Embedded intervention programs can make a difference to CIM

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Australian and International research has documented the decline in community involvement and connectedness over recent decades. Associated with this decline is the decline in children’s independence, particularly in the extent to which children are allowed to explore the external environment. Children’s Independent Mobility (CIM) is a measure of the level of a child’s freedom to explore and move about his or her local neighbourhood without direct adult supervision. This paper presents the results of a study of the effectiveness of 3 intervention programs to change travel behaviours of children to and from school in 26 Catholic primary schools, in a range of urban and regional settings in Victoria. Using pre and post intervention surveys with 1600 students, and their parents, and interviews with principals of the schools, it investigated how social capital impacted the effectiveness of these travel behaviour programs. The key finding was that the degree of social connectedness of the school and the individual, did impact on the effectiveness of the intervention programs. The interventions themselves were not effective in influencing change in travel behaviours without being embedded in a supportive school culture. These understandings can create pathways that deliver genuine opportunities for schools to be more outward-facing, and for communities to regain a measure of social connectedness.

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Introduction

Children's Independent Mobility (CIM) can be 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). The modes of travel that allow children to move independently are restricted to walking, cycling and public transport. In the recent ABC Life Series video documentary Life at 9, the program’s creators focus on the sweeping changes to late childhood, particularly how children spend their time (Peedom, 2014). The program looks at how this impacts on their independence and creativity, both indicators of success in later life. In the introduction to the section on independence, the narrator says

"Parents are ultimately the gatekeepers of their children’s independence. So at 9, it is as much about parent’s ability to let go as it is about children’s ability to embrace it. It is essential to allow children to be responsible and gain responsibility. At some point you grow up. It doesn’t just arrive in a box on your birthday. ....At 9, how much independence will give our kids the best chance in life and how much they do get?"

The authors of the program focussed on the opportunities that children today have to learn to manage risks they will face. Of 10,000 children in the longitudinal study, less than 10% get themselves up and ready for school without adult supervision, and less than half do household chores. Only one quarter of the children walk to school whereas two thirds of their own parents walked to school. What has changed in a generation?

In a small sample of nine children in the video, none of them are allowed to roam their neighbourhood, and none of the children felt they could walk to the shops and buy something. The program concluded that what stopped them were the heightened fears of risk and dangers to their children. Most children are driven everywhere, and are bombarded with messages of traffic and stranger danger. In a small experiment with those nine children, only 2 were able to walk to their closest neighbourhood shop to buy an ice-cream. What stopped the others were described as their own fear, the traffic, and lack of a nearby neighbourhood shop. This situation is evolving, and many factors are responsible for it, including the parent’s beliefs and perceptions, the child and their competency, and the fabric of our built environments.

This project set out to investigate these issues and others that confronted children in our Catholic schools when considering their independent mobility, particularly as it related to the trips to and from school. It investigated the state of children’s independent mobility (CIM) in 26 Catholic primary schools and the role that social capital plays in enhancing the effectiveness of three behaviour change programs to change the level of CIM in those schools. There were three phases of my research:

1. A quantitative survey of children and parents at baseline
2. A survey of children and principals post-intervention
3. A qualitative phase involving a structured interview with principals or school leaders regarding the implementation of the programs and their effectiveness.

The chapter provides an overview of the findings then discusses it in relation to the research questions underlying the study:

1. What is the influence of a range of variables such as social capital and urban environment on the independent mobility of students in Catholic schools at baseline?
2. What programs are more effective in increasing children’s independent mobility to Catholic primary schools in Victoria?
3. What influence does the level of social capital of the school and of the families have when predicting the effectiveness of programs to change behaviours?
4. What are the policies that Catholic school communities may require to successfully encourage CIM in the future?
Some definitions

The key concept is that of social capital. I have used a definition of Lewis, who defined social capital as a multi-level concept that encompasses the micro, meso and macro levels, which all interact with each other (Lewis, 2010). Social capital takes time to accumulate. The benefits may flow to groups and even whole societies, as long as the focus of analysis is on the individual acting in networks. Its consequences are neither inherently positive nor inherently negative. This is an active understanding of social capital, operating at the individual level first, and collectively second.

