



TOPIC 1
TRANSPORT AND
LAND USE (SIG)

CHILDREN'S INDEPENDENT MOBILITY AND URBAN FORM IN AUSTRALASIAN, ENGLISH AND GERMAN CITIES

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Abstract

The freedom of children to explore their own neighbourhood or city without adult supervision (their independent mobility) is explored using data from cities in Australia, New Zealand, England and Germany. The significance of this mobility is discussed, including its importance not only for children, but also for their parents, the wider environment and the community.

INTRODUCTION

When Australasian parents are asked to reflect on their middle childhood experiences, they usually remember having high levels of freedom to travel around their own neighbourhood or city without adult supervision. They are likely to claim that they had more freedom to travel to school without an adult, or visit friends alone, or cycle around their own neighbourhood, or catch buses (or trains), or go to the shops, or even to go out after dark. They were given these 'licences' of 'independent mobility' at a younger age than today's children. Data from studies in England support such anecdotal evidence that there has been a substantial decline in children's travel freedoms over the last generation.

However, not all areas have experienced the same levels of decline in children's freedom. Children in cities in some countries still have very high levels of independent mobility. Differences in levels of children's independent mobility (CIM) can be associated with differences in a range of characteristics, some relating to social and cultural considerations, but others relating to urban transport and land use systems.

An important consideration in the planning and development of cities has been the facilitation of the mobility of the population. However, one group which has not shared fully in improvements in mobility within cities is children. Although children can travel as car passengers, and hence benefit from any improvements in car based mobility, their 'independent' mobility is usually reduced with every new road or increase in traffic. Indeed, increased mobility via the car, when a parent is acting as a 'conscript chauffeur', has helped to shift facilities to which children might otherwise have had greater proximity, and hence better independent access. Children, like the elderly, have particular problems coping with traffic, and as pedestrians they are particularly vulnerable to injury and death caused by cars. Because of these problems, as well as fears of assault and molestation, their parents place considerable restrictions on their independent travel.

This paper aims to investigate the issue of children's independent mobility through the examination of data from a range of countries. The focus is on primary (junior) children, aged between 7 and 12 years. The paper also aims to explore possible links between levels of CIM and the characteristics of urban transport and land use systems.

The paper first outlines why CIM is an issue of considerable social, economic and environmental significance. It is argued that the loss of CIM in many areas is something which can not be easily compensated for by parents (especially mothers) driving their children around their city. The paper then discusses available data on children's independent mobility, focusing first on changes over time, and then on spatial variability in levels of CIM. Levels of CIM for children in cities in English, (West) German, Australian and New Zealand cities are examined. The paper concludes with an argument that any policies designed to increase levels of CIM are also likely to assist the creation of more environmentally sustainable cities.

CHILDREN'S INDEPENDENT MOBILITY: A SIGNIFICANT SOCIAL, ECONOMIC AND ENVIRONMENTAL ISSUE?

There are a number of arguments which could be presented to support the idea that children's independent mobility is not an issue. It could be argued that:

- there is no need to be concerned about the issue of children's independent mobility, because children are now provided with better alternatives than having to travel around by themselves;
- most children in Australasian cities have access to a car, and they can travel to more (and more distant) locations than they could otherwise;
- children may enjoy being taken by their parents, especially by car, and at least it means that parents are spending some time with their children;

- today's children generally have better home-based access to other resources than children in previous generations (eg computers and videos), thus they have less need to travel around their own neighbourhood.

The arguments above, however, ignore the now well known costs involved in depriving children of their freedom (Moore 1986; Hillman et al. 1990). There are compelling arguments which support the notion that children's independent mobility may be of considerable value, not only for the children themselves, but also for adults responsible for their safety, for the wider environment, and for the local community. Indeed, given for example the magnitude of daily vehicle traffic generated by children's travel needs, the implications of children's diminishing independent mobility may extend to whole city environments. The following sections outline some reasons why the independent mobility of children is something which may not be compensated for by increased mobility of children in cars.

Children

Independent mobility may be important for children's own personal, intellectual and psychological development, and for allowing them to get to know their own neighbourhood and community (van Vliet 1983; Kegerreis 1993; Moore 1986: 236, 239; Elliot 1985: 149). This depends on "active exploration", which is not provided for when children are passengers in cars. Such children may "see more", but they "learn less" (Nicholson-Lord 1987: 195-196).

