Unlocking the social and environmental benefits of child friendly places through active travel and active play

Abstract: It has been universally acknowledged that car dependency is rapidly increasing amongst families with children, particularly in developed countries. This paper, as part of an ongoing research project, aims to frame sustainable mobility through the lens of children’s daily life. The key aim of this project is to develop planning strategies to create precincts which are conducive to walking, cycling and active playing – precincts that are purposely child friendly. This paper discusses the preliminary findings of the first phase of primary data collection; that of surveys from senior primary school aged children. The questions from these surveys capture the participants’ travel patterns and their use of public places along with their play habits. The concept of ecological psychology, namely affordances, behaviour settings and accessibility, provides the framework for analysis.

Keywords: child friendly cities; active travel; active play

Introduction
The post-war urban forms which fuelled by cheap oil, were characterized by low density, segregated land use and sprawl, are unsustainable. Given the long-standing policies that promoted housing in outer metropolitan suburbs often as the default choice for families with children because of greater housing affordability and space (Freeman & Tranter 2011; Malone & Hasluck 2016), the impact of sprawl on families with children is prominent. Combined with the often complex travel patterns of families with children (Bierbaum & Vincent 2013; Warner & Rukus 2013), it is not surprising to see an increased private car usage among families with children.

A large body of research on children and their environments has focused on the link between the growing trend of children’s sedentary lifestyles and increased time spent in micro environments. Most of these interdisciplinary studies have pointed out the health issues such as obesity, diabetes and various cardiovascular diseases resulting from these more sedentary lifestyles (Giles-Corti et al. 2014; Sallis et al. 2012; Villanueva et al. 2013). The methodology adopted in these studies has led to an increased consideration of children’s health issues in relation to built environment design and activity in general but not to the intrinsic connection between the lifestyle of children and sustainability of travel behaviour in relation to the neighbourhood environment. Though a few scholars emphasised the link between child friendly cities and sustainable cities (Malone & Tranter 2003; Tranter & Pawson 2001; Tranter & Sharpe 2008), the specific role of children’s active transport and active play (non-organised outdoor physical activity) (Schranz et al. 2014) in creation of social and environmental sustainability remain under researched. Furthermore, much of the current literature on sustainable travel pays particular attention to the ‘journey to work’. In the Australian context, this is particularly evident in the dissemination of official statistics. Apart from infrequent household travel surveys for metropolitan areas, children’s travel patterns do not appear in these statistics. Overall, there has been little space for the agency and voice of children in the field of sustainable mobility.

Background
Current trends on children’s mobility in Australian cities
The increased number of car trips taken by children and young people as passengers globally has been highlighted by McMillan (2013) and Fyhri et al. (2011). The decrease in walking and public transport trips to school were most pronounced for the younger age groups across developed countries (McMillan 2013) while the car ownership rates were noticeably higher compared to other household types (Fyhri et al. 2011).

The statistics in relation to purpose of car trips in Sydney indicate a significant share and growth in the ‘to serve passengers’ segment of these car trips, more significantly for the age group of 5-19 years. For example, between 1991 and 2001, the annual percentage increase in the number of car passenger trips by the age groups of 5-14 and 15-19 years were significantly higher than the actual population growth in these groups (for the age group of 5-14, over 3% annual growth in children’s car trips as passengers compared to a decline in the total population of this age group, for the age group of 15-19 over 4% increase in children’s car trips as passengers compared to 1% increase in the total population of this
In terms of the purpose of these trips, the education and childcare related trips had the highest proportion (NSW Government 2005).

More recent travel survey data across Sydney displayed a substantial increase in education related car trips compared to work related trips. For example, between 2001 and 2011, the highest increase in car trips were in the social/recreation and education/childcare trips (each by 17%). For the same period, both work related business trips and personal business trips decreased (by 17% and 16% respectively) (New South Wales Government 2013).

In addition, further studies revealed that 71% of 0 to 14 year old children’s trips are in cars, mainly occurring for education and childcare related transportation (Garrard 2009; Whitzman & Mizrachi 2012). In terms of the kilometres travelled, 87% of the total kilometres travelled were as car passengers (Garrard 2009). Some of these increases in children’s car trips are attributed to the increase in the distance travelled for these services due to the closure of local schools and families not necessarily choosing the closest schools (Garrard 2011).