Lewis’ definition of social capital is used in this research, and is described as “social connectedness” or just “connectedness”. It includes this key aspect of action by individuals in networks, to make a resource available or active, which takes time to accumulate. Social capital is relational, and is not a passive entity. In this understanding, trust is not social capital, but may be an outcome of actions that draw on it.

Built environment can be defined as the spaces such as buildings and streets that are deliberately constructed as well as outdoor spaces that are altered in some way by human activity (Committee on Environmental Health, 2009).

Levels of CIM in Catholic schools

CIM is present in the travel behaviours of a quarter of all students, who travel independently to or from school, with about half of these being fully independent both ways. This is considerably lower than levels reported in the earlier study by Tranter (Tranter, 1993). He recorded an overall level of independent mobility of 48% in the three main Catholic schools included in his study conducted in Canberra schools in July 1991. This question was one of the main reasons that prompted this research project.

Possible reasons to explain the difference between the two outcomes are the general decline in IM over the intervening 19 years in the general population. Also relevant are the small size of the sample of Catholic schools (four) in the Canberra study, and the differences in urban structure between Canberra and Melbourne. Were the schools chosen as representative of all Catholic schools in Canberra, as the 26 selected in this sample were of Melbourne Catholic schools? This research cannot answer that definitively, but the larger sample of schools selected here should give more confidence that the general level of IM measured in Catholic schools in Melbourne in 2010 is reliable.

Carlin et al. reported that the odds of six to nine year old children using active transport modes in Catholic primary schools in Perth and Melbourne in 1994 were about half those in government schools, which were measured at 35% walking and 6% cycling on the trip to school and 40% and 6% respectively for the trip home (Carlin et al., 1998). In this research, 9 to 12 year olds were measured as having walking and cycling rates of 16% and 10% respectively to school and 19% and 9% on the way home. At the conclusion of the intervention programs walking and cycling to school had changed to 14% and 12% respectively, but had increased to 21% and 12% on the way home. Consistent with that, walking rates remained about half those rates measured in Carlin’s study of 1994. This was also true for Tranter’s study in Canberra (1993), where walking rates in 1991 were half to a third those in government schools.

Cycling rates were generally higher for Catholic students in this study than that found by Carlin et al.(1997). A similar result was also found by Tranter (1993) for Catholic schools in Canberra, where rates were about the same as government school children. I believe this reflects the fact that students in Catholic schools have further to travel, and therefore prefer to cycle rather than walk.

The level of CIM in Catholic schools prior to intervention and the factors that predict this

The first objective of this research was to describe the baseline level of independent mobility of children in Catholic schools in Victoria. To understand the level of IM in Catholic schools, I also explored the factors that predicted this level.

The intention behind this objective was to ascertain the difference between Catholic schools and the general level of IM in schools reported on in the research. To remind readers why this was important, Catholic schools generally require a much larger catchment in terms of households in order to enrol the same number of students as government schools. Hence distances to be travelled are longer on average compared to the same sized government school (Carlin et al., 1997; Tranter, 1993). The research investigated whether it is safe to assume that transport modes are significantly different, and whether this impacts on IM.
Individual factors:

Age

The key outcome, CIM, is the result of its surrounding ecological niches i.e. the child’s own characteristics, that of their parents and family, the school, and the neighbourhood and wider community. The key child variable is his or her age and the mode they use to travel to and from school.

The research results show that 17% of children of age 9 in Catholic schools (in year 4 predominantly) are travelling to school independently of adults, but that by age 10 and 11 they are twice as likely to be independently mobile (1.9 times and 2.3 times more likely respectively). This pattern of change is broadly consistent with other Australian studies from Tranter (1993) and Carlin et al (Carlin et al., 1997) to Hume et al (2009) and Carver and Timperio (2008). It contrasts with the study of Hillman et al (1990) in the UK, where a similar independence level was reached as an eight year old. In Australia in 2010, it was at age 10 when most children were first permitted to walk or ride independently.