The importance of independent mobility for children is expressed very powerfully by Engwicht (1992: 39):

... freedom to explore the local neighbourhood ... gives [children] an opportunity to develop a relationship with the placeness of their physical environment. Robbing children of a sense of place robs them of the very essence of life.

Also, not only is it important that children be able to get to local play areas by themselves, but walking or cycling journeys to school and to other destinations provide genuine play activities in themselves (de Monchaux 1981: 97-99).

Economic and opportunity costs for adults responsible for children's safety

Parents and other adults who care for children may also benefit if children are given more freedom. There are two types of "costs" for parents associated with transporting their children to school and to other locations: "economic resource costs" and "opportunity costs". The economic resource cost of parents transporting children is higher than most people would expect. Recent research in the United Kingdom estimated that this cost in Britain, for one year (1990) was between £10b and £20b (Hillman et al. 1990).

Apart from these economic resource costs, there are the opportunity costs for parents. Other activities may be excluded because of commitments to transport or escort children (especially home from school). Sometimes this is simply an inconvenience. However, at other times the restrictions can have long term implications: it may mean for example, that a parent feels unable to take on employment.

These opportunity costs for parents are likely to be felt more by mothers than by the fathers of the children who are being transported or accompanied. Research in Britain and the USA demonstrates that "outside the home, women are still primarily responsible for domestic related travel purposes; for example, shopping and school escort journeys" (Pickup 1988: 104).

Environmental issues

The environment also suffers when children's independent mobility is replaced by "Mum's or Dad's taxi". There are traffic congestion, pollution and safety costs associated with the extra

traffic involved in transporting children. As our roads become more dangerous, more parents drive their children, thus contributing to increased levels of danger for the remaining pedestrians. Parents driving children to school can account for over 10% of car journeys in the morning peak; reducing or eliminating this component will provide more 'relief' than most new roads (Hillman et al. 1990: 170-173). Anyone who has experienced either the reduced volume of traffic in peak hour during school holidays, or the traffic jams near schools at the end of a school day will not need convincing about these points. Thus, there are also important environmental implications of children's loss of freedom.

The community

There may also be community benefits in creating residential environments which allow children more independent mobility. If more children use the streets as pedestrians, this may help to generate a stronger local community. The presence of children is an effective way of breaking down the natural reserve between adults. Streets become more interesting, more livable, more communal places. This can be self-reinforcing: if more pedestrians use the streets, this in itself creates a situation which is far more conducive to independent travel.

Another reason why children's independent mobility may be particularly important now, is that the levels of independent mobility for children in this generation may be much lower than for children growing up in previous generations. The following section outlines the sources of data available to explore this issue, as well as international differences in CIM.

RESEARCH ON CHILDREN'S INDEPENDENT MOBILITY

This paper refers to a number of sources of data on children's independent mobility:

1. a study conducted in five areas in England in 1971 (see Hillman et al. 1990). (The five areas included: Islington (a London Borough), suburban Nottingham, Stevenage (a post-war new town), Winchester, and rural Oxfordshire);
2. a study conducted in the same five areas and also in similar areas in (West) Germany (Köln, Bochum, Chorweiler New Town, Langenfeld/Schwelm and Witten) in 1990 (Hillman et al. 1990); and
3. research conducted recently in Australia and New Zealand (Tranter 1993, 1994a; Tranter and Whitelegg 1994). The cities investigated in this research were: Sydney, Canberra and Christchurch. A total of 21 primary schools were involved in surveys for these cities. These are not claimed to be truly representative of all Australasian cities, yet the data from these cities can provide important insights, especially in relation to changes in children's independent mobility.

The way in which independent mobility was investigated in each of these studies was by examining a number of 'licences' which parents give their children. For example, parents give their children a licence to:

- cross main roads alone;
- come home from school alone;
- go to places other than school alone;
- go out after dark;
- cycle on main roads; and
- travel on buses alone.

The age at which children are given these licences, and the percentage of children in certain groups who have them, are indicators of the independent mobility of children in different areas.

