuting and independent

mobility that lead to other benefits in health, fitness, independence and social connectedness of their students. Much work remains to be done, however some initial support has been found for the key understanding that CIM might play a role as an indicator of the social connectedness of students and their communities in outward facing Catholic schools. Conversely, by focussing on growing social connectedness, schools might also assist in the success of travel behaviour programs that encourage children to own their neighbourhood and streets once again. As parents become aware of the effects of their growing independence on increased connectedness, they may allow them more licenses to travel around their environment, making it even more child-friendly. These new environments just could be better places for adults as well.

Future analysis will focus on exploring the relationship of CIM with other measures including knowledge of their neighbourhood and levels of trust in their neighbours.

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