The mean age at which children said they gained the licence to cross a road without an adult was 9.5 years. This falls within year 4 in most children’s school life. Tranter surveyed the views of parents in 3 Catholic schools; they had higher average ages of allowing children to cross main roads alone - typically greater than 10.2 years (Tranter, 1993). Given the small sample, this is close enough to the result of this research for the two to be considered consistent.

Gender

Previous studies indicate there is a significant association between CIM and gender (Giles-Corti et al., 2011; Trapp et al., 2012; Villanueva et al., 2014; Tranter, 1993; McMillan, 2007). A higher proportion of children with independent mobility are older (age), male, etc. I have found that CIM in Catholic schools is strongly related to age and distance, but like the findings of Hume (Hume et al., 2009) and Brown (Brown et al., 2008), CIM was not related strongly to gender. The later found that gender was not a differential factor, as girls travelled independently but in a different manner to boys, frequently in groups and using public transport to travel further. Younger children are less likely to have the confidence of parents/guardians to be able to responsibly and safely manage the traffic and other issues for a journey to and from school. Boys also seem to gain the confidence of parents earlier than girls, particularly for fully independent travel to and from school. However gender was excluded from the final regression model. It may be represented by the inclusion of mode of travel, incorporating the association of boys and cycling. This relates to the higher number of boys who prefer to ride to school compared to girls (55.2% v 44.8%), and the higher likelihood that children will ride completely independent of adults (67.6 and 69.6% of cyclists are fully independent in the journey to and from school respectively, compared to 34.1% and 30.3% of walkers to and from school).

Children’s preferences and licence to travel independently outside of school and on weekends

This research does reinforce the findings of Veitch and colleagues (Veitch et al., 2007) that children generally, and specifically those 9 to 12 year olds surveyed in these Catholic schools, prefer to travel independently, or at least prefer active travel modes, rather than travel by car. The results also confirmed that Catholic school children are highly car dependent, especially in outer urban locations, which is consistent with the earlier studies by Carlin et al (Carlin et al., 1997) and Tranter (1993).

Active travel modes such as walking and cycling are natural precursors to independent mobility, with between 63% and 64% of walkers and between 79% and 80% of cyclists being independent. Only 7% of children who are driven to school walk home independently, and just 5% who are driven home, walk independently to school. This supports the conclusion that independent mobility begins with active travel modes. Kingham and Ússher in their evaluation of the Walking School Bus (Kingham & Ússher, 2007) concluded that WSB has a positive effect in that children are physically active and on the street, and therefore are more likely to graduate to independent travel than those who travel by car.

Children who hold licences to travel around independently outside of school are also strongly associated with being fully/partly independently mobile on weekends. While this sounds an obvious connection, a licence to travel is a statement about the parent’s assessment that the child is competent to travel safely by themselves. It is highly likely that the same children who hold that competency assessment i.e. licence to cross busy roads, ride on main roads, and visit friends on the weekend, are also judged to be competent to walk or ride to and from school, and travel on the weekend (Curtis et
al., 2015; Veitch et al., 2007; Valentine, 1997). Those competencies are the foundation of their social capital (Malone, 2007; Chawla, 2002; Mackett, 2002; Tranter & Pawson, 2001). Giving children skills to walk the neighbourhood streets on a weekend, walking them to school or organising a walking school bus to get to school, riding with them to destinations after school, are all essential preparation for children to be independent. They do not learn this in the back seat of the car.

Social capital factors

My research has found that social capital variables were strongly associated with CIM at baseline, especially at the school level. These predictor variables include the child’s perception of playing with friends in the street, and parent perception that they knew neighbours well, that it was a good place for children to grow up, and that neighbours were willing to help each other. These associations speak of strong, safe and connected communities, where people trust their neighbours, which is consistent with the literature (Putnam, 2000; Hume et al., 2009; Brown et al., 2008; Tranter, 1993).