In each of the studies mentioned above, the research methodology was based on two questionnaires, one for the parents of children at the schools, and the other for the children at the

school. The studies in English and German junior schools included children aged from 7 to 11 years, while the surveys in the Australasian schools concentrated on children aged 9 to 12 years. The children's questionnaire consisted of simple factual questions concerning how children travelled to and from school, and the level of accompaniment for their day to day travel activities. This was completed in class, and collected by the teachers. Each child at the school was also given a questionnaire for one of their parents to complete. The parents' questionnaire asked about the level of freedom children were given, as well as the reasons for deciding the age at which children were given various freedoms (for example to travel to school alone). Some questions were asked about the level of parent involvement in transporting or escorting their children to school or to other locations. There were also questions about the parents' own school-aged travel and freedom, as well as background questions on variables such as age, sex, level of education, occupation and car ownership.

Have children lost their freedom?

A number of studies in England and the United States have asserted and documented the loss of children's opportunity to independently explore their own neighbourhood (eg Lynch 1977; Hillman et al. 1990; and Gaster 1991). Most of these studies have relied on adults' memories of their childhood experiences. While such information may provide an indicator of possible changes, it is possible that the memories may be distorted, for instance by a romantic image of childhood.

One study which did not rely on parents' memories and perceptions can be found in Hillman et al. (1990). This study of English schools made use of research conducted in 1971. Primary (junior) school children were asked the same questions that had been asked of children in the same five schools in 1971. An example of the extent of the changes in children's freedom is provided in Figure 1, which shows the percentage of English school children who were allowed to use buses alone in 1971 and 1990, for each age level. The reduction in children's freedom in this 19 year period is dramatic, for every age group. For example, in 1971, 53% of nine year old children could use buses alone, but only 8% were allowed this freedom in 1990. The reduction in children's freedom as indicated by this 'licence' was typical of the reductions indicated by other licences (eg to cross main roads alone, to go to leisure places alone and to go to school unaccompanied). The scale of the reductions, in such a short time period, appears to be cause for considerable concern.

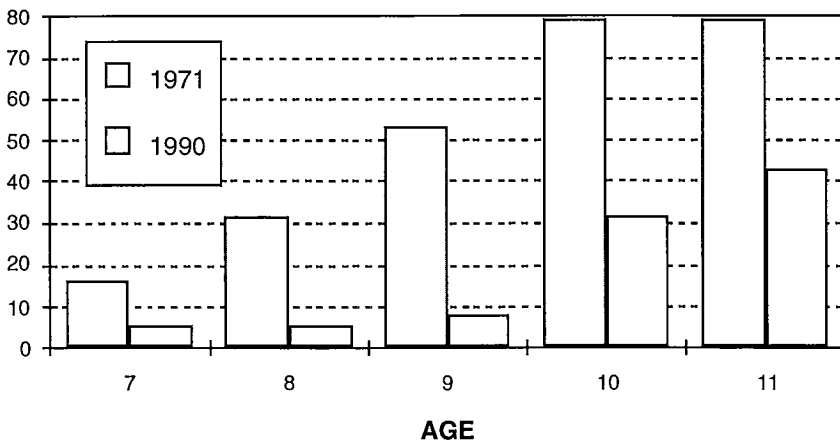


Figure 1 Percentage of English school children who were allowed to use buses alone in 1971 and 1990 (Source: Hillman et al. 1990: 44, 131)

The reasons for these reductions are complex, but the increase in the levels of motorised traffic are likely to be at least an important part of the explanation. Over the last generation, not only has there been a considerable growth in the levels of traffic in Australasian cities, but the average speed of this traffic has also increased. For example, in Melbourne, average travel speeds have risen from about 22 km/h in 1964 to 31 km/h in 1986, even though average travel time actually substantially increased over this period, from 38 to 60 minutes per day. As Moriarty and Beed (1992: 13) explain, the reasons for this lay in rising levels of personal travel by private motor vehicle. Thus, city dwellers have consumed the greater speed of travel not as a time saver, but rather as a way of increasing their mobility. This may not be a worthwhile goal at all, especially if our accessibility to a range of urban services is actually decreasing.