Nonetheless, for the majority of Australian children, the distance to school is relatively short (within feasible distances for walking up to 1 km and cycling up to 5 km) (Garrard 2009; Ridgwell, Sipe & Buchanan 2005) and the increasing car use of Australian children is a growing concern and a cause of a vicious cycle of traffic safety issues. For example, it has been widely reported that the principle reason for parents limiting the independent mobility of their children, even at the neighbourhood level, is a safety concern over the high level of vehicle traffic (Kottyan et al. 2014; McMillan 2013; Salmon et al. 2013).

### Children’s public place use and non-use

Corresponding with this pervasive car dominance and parental concerns over traffic safety (Kottyan et al. 2014; Loon & Frank 2011; Whitzman & Mizrachi 2012), children have essentially disappeared from the streets and public places, with the car becoming the standard travel mode when accessing school and other educational and recreational activities (Tranter & Sharpe 2012), however near the home they may be.

Additional to the critique of a general lack of places designed for children and young people, many scholars have also been critical of the children specific places that eventually segregate children from broader neighbourhoods and cities in general (Broberg, Kytta & Fagerholm 2013; Gillespie 2013; Tranter & Sharpe 2008). Gillespie (2013) outlines the spatial knowledge of ‘newies’ (children selling newspapers on the streets) in the 19th century and emphasised that children’s reintegration into public places was actually more important than the formal participation in the decision making.

It is argued that children’s sense of place and environmental awareness which are essential for environmentally sustainable lifestyles are diminishing (Mitchell, Kearns & Collins 2007; Sutton & Kemp 2002). Louv (2008) expressed concerns about ‘de-natured cities’ and ‘de-natured childhood’ as a result of physically and culturally separated urban and nature. Koger and Winter (2011, p.281) argued that lack of experience with the natural world in children’s local environments gives rise to ‘apathy and disregard for environmental protection’.

The importance of ‘habitual learning’ (O’Brien et al. 2000; Tranter & Pawson 2001) in earlier ages has been stressed in some studies and also by the United Nations. For example, in its ‘children on the front line’ document (2015, p.76), UNICEF stated that ‘sustainable thinking from a young age onwards is more likely to have a lasting effect than trying to modify already ingrained habits later in life’. Similarly the ‘habitual’ nature of travel behaviours and the difficulty surrounding overcoming this path dependency is widely acknowledged (Chatterton et al. 2015; Thynell & Wolmar 2014; Schwanen, Banister & Anable 2012).

We argue that active play is intrinsically related to active transport as it serves to recognise the importance of creating places where children can freely and safely play and explore while moving around.

### Theoretical framework

The concepts of ecological psychology, namely affordances, behaviour settings and accessibility provide the framework for analysis. Since its conception in 1950s, the model of ‘ecological psychology’ is a well-established approach in studies related to child friendly cities (Chawla 2007; Kytta, Kahila & Broberg 2011; Nordström 2010). Among those studies that used the model of ‘ecological psychology’, the following three concepts were widely employed:
Affordances: the perceived opportunities and restrictions concerning the person’s action in a given environment (Gibson 1979) but can be expanded to include also the emotional, social and socio-cultural opportunities and restrictions” (Heft 2001)

Behaviour settings: a basic environmental unit and can include public places (e.g. churches) or occasions (e.g. auctions) that evoke their own typical patterns of behaviour’ (Barker 1968)

Accessibility: The opportunity to be able to access these physical affordances and behaviour settings (Kytta 2004; Horelli 2007)

These concepts would be critical in the attempt to understand the interaction between children and their physical and social environments

Research design
During the first phase of an ongoing research project, 54 surveys were completed by children aged 10 to 13 years, across 2 primary schools in Adelaide and 1 primary school in Melbourne during April and May 2017. Children were also asked to undertake a mapping activity involving marking the route between home and school and the public places frequently visited.

In addition to various socio-demographic attributes such as housing type, suburb lived, household size, the survey questions were designed to capture the travel patterns to/from school, outdoor activity patterns outside of school hours and the places liked and disliked along with preferred activities to undertake when outdoors.

The age group of 10 years and older was chosen as the previous research has found that, for children aged 8 and older, there is a noticeable increase in the level of independence and capacity to articulate their opinions of their environments, such as the ability to participate in various research activities such as mapping (Nordstrom 2010; Villanueva et al 2012). Therefore it is believed that the choice of children aged 10 years and older would not only ensure the collection of high quality, reliable data from the research participants but also ensure that the choice of travel mode and outdoor activities as per the research questions is not limited due to their young age.