There was a negative correlation of some parent and school principal social capital variables with CIM post-intervention, which suggests that those parents and communities who support independent mobility at times run counter to the mainstream values and possibly encounter opposition or criticism. (Gill, 2007; Valentine, 1997; Prezza et al., 2005; Nicholson, 2014; Nicholson et al., 2014) This becomes more evident in the next section when a child is changing their behaviour to a more independent mode. It is not always true that neighbours are seen as sharing their values, that neighbourhoods are places where a good lifestyle is sought by all, or indeed that all are agreed about what this means.

Post-intervention, parents that were involved in community groups frequently were strongly associated with high levels of IM in their children. This reflects a link to the critical factors of social capital or connectedness and trust in the community, as these people who join community groups are more likely to be builders of social capital than the opposite.

School community factors

As reported above, parent perceptions of their connectedness with the school community through a parent’s involvement with community groups is associated with CIM post-intervention. At baseline, the schools where the principal reported that parents knew each well, and where it was not difficult to get parents involved in the school were also strongly associated with CIM. This reflects the presence of strong bonding social capital or connectedness in the community. The SES of the school is also a reasonably strong predictor of CIM. Once other factors were accounted for, lower SES was associated with higher levels of CIM.

Finally, reasons for school choice play a role in the degree of independence of children later, as evidenced by the strong association of CIM with the choice of school because it was close by or because it was the local, Catholic school. There was a negative association with the choice based on the school being a convenient location. While distance is a part of this factor, there is also a social dimension. In other words, if the parent chose the school initially because it was their local Catholic school, and therefore within a relatively short distance of home, then they were more likely to be trusting of and connected to the local community. They also are more likely to then allow the child to walk to school. This result suggests that social capital should play a role in the model of how variables interact to produce independent mobility.

Built environment factors:

Distance to school

Built environment factors were less important in Catholic schools but still influential, especially the distance a child lives from school. For the baseline cohort, the mean distance children lived from school was 2.8 km by road or 2.1 km “as the crow flies” (Euclidean). These represented almost 70% of all children. At the conclusion of the intervention programs, 63% of children who lived within 2.1 km of school were not independently mobile on the trip to school, and 55% were not IM on the trip home. Two kilometres is commonly considered a walkable distance for students of this age (McDonald, 2008), (SRTS, 2015) and 6 km for cyclists (SRTS, 2015). At baseline, walkers were walking on average 1.1 km to school and 1.3 km home, and cyclists were riding 1.5 km on average to school and 1.7 km home, with
a maximum of 3.8kms. Post-intervention, walkers did not change much, but cyclists were riding on average 1.9 km to and from school with the maximum distance being 7.7 kms, confirming those distances for walking and cycling. It would seem that there is considerable scope for Catholic schools to increase the percentage of students who are IM within the 2.8km catchment defined by the distance by road.

**Traffic, connectivity and urban classification**

The actual traffic count around the Catholic school was not associated with IM once other factors were adjusted for. The number of car parks at the school, and walkability of the neighbourhood were also not so important, which was consistent with the findings of McMillan, Hume, Carver and Timperio and Brown (McMillan, 2009; Hume et al 2008; Carver & Timperio, 2008; Brown et al., 2008), but in distinction to Giles-Corti (Giles-Corti et al., 2011). Overall, this research supports the position of McMillan, who argues that urban form factors affecting the walkability of a neighbourhood, such as street layout and connectivity, traffic density, and proximity to shops and schools (mixed-uses) are less important than other factors such as social demographics and cultural background.

Urban form may be less important in Catholic schools, but the urban classification of the school location was still associated with CIM. This research has found that children attending Catholic schools in outer urban areas were 15% less likely to be independent than the child in inner suburbs, and those in regional areas were 1.2 times more likely to be independently mobile.

**Parent perceptions of the built environment**

Why one parent living the same distance from school allows their child to walk or cycle independently, and the neighbour next door does not, is related to parent perceptions of safety and risk, and the competency of the child. Previous research has shown conclusively that parent perceptions are important in determining IM behaviours of their children (Hillman, 1990; Tranter, 1993; McMillan 2007; Gill, 1997). I have found that a key factor in predicting CIM is the competency of the child. That is, a parent assesses that a child has gained the competency to travel safely, and then allows their child to travel independently around the neighbourhood (Villanueva et al., 2014). The parent’s perception of traffic volumes was associated with IM, in agreement with Tranter (Tranter, 1993) and Curtis (Curtis et al., 2015).