Apart from the risk to children from traffic danger, another major concern for parents is the risk of assault and molestation. Yet there may be an important link between traffic and fears of assault and molestation in residential streets. As traffic levels increase, more and more people (adults as well as children) cease to use the streets as pedestrians. This is partly a response to traffic danger, but also a response to the loss of local shops and services, and hence greater reliance on the motor vehicle for access to these shops, schools and even playgrounds. Eventually, residential streets are perceived as being deserted, lonely and hence dangerous places for children, in terms of the fear of assault and molestation. When people do leave their private homes, they do so behind the closed doors of their private motor vehicles. Thus there are few adults around on the streets to provide surveillance and support for children. In particular, there are few adults who know their neighbours' children and can look out for them. In contrast, if traffic levels are low enough to allow streets to be used for walking, cycling, social interaction and playing (all of which are important activities for children) it can be argued that potentially at least, streets become reinvigorated with supportive community life.

Evidence of the link between the fear of crime and the level of traffic on residential streets can be found in Appleyard's (1981) study. Three streets were studied, which were similar apart from levels of traffic. The low traffic street had 2000 vehicles per day, the medium 8000, and the heavy 16,000. The fear of crime for the people in the heavy traffic street was almost three times as high as in the low traffic street.

As Hillman and Adams (1992: 20) explain:

The rise in the volume of traffic and its accompanying noise pollution, danger and unpleasantness have contributed to a feeling of insecurity owing to the continuing retreat of street life and, at the same time, to a rise in the proportion of people outside the home who are strangers.

Thus the widespread and increasing use and availability of the private motor vehicle have contributed to an increasingly individualist world, where an undercurrent of insecurity frequently prevails.

The data discussed above suggest that trends in levels of independent mobility have been progressively declining over previous generations. If these trends continue, this could mean that children are even more restricted, and parents (especially mothers) are increasingly pressured to drive or accompany them wherever they go, often simply to protect them from dangers such as traffic and the risk of assault and molestation.

International comparisons: Australasian, English and German cities

The comparison of data from Australasia, England and Germany reveals some surprising and very consistent results. It should be noted here that the data cannot be claimed to be truly representative of an 'average' level of CIM for each country. A much larger sample would be required for this. However, the data can provide some understanding of the extent of the differences between countries, especially given the marked international differences which are evident.

The primary (junior) school children surveyed in Germany and England were aged from 7 to 11 years, while those in the Australasian research were mainly in the age group 9 to 12 years. Consequently, it was necessary to make any comparisons between the countries age-specific for

children aged 9, 10 or 11. The comparisons outlined below consist of comparisons of the averages for the five English schools surveyed, the averages for the five German schools, and the averages for the 21 schools surveyed in Sydney, Canberra and Christchurch. The source of data for the English and German schools is Hillman et al. (1990: 131-133).

Distinct differences between the schools in the three areas are clearly evident in a comparison of indicators of children's freedom. Children's levels of independent mobility are significantly higher in the German schools than either the English or the Australasian schools, as indicated by the following variables:

- licence to travel to places other than school alone;
- licence to use buses alone;
- licence to cross main roads alone; and
- the percentage of children who are taken to school by car.

(See Figures 2, 3, 4 and 5).

Children in the Australasian schools tend to be slightly more restricted and more car dependent than the children in the English schools.

There were also marked international contrasts in terms of the gender differences in children's independent mobility (Tranter 1994b). In English and Australasian cities, boys are given significantly more freedom than girls for every indicator of children's independent mobility. However, in Germany, there appears to be very little difference between boys and girls. The gender differences in Australasian and English cities are also evident in the parents' stated reasons for restricting their children's freedom to travel to school or to places other than school alone. For the parents of boys the most common reason for restricting their travel was concern about traffic danger. However, for the girls, the most common concern was fear of assault and molestation.

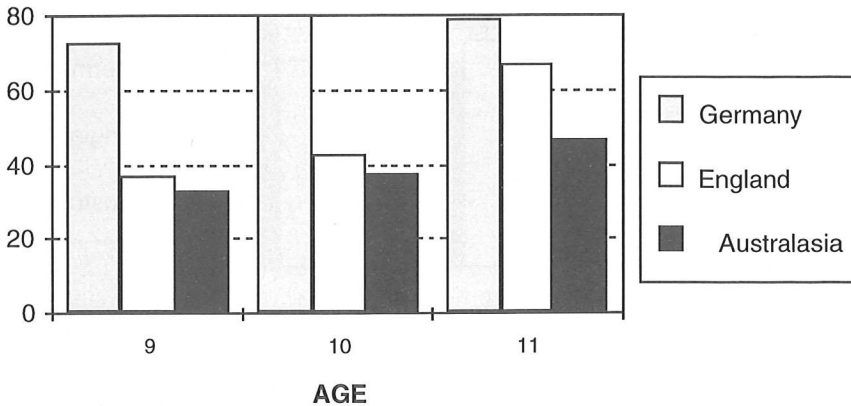


Figure 2 Percentage of children allowed to travel to places other than school alone for cities in Germany, England and Australasia
 (Source for German and English data: Hillman et al. 1990: 131)