Schools were selected to represent a diverse socio-economic characteristics and mixed residential density. All schools were located within the CBD or within 8km radius to the CBD. This study has been approved by the UniSA Ethics Committee and gained the required approval from educational authorities as well as approval from school principals and teachers. Children in the selected classes (across Year 5 to 7) were provided with participation information sheets and parental consent forms to take home. Only those who returned their consent forms were eligible to participate in the research activities administered by the researcher during class time chosen by the class teacher. In addition, verbal consent was sought from children prior to handing out research activity packs. In total, 184 consent forms were delivered and 63 of these forms were returned (34.2%). On the day of the research activity due to some children being absent, total of 54 students completed their survey and mapping activity (29.3%).

Measures
Socio-spatial demographics
At the beginning of each survey, children were asked to indicate their age, gender, year level at school, suburb lived and the closest intersection to home or the street name. They were also asked about the type of home they lived in. This list of options included single storey house (separate), single storey house (attached to another house), 2 storey townhouse separate, 2 storey townhouse attached to another house, apartment block with 2-3 storeys, apartment block with 4-5 storeys and apartment block with 5 or more storeys. They were also given an ‘other’ option to write if their home did not fall in these categories. The ethnicity was measured by the languages spoken at home with a choice to tick more than one box. The list of options included English, Italian, Greek, Cantonese, Mandarin, Arabic, Vietnamese, French and ‘other’.

Active transport patterns
This information was collected in four different ways, namely travel mode to school, travel mode from school, weekly frequency of non-motorised trips to school and from school. Children were asked how they travelled to school on the day of the data collection. The list of options included walking, bike/scooter/skateboard, bus, tram, train and car. All response categories featured images such as a
walking person, bicycle, tram, train, bus and car. The questions regarding the frequency of non-motorised trips were grouped under ‘walking/cycling/scooting’ and ‘public transport’. The options for response included once a week, 2-3 times a week, most days, every day and never.

**Places liked and disliked between home and school**
Children were asked to write down the name of places they see and like on the way from home to school. In a separate open ended question they were asked about the places they see and dislike again on the way from home to school.

**Preferred travel mode and reasons**
Children were asked how they would like to travel to and from school and the list of options included: walk most or all the way, ride a bike/scooter/skateboard, local bus, school bus, tram/train and car. In the following question, children were asked to write why they would like to travel in that way.

**Active play**
Children were asked about what sort of activities they would like to be able to do when playing outside. The list of options included: climbing, playing with water, collection shells/pebbles, playing with loose branches/leaves/twigs, playing with sand, throwing, digging, picking flowers/fruits, hiding, building and moving things. They were also given an option to specify other activities. In an open ended format, they were asked about what they would change if they could to make playing outside more enjoyable near home or school. They were given an option to answer this question via drawing a picture.

**How to promote active transport**
In an open ended format, children were asked what they think their school or local government can do to promote walking, cycling, scooting and skateboarding to school. They were given an option to answer this question via drawing a picture if they wanted.

**Mapping activity**
At the end of each questionnaire, children were provided with an A3 size map with the approximate scale of 1/30000. The school where children attended was in the centre of the map where they were asked to mark the route between school and home and the public places they frequently visit. They were explained to mark any sections of the route that fell into the map’s boundaries if their home was not located within the map.

**Data analysis**
SPSS (version 24) software was used to create frequency tables, descriptive statistics and cross tabulations to identify the frequency of trips (car, walking/cycling/scooting/skateboarding and public transport). These results were compared by children’s age, gender and distance to school. Children’s travel modes (travel mode to school to school on the day of the data collection) were compared with their responses to questions of public places they like and dislike. The response categories for the reasons for preferred travel mode grouped into six categories, namely fun, social interaction, health and wellbeing, environmental concern and safety. These results were compared by children’s age and gender.

As part of the open ended questions, children were asked about their opinions on what their schools or local governments can do to improve active transport to/from school. Children’s opinions on measures to promote active transport were then categorised into five groups namely, infrastructure, education, signage, policy change and nothing/do not know/not sure. The outcomes of mapping activity were collapsed into indicate whether the children marked the route only, marked the route and the public places visited or did not mark the route at all. In terms of the geographical information on where children live, the direction function on Google Earth Pro was used to calculate the network distance between home and the school they attended.