Parents who perceived high traffic volumes, were 59% less likely to allow their children to be independently mobile compared with parents who did not think so. The result concerning traffic volumes is important, as it confirms the argument that when traffic volume is perceived to be high, then children tend not to be permitted to walk independently, but if the school has a strong focus on safety programs, both in terms of road safety skills and stranger danger awareness, it allows the parent to be more trusting that their child will be safe if they allow them to walk to and from home (Trapp et al., 2012).

**Conceptual model of CIM in Catholic schools**

In chapter 2 the ecological model was posited to best explain the interaction of the various factors in producing independent mobility in a child. Based on the findings of this study, the final model has been formed of the factors that were identified in the discussion above (Figure 1.1).

In this model, the four layers or niches identified are the individual, social connectedness, school characteristics, and built and social environment. The various factors were put in the four layers. To predict whether a child will be independently mobile on the trip to school, the various factors in each layer combine to an aggregate score of factors for each child. This model is not inclusive of intervention programs, as it does not assume that a child has been exposed to them.

**The relative effectiveness of the programs to increase CIM**

The second major objective of the thesis was to evaluate the effectiveness of the three programs – Ride2School (R2S), Safe Routes to School (SRTS) and TravelSmart – in changing the independent mobility of a child.

Very little increase in independent mobility was experienced by schools in the programs. In fact, overall more students declined in CIM than increased. Once other factors were adjusted for, the model built to predict the change in CIM did show that intervention programs had a small positive effect once the cohort was reduced to those who lived within 2.1km of the school. Students in the SRTS program were less likely (32% chance) of decreasing CIM compared to the non-intervention students. However students in SRTS were also less likely of increasing IM (a 73% chance) compared to non-intervention students. Once other factors are adjusted for, schools in Ride to School intervention
program were 1.5 times more likely to experience an increase in CIM than the non-intervention schools. Despite this, the influence of the variable (Intervention Programs) was not significant in the model to predict change in CIM post-intervention.

At one level, this was a surprising result, and disappointing for schools engaged, however they were consistent with the results gained by Garrard and Crawford in the 2010 evaluation of the Ride 2 school program in Victoria (Garrard & Crawford, 2010). Very small increases (2%) were recorded by them in the Ride 2 School program when parents were asked, however the children reported a small decline of similar size. There was no clear winner in terms of effectiveness of a program to change behaviours once all factors are taken into account.

These programs are generally designed as one-off targeted programs, running over a limited time, say 12 months or a school year. Short term programs may have limited effectiveness (Moser & Bamberg, 2008; Sullivan & Percy, 2008; Garrard & Crawford, 2010). In this context, it is possible that all three intervention programs only drew the attention of parents to the risks inherent in allowing their child to walk or ride independently, and some chose to withdraw the licence to walk or cycle from those who already had it. In non-intervention schools, this increased focus on the risks did not occur, and parents did not necessarily change for the worse or better apart from the natural process of children acquiring more freedoms as they grow older.

The role of the school in the effectiveness of the programs

Schools that implemented the program using an embedded model with high levels of commitment experienced the largest increase in IM overall (12%), followed by non-intervention schools (7%), and then those that implemented the program as a stand-alone program (-3%).

Within the stand-alone group, schools that displayed high levels of commitment experienced an increase of 5%, whereas those that showed low levels of commitment experienced a decline of 9%.

Within the embedded group, schools that started the implementation of the program as a stand-alone program but transitioned it over time to be more embedded in school culture experienced an increase of 3%, but those who implemented it from the start were well embedded in the school culture experienced an increase of 17% on average.

This leads to the conclusion that the schools themselves play a significant role in the chances of a successful outcome of an intervention program, regardless of the program. The schools that implemented programs in an embedded fashion will lead to more positive change, and if approached this way from the start, then they are far more likely to experience high levels of change compared to those that treat it as a stand-alone program, even if they transition to a more embedded position later on.