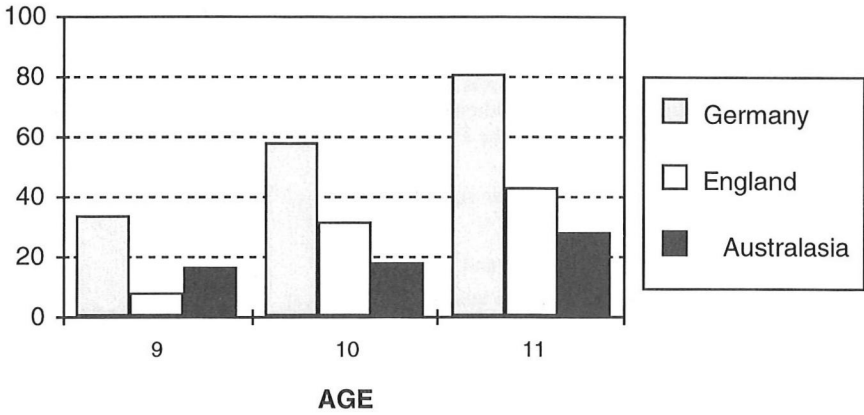


Figure 3 Percentage of children allowed to use buses alone for cities in Germany, England and Australasia
 (Source for German and English data: Hillman et al. 1990: 131)

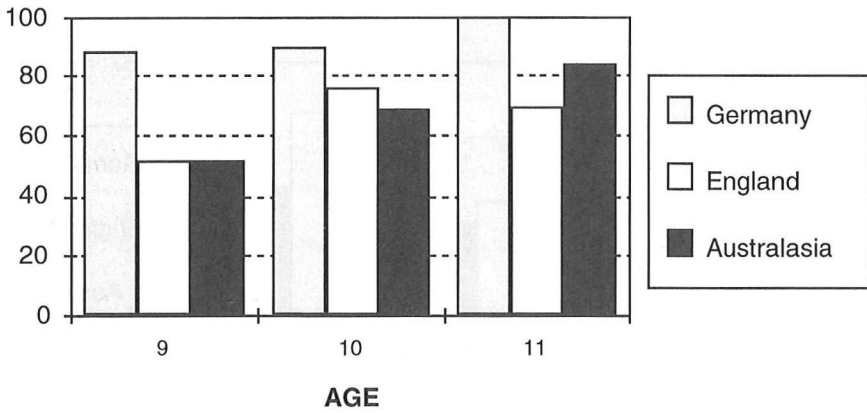


Figure.4 Percentage of children allowed to cross main roads alone for cities in Germany, England and Australasia
 (Source for German and English data: Hillman et al. 1990: 131)

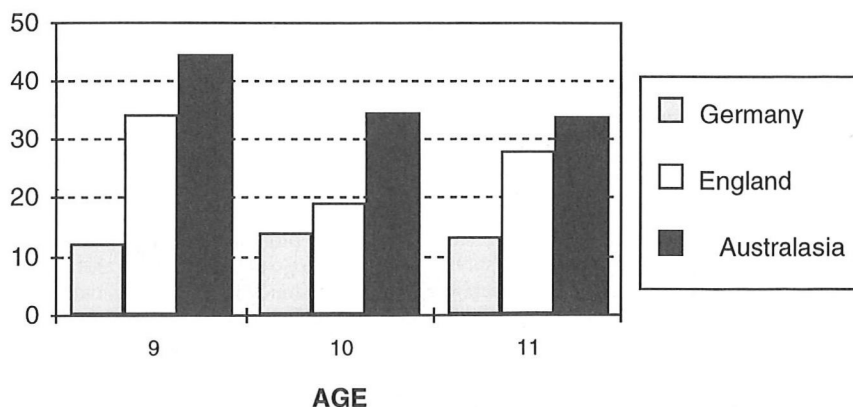


Figure 5 Percentage of children taken to school by car for cities in Germany, England and Australasia
(Source for German and English data: Hillman et al. 1990: 131)

SOME EXPLANATIONS FOR THE HIGHER LEVELS OF CHILDREN'S FREEDOM IN GERMAN CITIES

There is no single explanation for the much higher levels of children's freedom in the German cities. However, there are a number of factors which may be important. Some of these relate to the social and cultural aspects of German cities, while others relate more to the spatial aspects of the cities.