**Sample characteristics**
Out of the 54 children completing the questionnaire aged 10 to 13 years, 33 children were girls (61.1%) and 21 were boys (38.9%). The vast majority of the households in which these children belonged owned at least one car (96.3%) with 77.8% with 2 or more cars (n=42). Bicycle ownership was also high amongst participant children with 96.2% of them owning a bicycle (n=51). More than three quarters of children also owned a foot powered scooter or a skateboard (n=41).
More than half of the children lived in a single storey house (either separate or attached to another) (n=28) while approximately 40% lived in 2-3 storey townhouses (n=21) and 9.3% lived in apartment blocks (n=5). Nearly 65% of children indicated no other language (n=35) while the remaining children (n=19) mentioned 10 different languages.

Just over 43% of the participant children lived within the same suburb of their schools or within 1.5 km (n=23, Table 1) while 62.3% lived within 2.5 km (n=33). In total, 79.2% of the respondent children lived within 4 km from their school which is a viable distance for active transport (Table 1). According to the National Center for Safe Routes to School (2017), a typical walking rate for primary school children is 2.2 km per 30 minute-period. For cycling, this distance is 4.2 km (per 30 minute-period).

**Table 1: Distance from home**

<table>
<thead>
<tr>
<th>Distance from home</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>within less than 1km</td>
<td>16</td>
<td>30.2</td>
</tr>
<tr>
<td>within 1.5 km</td>
<td>7</td>
<td>13.2</td>
</tr>
<tr>
<td>within 2.5 km</td>
<td>10</td>
<td>18.9</td>
</tr>
<tr>
<td>within 3.5 km</td>
<td>3</td>
<td>5.7</td>
</tr>
<tr>
<td>within 4 km</td>
<td>6</td>
<td>11.3</td>
</tr>
<tr>
<td>within 5.5 km</td>
<td>2</td>
<td>3.8</td>
</tr>
<tr>
<td>more than 5.5 km</td>
<td>9</td>
<td>17.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>53</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

**Table 2: Weekly frequency of active transport trips to school by distance (%)**

<table>
<thead>
<tr>
<th>Distance between home and school</th>
<th>never</th>
<th>once a week</th>
<th>2-3 times a week</th>
<th>most days</th>
<th>every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>within less than 1km</td>
<td>10.5</td>
<td>33.3</td>
<td>40.0</td>
<td>56.3</td>
<td>16.7</td>
</tr>
<tr>
<td>within 1.5 km</td>
<td>0.0</td>
<td>0.0</td>
<td>40.0</td>
<td>12.5</td>
<td>33.3</td>
</tr>
<tr>
<td>within 2.5 km</td>
<td>10.5</td>
<td>33.3</td>
<td>0.0</td>
<td>18.8</td>
<td>50.0</td>
</tr>
<tr>
<td>within 3.5 km</td>
<td>5.3</td>
<td>33.3</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>within 4 km</td>
<td>21.1</td>
<td>0.0</td>
<td>0.0</td>
<td>12.5</td>
<td>0.0</td>
</tr>
<tr>
<td>within 5.5 km</td>
<td>10.5</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>more than 5.5 km</td>
<td>42.1</td>
<td>0.0</td>
<td>20.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td><strong>116.7</strong></td>
</tr>
</tbody>
</table>

**Results**

**Active transport patterns**

In total, 67% of children travelled to school in a car on the day of data collection. More girls travelled by car than boys (72.7% of girls compared to 57.1% of boys). Just over 31% of children walked or cycled to school. In terms of weekly frequency of active transport to school, out of 52 respondents, nearly 35% of children reported that they never walk or cycle to/from school (n=18). The cross tabulation between weekly frequency of active transport and distance seemed to indicate a relationship in weekly frequency of active transport according to the distance (Table 2). However, out of children who reported that they never walk or cycle, nearly half of these children lived within 4km from their school (47.4%) while the
other half lived further away (52.6%). In terms of the difference by gender, the proportion of girls who walked or cycled to/from school at least once a week was slightly higher than boys (Figure 1).

Public transport usage was low amongst participant with nearly 90% reported that they never use public transport to/from school.