This is consistent with the understanding that schools build connectedness themselves, through their external and internal programs embedded within their culture (Caldwell, 2008). According to Caldwell, this is a form of linking social capital that characterises most effective schools.

The influence of social capital within the school community on the decision to increase IM over the course of the intervention period

While no one program stood out in a statistical sense from the others, students who participated in programs were more likely to have increased their IM over the course of the intervention when the following social capital factors were true:

- The child knows their neighbours well - 4.5 times more likely to increase IM
- The parent’s perception was that neighbours were willing to help each other - 14 times more likely

![Ecological model of child independent mobility on the trip to and from school](image-url)
The parent disagrees with or is neutral to the statement that they share the same values as their neighbours – 7.7 times and 11.1 times more likely respectively.

From a school perspective, the key social capital factors associated with an increase in IM at the school were:

- The proportion of parents who stated their choice of school in the first place was for local reasons (it was the local Catholic school or it was close by).
- Principal reports that the school was outward facing i.e. having local organisations involved with the school on the site.

The built environment factors that influenced student change in IM that were school-based were:

- The urban classification variable, where regional schools showed more likelihood of increased IM than students in inner city or middle suburban schools.
- Distance from the school, although this was not a significant factor once the cohort of students was reduced to those who lived within 2.1 kms, the average distance that students lived from home, “as the crow flies”.

Many of the influences of the above factors are mediated by the school itself, or are reflections of the school rather than the individual child or parent, such as socio-economic status (SES) and walkability indicators of the environment, or the outward-facing nature of the school.

It is the social capital of the school, expressed as an out-facing “connected” culture that ultimately transforms an intervention program designed to change behaviours of some children (but not for long), into an integral part of the school’s deeper educational messaging about student wellbeing, and health. Within this educational scaffold, the benefits of resilience, risk-taking and autonomous learning overcome parent’s fears about real and imagined dangers in walking and independent mobility, whether at school or around the neighbourhood(Gill, 2007; Malone and Tranter, 2008). In so doing, they allow the child to grow, and independently learn to manage these risks which are a part of life. This is what education is ultimately about (Gill, 2007).

Previous research has shown that parents have immense barriers to overcome in deciding to allow their children independent mobility at ages below 11 (Tranter, 1993; Malone, 2007; Hillman, 1990; McDonald, 2008; McMillan, 2007; Nicholson, 2014; Garrard and Crawford, 2010). This research has demonstrated that parents who are making that decision (to allow their child to be independently mobile) believe that they think so differently to their community on this issue that they describe themselves as not sharing the values of the community (Nicholson, 2014) Perhaps this is why intervention programs such as these require the full support of the culture of the school to be more successful.

In speaking about the TravelSmart program in operation in Victoria, Tranter describes the effectiveness of its approach being based around the capacity of the parents to engage as a group with the school to develop strategies that collectively respond to the problem of risks associated with congestion around the school site. In doing so, they build understanding and community as a result (Tranter 2008). If the school itself reinforces these same messages through its normal relationship with parents and students, then they could be even more effective. Strategies taken as individual parents may not succeed because of the strong disincentive to be seen as a bad parent who does not minimise risk to the child above all else (Malone, 2007).

**Conceptual model for change in IM and social capital**

Does the ecological model posited in chapter 3 explain the interaction of the various factors in changing the status of independent mobility in a child, or is another one required? It would seem that the interaction of factors that help one predict whether a child is independently mobile, may not necessarily assist in predicting that travel behaviours will change when a school begins an intervention program.

Given the above, I have configured a second model that assists in understanding how the decision to change the status of independent mobility might occur as the result of an intervention program. This is set out in Figure 1.2.