One marked difference between Germany on the one hand, and England and Australasia on the other, is the way in which children out on their own are under the general supervision of adults on the street. There seems to be a greater collective responsibility for other people's children in the German cities surveyed. Indeed, Hillman et al. (1990: 84) argue that in Germany, adults are more likely to feel that they have the right (or even the responsibility) to control, look out for, or supervise other people's children:

In parks, on buses and trams, and en route to any destination, children will be observed and 'guided' if their behaviour falls short of the standard expected. This serves as a powerful control mechanism and undoubtedly generates a feeling of security for parents, and others who operate this mutual surveillance network.

Such an informal system does not seem to have its counterpart in Australasian cities, even though some parents may feel somewhat responsible for other people's children.

Another aspect of the German cities was the greater use of outdoor public space by the German people of all ages. More children (and people generally) were out on the streets, and this in itself gave children and parents more confidence in allowing children more freedom, as there was a greater number of people about who knew each other's children and could look out for them (Hillman et al. 1990: 83).

It is also possible that some of the spatial aspects of the urban transport and land use systems in German cities helped to promote the use of the public space, and had other effects which supported the high levels of children's independent mobility. There were marked differences between the German cities and cities in other countries in terms of population densities and the close proximity of facilities (including schools) to children's homes. In Germany, there was a higher availability of recreational space, swimming baths and other facilities closer to home. In

contrast, in Australasian schools in particular, children live further from schools, shops, recreation facilities and even their own friends than in German cities. Therefore, given the time taken to walk or cycle to these places, parents are more likely to become involved, often as chauffeurs. Children's access is thus much more car dependent, in part because of the spatial and structural aspects of Australasian cities.

There is also a much better public transport system available in urban areas in Germany than in either the English or the Australasian cities. The high quality, reliable public transport systems are also widely used by Germans of all ages. This high usage adds to the sense of safety and security for the users of public transport. This is clearly a vital issue for children.

As Hillman et al. (1990: 83) point out, "this effect is less pronounced in rural areas where public transport is not so good". Public transport is also "not so good" in the Australasian and English cities, and in these cities, not only is public transport used much less by adults, but the freedom of children to use buses alone is very low indeed (see Figure 3).

Another aspect of German cities which differs from cities in Australasia or in England is the widespread implementation of traffic calming measures. Although many of the traffic calming measures were introduced for environmental reasons rather than with the explicit intention of making streets safer for children, one effect of such measures may have been to maintain high levels of independent mobility for children.

CHILD FRIENDLY CITIES AND SUSTAINABLE CITIES

There has been considerable discussion in recent transport and planning literature about the way in which urban transport and land use systems can contribute to the development of more sustainable cities (eg Newman et al. 1990, 1992; Tolley 1990; Engwicht 1992; Whitelegg 1993; Stretton 1994). Some of the strategies that have been identified as potentially important include:

- traffic calming;
- urban villages and urban consolidation to increase urban densities;
- increasing the efficiency of public transport, especially through the use of light rail;
- increasing the modal shares of walking and cycling;
- decreasing city wide car use;
- provision of more local facilities.

There has not been complete agreement on the way in which Australasian cities should be modified in order to make them more sustainable. For example, the issue of increasing urban density (eg through urban consolidation) has been strongly debated. While it is generally conceded that cities with higher densities have lower per capita use of energy, and hence are arguably more sustainable, there is less agreement that simply increasing the density of Australasian cities will have a significant impact on the use of energy in cities (Stretton 1994). However, there is more general agreement on the utility of the reduction of the use of private motor vehicles as a way of reducing fuel use and pollution.