Places liked and disliked between home and school

In response to the question which places children like between home and school, nearly 40% of children's answers were related to a specific café or shop or a shopping/eating precinct (n=21). Most frequently mentioned places in this category was a milk bar or an ice-cream shop that they visited after school. Parks and playgrounds were mentioned by 16.7% of children as the places they like between home and school (Table 3). In term of the disliked places, fast food shops such as McDonalds, KFC, cigarette shops and opportunity shops were reported by 19.6% of children (n=9). The quality of infrastructure was the second most frequently mentioned category with 15.2% of children stating they dislike roadworks, construction sites and footpaths lacking maintenance (n=7). There was a notable number of children saying ‘none’ or ‘don’t know’ to the question about the places they see and like (17%, n=9). This number was higher for the question about the places they see and dislike as nearly 40% of children did not name a place (Table 4).

Cross tabulations between these responses and the travel mode illustrated that children who were travelled by car on that day were more likely to not name a place they like or dislike (Figure 3).
Table 3: Places liked between home and school

<table>
<thead>
<tr>
<th>Places liked</th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>retail shop, shopping precinct, streets with shops</td>
<td>21</td>
<td>39.6</td>
</tr>
<tr>
<td>none, don’t know</td>
<td>9</td>
<td>17.0</td>
</tr>
<tr>
<td>park/playground</td>
<td>9</td>
<td>17.0</td>
</tr>
<tr>
<td>natural place e.g. river, rows of trees, lake, beach</td>
<td>5</td>
<td>9.4</td>
</tr>
<tr>
<td>sports venue, library</td>
<td>5</td>
<td>9.4</td>
</tr>
<tr>
<td>house belong to friend or relative</td>
<td>3</td>
<td>5.7</td>
</tr>
<tr>
<td>good infrastructure e.g. smooth road/path which is easy to ride</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Figure 2: Places liked by travel mode to school this morning
Table 4: Places disliked between home and school

<table>
<thead>
<tr>
<th>Places disliked</th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>none, don't know</td>
<td>18</td>
<td>39.1</td>
</tr>
<tr>
<td>a restaurant including fast food or other retail e.g. cigarettes shops, opshop</td>
<td>9</td>
<td>19.6</td>
</tr>
<tr>
<td>poor infrastructure e.g. roadwork, trees, hedges blocking the footpath, smelly canal, construction site</td>
<td>7</td>
<td>15.2</td>
</tr>
<tr>
<td>roads with heavy traffic</td>
<td>4</td>
<td>8.7</td>
</tr>
<tr>
<td>Places with litter</td>
<td>3</td>
<td>6.5</td>
</tr>
<tr>
<td>vacant building</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>other</td>
<td>4</td>
<td>8.7</td>
</tr>
<tr>
<td>Total</td>
<td>46</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Figure 3: Places disliked by travel mode to school this morning

Preferred travel mode and reasons

Nearly three quarters of children reported that walking and cycling/scooting was their preferred travel mode if they could choose (n=40). Overall cycling/scooting was the most popular travel mode with almost half of respondent children preferring this mode (n=26). Only a small proportion of children indicated that they preferred private car over other modes (Figure 4).
When looking at the reasons for these preferred travel modes, ‘enjoyment’ and ‘fitness’ was the most frequently mentioned reason both for cycling and walking (42.9% and 29.2% respectively). ‘Fun’ was continuously associated with cycling and scooting while social interaction related reasons such as ‘being able to hang out with friends’ were associated with walking. Environmental concerns and speed (e.g. faster than walking) were also mentioned by equal number of children when they reported their reasons for preferring cycling over other modes (Figure 5). The distance was the main reason for children who preferred car when travelling to/from school (85.7%).

Amongst the activities to choose as they would like to be able to do when playing outside, the activity that was ticked by the highest number of children was ‘climbing’ followed by ‘playing with water’ and ‘building’ (55.6%, 46.3% and 31.5% respectively). When they were asked what they would change to make playing outside more enjoyable, nearly 45% of children wrote or drew about a whole park/playground or a single piece of equipment (e.g. trampoline, slide near home). In addition, a notable
number of children’s wishes were in a land use change context as they expressed a wish for parks and playgrounds being closer, as well as having a café near playground and so on (8.5%). Natural places such as trees, treehouses, lakes, waterfalls, beach and wildlife were the second biggest category (19.1%).