The decision to change the independent mobility status of a child as a result of an intervention program rests with the parent. Therefore this alternative conceptual model reflects that of McMillan (2007) rather than the ecological model of independent mobility proposed earlier. In this model, the parent’s decision is influenced by an intervention program that the school has implemented, and the approach to the implementation of it, its culture (outward
facing etc), the focus on safety concerns, and the engagement or participation of parents with the school. It is also influenced by the individual factors of each child, their distance from school, the reasons parents made in choosing the school in the first place, the neighbourhood connectivity and trust levels, the perceptions of risk that a parent had, the licences parents give children to travel independently on the weekend, and not least importantly, the mode taken to and from school.

Possible extensions of the research

The analysis suggested that a deeper understanding of principals’ beliefs about the importance of CIM and AT is required. Is it possible that they confuse active transport with the degree to which the school encouraged other strategies to get children to and from cars safely, which does not result in independent travel? The general awareness of the issue of independent mobility and its relationship with education and health amongst principals is probably worthy of further research.

Policy implications

The main policy area to be affected is the support for school-based travel behaviour programs, and particularly in the implementation of them, in order to make them effective. It is interesting to note that only one of these school-based programs, Ride 2 School, is currently being supported in Victoria, the other two being discontinued by the State Government or their agencies.

Regarding Catholic school policy, all three programs - Ride 2 School, Travel Smart and Safe Routes to School programs – are capable of being implemented in a way that embeds the program into the culture of the school in a long-term fashion. My research has shown that delivering an intervention program in such a way ensures a much greater chance of success, and has additional benefits in terms of growing the social capital of the school by developing the outward facing connectedness with the broader capital, and providing authentic learning experiences for students. On the contrary, if implemented as a stand-alone program over just six or 12 months, it results in a minimal level of behaviour change over the duration of the program, but those effects move on quickly. Garrard comes to the same conclusion in her evaluation of the Ride 2 School program in Victoria, but argues that they need to be supported by area wide policies (Garrard & Crawford, 2010). While that is true, I believe there is a strong basis for them to continue to operate in schools, but within a particular context, embedded in their culture and programs. This would be true for all schools, not just Catholic schools.

If they are to implement an intervention program, all schools should adopt the whole school approach outlined in chapter 6, integrating the program into their student wellbeing and learning programs.
such as the health and wellbeing and science curricula. The opportunities that the programs provide for schools to design learning opportunities for young students in the areas of student voice, risk management, resilience, health and sustainability are considerable. They can be incorporated into most schools’ student wellbeing and learning programs with great effects for individuals and groups.

A lesson for Catholic schools is the recognition of the impact that networks and outward facing policies can have on the fortunes of a school community. During the course of the interviews, it was apparent that many Catholic primary schools did not have a strong, meaningful relationship with their local councillors or senior council officers. For Catholic schools, community was naturally equated to parish, of which it is a sub-set, but too often did not extend to their broader community. If there are not already networks that are part of the school community fabric, the principal of the school can use the social capital he or she posses to create links and pathways for action. At times those communities would benefit greatly from access to the additional resources that the wider community has available.

Some principals may view this as a distraction to their already overloaded schedule, but finding their voice in the network of organisations that serve the broader community is a high priority. If viewed from the point of view of an outwardly facing relational learning organisation, it is not a distraction from the role of the principal, but rather can serve to extend the opportunities for growth and learning within and beyond their school community (Caldwell & Harris, 2008). He or she can invite in external organisations that can create partnerships within the community to change the potential outcomes of the individuals within it. Several schools involved in this research have done this successfully, justifying it within the educational framework of their school. Some communities naturally posses such networks and make decisions accordingly, but others will need their school and their leaders to proactively construct such links. An intervention program creates the context for this to occur. A logical starting point for Catholic schools is their local municipal council.

As noted above, the development of an implementation model for Catholic schools should focus on the challenge of parent engagement. The aim of much of this engagement would be to counter the images they have of good parenting in the area of independent mobility being equated with risk minimisation or elimination. It could emphasise the benefits of health and fitness, road safety skills, resilience, risk assessment skills, independence, and environmental awareness for their children.