There has also been some discussion of the concept of a child friendly city or a child friendly focus for transport reform (Lynch 1977; Moore 1986; Ward 1990; Tranter 1994a). A child friendly focus for transport reform would ensure that children are not cut off from large sections of their city unless they are taken by an adult. It would ensure that children are freer to explore, in ever increasing circles as they mature, without constant threats of traffic danger. Children would also be protected from less obvious dangers such as lead poisoning and tropospheric ozone. It would provide environments where local communities are not destroyed by transport systems, and thus where children could experience neighbourhoods with a strong sense of community, and feel that they are an important part of that community. It would also include the provision of a denser network of more localised services (including schools) so that children could walk or cycle to them more easily. (Where such facilities have a more dense provision, independent trips are more

likely.) Finally, it would incorporate a safe, frequent and reliable public transport system, which facilitated use by both adults and children.

Many of these features are already features of German cities, where "... the combination of better public transport, the provision of more local facilities, including schools, close to children's homes, and the large number of people about creates a situation which is far more conducive to independent travel" (Hillman et al. 1990: 83).

Child friendly transport modes

One of the key aspects of a child friendly city is the provision for environmentally benign modes of transport: walking, cycling and public transport. Each of these modes are "child friendly", as children can travel by them without adult supervision, and even when adults use them, this does not greatly impair children's safety (and hence their freedom). German cities are well endowed with high quality public transport systems, and walking and cycling are encouraged in many areas by the more dense provision of shops and services (located within walking and cycling distance of people's homes). Even in a low density city, the provision of protected cycle paths may be a very useful way of increasing CIM.

Local shops and services rather than large, isolated shopping centres

The provision of a denser network of local facilities is perhaps one of the most crucial aspects of the creation of child friendly environments in Australasian cities. Not only does the provision of more local facilities, such as schools, shops and recreational facilities allow more independent access for children, but it also facilitates walking and cycling access to these facilities by adults. This is itself important for children's independent mobility for two reasons. First, the level of motor traffic in local areas is reduced, and hence parents' fears about traffic danger are also reduced. Second, as more adults use local streets as pedestrians and cyclists, there is at least a greater potential for local neighbourhood-based communities to develop. This is important for children in terms of parents' fears about assault and molestation; there are more adults around in the streets who know the neighbour's children and can look out for them. Children feel as though there are supportive adults nearby.

In Australasian cities, over the last generation, there has been a trend towards the closure of local facilities. Schools, local shops and post offices have been closed as larger schools, shops and regional post offices are created. There has been a progressive loss of corner stores. In many cities, even the suburban supermarkets are being threatened by larger super stores, providing extended hours of operation. This forces residents into an even more car-dependent pattern of travel.

A lack of understanding of children's needs could allow the reasoning that children may benefit from the development of large superstores and enclosed shopping malls. These could be argued to be secure havens in an increasingly dangerous world. In the shopping malls, the shoppers are protected by security guards, and 'undesirable elements' are 'moved on'. Children can experience the excitement of mingling with a range of people, and having "spontaneous exchanges" (Engwicht 1992) with other city dwellers.

However, there are three significant problems for children in the substitution of local facilities with large shopping malls which are accessed by cars. First, children are usually only welcome in such malls as consumers, not as playful children. Often, the only aspect of the malls which caters specifically for children is a toy shop. Children are rarely encouraged to play inside the shopping centres, or even to "hang out" together. Indeed, such activities are actively discouraged by management. The concept of street play can not be replaced by letting children walk around inside a shopping centre. There is also no opportunity for contact with the natural environment inside shopping centres. Second, few children can gain independent access to such large centres. They are surrounded by both parked cars and cars looking for a place to park. Many of the shopping malls are poorly served by public transport. Thus, they simply make children more adult dependent and car dependent. Third, such malls reduce the likelihood that a local community will

develop. Instead of neighbours meeting each other as they walk to their local shops and services, people walk past others they may never see again, in an artificial consumer-oriented world.

Residential streets for cars or for children? The role of traffic calming

Another aspect of a child friendly city concerns the way in which residential streets are perceived by residents. In research conducted in Australasian cities (Tranter 1993), one of the most common comments from parents about their children's freedom and safety was: "Streets are for cars; back yards and playgrounds are for children". This is an understandable viewpoint for parents concerned with protecting their children from traffic danger. However, it is no more than a cultural view of the appropriate role for residential streets. Another view, and one which many Australasian adults would have shared as children, is that streets are not just for cars, but they are also for walking, cycling, social interaction and playing (CART 1989). If children were involved in the decision making process, especially in terms of the design of street space, then they may well argue, as did Cunningham and Jones (1989: 12) that "residential streets must be legitimated by design, as play spaces, and traffic carrying functions assigned the lowest instead of the highest priority".