**How to promote active transport**

Educational activities were the most frequently cited category (34%, n=16) which included a request for more regular walking/cycling to school days/months and a variety of educational programs about the impact of motorised transport on environment. The roles of adults in educating children in active transport was acknowledged by one child as they in the form of a belief that adults need to act more like a role model by walking and cycling themselves. Physical infrastructure related answers were given by 27.7% of children (n=13). The comments in this category ranged from the increased provision of parks, walking and cycling trails to dedicated routes for school trips. Policy changes to introduce fines for driving and rewards for not driving, changing speed limits and providing public with free skateboards/scooters (12.8%, n=6). An equal number of children (12.8%) also emphasised the importance of more signs and billboards to advertise active transport modes over car (Figure 6).

![Figure 6: Opinions on how to improve active transport](image-url)
Mapping activity

When asked to mark their route between home and school and the public places they frequently visit, all children who cycled drew their routes and these public places. Children who travelled by car category had the highest proportion of children who did not mark their routes (Figure 8).

Figure 7: Opinions on how to improve active transport by travel mode to school this morning

Figure 8: Outcomes of the mapping activity by travel mode to school this morning
Discussion
This paper presents some preliminary findings of a larger study which is amongst the first to look into the creation of socially and environmentally sustainable communities through child and youth friendly places, in the context of active transport and active play. The concepts of ecological psychology serves as a framework when looking into children’s responses.

The findings presented here regarding active transport to school were consistent with the previous studies describing low rates of active transport trips amongst primary school aged children, despite them living within walking and cycling distances (Garrard 2009). The participant children on the whole demonstrated a clear preference for walking and cycling over other travel modes and they were clear about their reasons. Their responses presented a strong awareness of accessibility through proximity and land use mix. Some participants made direct connections between proximity and travel mode choices, as they would like to walk or cycle because their school was very close. This view was echoed by another child who stated that walking or cycling was the quickest way to school.

A large number of child participants were specific about how their built environment can be changed to meet their active transport and active play needs. They frequently expressed a desire for specific shops, parks and playgrounds to be near where they live or a desire for a change in land use to build a retail or social place near where they play. They also emphasised the importance of education to help themselves and others to understand the important benefits of active transport.

These findings echoed those researchers’ who asserted that a wide range of factors are needed to successfully endorse active travel. Infrastructure related improvements alone are not sufficient and they need to be supported by non-infrastructure actions such as education (Davison et al 2008).

According to Kytta (2004), children’s environments need to actively promote the actualisation of affordances. This was evident in participant responses as they consistently mentioned their preferences for public places with wide range of affordances and behaviour settings. For example being able to run around and walk the dog and scoot at the same time or being able to ride a bike, play and hang out with friends were specifically mentioned as the desired properties of public places.

The findings of this paper also confirmed the high prevalence of retail places in children’s daily lives and associated social benefits. Given that about 40% of children’s answers in relation to public places they liked were related to a specific café or shop or a shopping/eating precinct, the important contribution of families with children into the economic viability of local shops (Giles-Corti et al 2010; Freeman 2006), particularly during their journey between school and home was apparent. These findings were also consistent with the problems associated with places dedicated to children and segregated from broader neighbourhoods and the role of children’s active transport in connecting communities.

The mapping activity with the child participants of this study presents an initial insight into the role of active transport and active play in facilitation of spatial and environmental awareness amongst children. It is clear that physical engagement is important in creating a lasting image of a place (Moore & Young 1978) and significant amount of time spent in a car leads to a diminished sense of place and environmental awareness (Mitchell, Kearns & Collins 2007; Sutton & Kemp 2002). These theories manifested themselves in various findings of this study when the data from places liked, disliked and thoughts on how to promote active transport were compared against travel mode. The outcomes of the mapping activity in relation to travel mode to school also revealed that children who walk and cycle have better knowledge of their route and surroundings. These results further support the idea of children’s reintegration into public places and its importance in developing a sense of place, spatial knowledge (Gillespie 2013) as well as environmental awareness and environmentally sustainable lifestyles in general (Tranter and Pawson 2001; Louv 2008). Children’s wishes for accessible public places with a wide range of affordances including the provision of nature were highlighted in these results as were their preferences for a shift towards more sustainable modes. A more comprehensive understanding of the factors affecting the daily movement of children and their needs and rights is critical to achieve this modal shift and sustain this shift.

This paper presents only some initial findings of the first phase of an ongoing research project. The authors acknowledge the limited scope for the application of these preliminary findings.
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