The second major policy area for consideration is that of optimal school catchment size. There are lessons for the maximum size of a Catholic primary school catchment, in order to ensure that children are able to travel to school independently. This study found that beyond 2.1 kms, there was far less likelihood that the student would adopt an active transport mode to and from school. This figure may define the maximum road distance between the students and proposed Catholic primary schools of the future, if they are to expect reasonably high proportions of children to be active and independent. This road distance would result in schools being planned not more than 4 to 4.5 km apart. This distance may limit the long-term enrolment of the school and hence impact on the financial viability of schools in some locations. My knowledge of the planning for new Catholic schools in growth areas leads me to believe that this is reasonably consistent with current planning outcomes. To be sure, further investigations could take place within system administrative authorities to understand the relationship between independent mobility, distance, long-term enrolment and viability.

Thirdly, there are implications for the programs that work with parents and schools about risks and identifying appropriate risk management strategies that do not merely seek to minimise exposure to risks for their children. Children now are restricted to a very small geography or footprint even at age 9 to 11. Adopting risk management strategies which limit the footprint even further will result in further loss of rights for the child. These will have potentially deleterious impacts on the child’s health and wellbeing. Therefore schools and communities should be encouraged to explore other approaches which allow our children more time and space to explore their environments independently of adults, while recognizing the dangers in their environment.

This discussion with parents and teachers must begin to challenge the notion that a parent’s success can be measured by the extent to which he or she removes all the potential risks from a child’s life. The measure of success should shift more towards how well the child has identified and managed those risks, and retained their resilience. Failure
is not measured by the times the child is hurt or bullied, but rather when they fail to deal with this experience and come back to claim his or her place in the neighbourhood.

**Conclusion**

The association of CIM with social development and learning suggests that schools that encourage independent mobility in their students and families may enable them to be more socially connected, thus empowering them to be healthier, well-adjusted and more capable thinkers and learners (Brown et al., 2008). The converse of this statement is what I have attempted to prove, that schools that encourage and build social capital with their wider communities may have more success in changing travel behaviours of their children to be more independently mobile.

Three factors emerged in the quantitative research that were significantly correlated with the increase in IM at the school level - the proportion of students that travelled independently at the weekend, the initial choice of school because it was local or close, and the presence of external organisations on the school site for educational programs.

The last of these factors is the measure from Caldwell and Harris (2008) which is descriptive of an “outward facing” school, one that is well connected into its community, to the extent that it forms partnerships with other organisations to deliver programs, services and learning opportunities to students. This result links the position of Caldwell and Harris (2008) in relation to school generated social capital with an increase in children’s independent mobility. These schools which are outward facing are necessarily schools with strong cultures, including beliefs about student engagement in their learning, encouraging student voice, leading to greater independence and resilience of students (Caldwell & Harrie, 2008, p. 63). This is descriptive of linking social capital which I defined as social capital in this research. These schools experienced greater increase in independent mobility. So in relation to the hypothesis that social capital of the schools mediates the effectiveness of these intervention programs, this research strongly supports this finding in common with previous research (Hume et al., 2008). The further dimension that this research adds is that the role of the school itself in the implementation of the program is critical. By deeply embedding the program in its culture, it enhances the effect of social capital.

Why would the school do this i.e. embed a travel behaviour change program into their culture? The reason is that it supports the school’s efforts to be outward facing, building connectedness and trust in the community, and thereby contributes to the achievement of the schools educational and student wellbeing objectives. This is consistent with the conclusions of Brown in the importance of physical activity in children’s growth, particularly their socialisation and independence, (Brown et al., 2008) , Kytta in her study linking emotional and cognitive development with physical activity (Kytta, 2004) and Tranter in his study of Canberra in 1993 about the importance of independent mobility to socialisation and learning:

"the personal, intellectual and psychological development of children may be related to the level of independent mobility. This development depends on ‘active exploration’, which is not provided for when children are passengers in cars." (Tranter, 1993)

A principal of a Catholic school in my study concluded afterwards, from a parent’s perspective “It is about you, your child, and their environment.” They are the gatekeepers, but they should be armed with the proper information to weigh up the risks and benefits adequately. Schools can assist in this process.
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