Currently in Australasia, parents and children are expected to assume most of the responsibility for reducing the child road accident toll by keeping the children off the streets. (Indeed, the basis of many road safety initiatives is to put more of the burden for safety on to the pedestrians, on the (logical) assumption that pedestrians will be less cautious crossing a road if they have a legal right of way (Moses 1989: 932). However, in many European cities, authorities are also ensuring that motorists share more and more of that responsibility. An effective strategy for reducing the freedom of motorists, and enhancing the freedom and safety of children and other pedestrians, is the lowering of speeds in residential or urban areas. This is part of the creation of an "environment of care" in residential streets (Brindle 1982).

One way in which residential streets may be made safer for children, and hence allow children higher levels of independent mobility, is the implementation of localised traffic calming schemes. Traffic calming is another element of urban planning which is potentially of great benefit to children. Traffic calming approaches represent "a different philosophy of 'traffic management' in that they are not designed to get the best out of the street system for traffic ... but instead are designed to manage the traffic for the benefit of residents and the environment". Also, they challenge the conventional belief that the only way to protect pedestrians from motor vehicles is to separate them. Traffic calming strategies can allow the mixing of cars and people, "but under radically different assumptions about their relationship ... one of equality rather than one of car dominance" (Tolley 1990: 26). These have had many complex interactive effects, leading to a sense, at least in parts of some European cities, that children have been able to 'recapture' the street, and more importantly, that they have been able to do this in safety.

Traffic calming in residential areas in European cities had its origins in the Dutch "Woonerven". These involve the redesign of streets in heavily built-up areas. The streets become traffic restricted zones, clearly marked by special signs. They include a number of physical measures to slow the traffic, such as street furniture, trees, speed humps, changes in road surface and narrowed entrances to streets. The kerbs are usually removed from these residential areas, thus emphasising the fact that there is no separation of areas for cars from areas for pedestrians. Pedestrians are allowed to use the entire width of the street, children are allowed to play on the streets and cars must give way to pedestrians.

The Woonerven were originally designed in neighbourhoods which were heavily built up, with relatively high population densities. They were typically surrounded by housing of two to four storeys. Some of the Woonerven are now experiencing the problem of residents using them as parking lots, rather than children using them as play spaces. This use (or mis-use) of these Woonerven raises some important questions about the issue of increasing residential densities in Australasian cities.

If urban consolidation is used to increase residential densities, without any increase in the provision of local shops, services and employment, and with continuing high car ownership rates,

then this may simply mean that environments are created at a higher density than a car-obsessed culture allows. The cars are likely to be given greater priority in the allocation of street space than children (Cunningham, pers. comm). Thus urban consolidation in itself is unlikely to be of any benefit to children, unless it is accompanied by policies to dramatically reduce the usage of the private motor vehicle.

CONCLUSION

The strategies outlined above for the creation of child friendly cities included:

- an increase in the modal share of walking, cycling and public transport;
- greater provision of local shops and facilities, and
- traffic calming and other policies to reduce traffic speeds and car usage.

If such strategies are implemented in Australasian cities, then it is likely that our cities could achieve not only high levels of children's independent mobility, but also an environment that is more livable for all city residents, and in the long term more sustainable.

For those lobby groups whose task it is to lobby for more environmentally sustainable urban transport and land use systems within cities, knowledge of the issue of children's independent mobility may be useful. If enough people are aware of the negative implications of the loss in children's freedom, then there may well be wider support for policies to move our cities away from an obsession with meeting the apparently insatiable demands of the motor car. Not only have children lost their freedom, but adults are now forced to provide transport for their children because it is either too dangerous or too far for them to go on their own. Whole neighbourhoods have lost their meaning as residents make longer and longer trips to more and more isolated, larger shopping centres. Residential streets are rapidly becoming abandoned public places, where people are only seen when they are enclosed in cars.

Policies for the creation of more sustainable cities, including better public transport, better provision of local shops and services, and rationing of car fuel or mileage, will, as Stretton (1994: 136) argues, create "perfectly livable, lovable and efficient cities". However, it may ultimately be the issue of children's freedom that provides the necessary motivation for urban residents, businesses and political representatives to accept or even to encourage the implementation of such measures.

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