How Kids use and think about their urban environment: a review of research into children and play

Paper presented to the seminar, *Kids in Local Space*, Wednesday 20 march 2002. Melbourne Town Hall, Melbourne Victoria.

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Introduction: children, play and playspace

This paper looks at the way that primary school children aged from eight to twelve use the urban environment in free play, and the sorts of environments they choose for play when choice is available to them. The paper draws heavily on our previous work where we have used several different techniques of consulting with children themselves on their need for play and playspace. Although the focus of this conference is on parks and open space and their design, we have taken the liberty of defining the play environment more broadly. For reasons outlined below, there is a risk, in focussing on parks and open space, that appropriate design of these will be seen to provide for *all* children's environmental needs. Planners, city managers and adults generally need to be able to understand the holistic environmental needs of children — to play and to explore their environment independently — before they can usefully allocate resources to satisfy that need in planning for our cities.

Providing specifically for the physical environmental needs of children may not even be expensive, but those needs do have to be clearly recognised and acknowledged. Cities designed solely to satisfy adult needs do not work well for children (Ward, 1977; Moore, 1986). There is indeed a subtle conflict between the generations for the use of urban space and resources, just as there is a conflict for such use between rich and poor, or between men and women (Little, 1994). Effective resolution of that conflict requires diligent attention to the requirements of all sections of society rather than merely applying oil to the squeaking wheels that appeal to economic or political power.

The difficulty for children is that, unlike adults of either sex, they have limited ability and opportunity to speak for themselves. They only have political power through the adult guardians, parents, teachers, public officials and advocates who speak publicly for them. Their stage of development is such that they mostly cannot master the abstractions that political power demands. Everything done on their behalf is interpreted and implemented by adults. Nevertheless, they do have choices, and they exercise those choices within their limited resources, as demonstrated by studies cited here. Unless adults see that those choices are just as important as their own, then children will continue to be short-changed by their elders.

We recognise that younger children, and teenagers, also have important different and conflicting demands on the physical environment. However, the needs of infants and of adolescents have been rather more studied, and more vigorously advocated by adults, than those of the middle childhood years from eight through twelve. Indeed, it appears that children become 'invisible' as they pass through this middle stage of growth (Newson and Newson, 1986). This may be partly because of their tentative searches for independence. Children of this age group are characteristically calm and poised despite their innate energy. They are normally less of a burden to parents and other adults than children of earlier and later ages. They seek to do their own thing, but still largely accept parental control of their lives. They subject parents to neither the constant demands of

infancy nor the turbulent breaking away of adolescence. For the community also, middle childhood is not the squeaky wheel that gets the oil. It nevertheless has needs which should be fairly weighed alongside those of other community groups.

A key concept in understanding the needs and world of children in the physical environment is *play*. It has been said that 'play is the work of childhood'. Certainly it occupies a lot of the child's time and is more likely to exercise the free run of the child's imagination than many of the more formal activities involved in education. Through play children are exploring the world, manipulating it and learning many skills that will be important to them later in life. Nevertheless, despite its importance for the adult that the child will become we must never forget that the most important reason for playing is that it is **fun**. Play, of course demands a variety of physical settings which are termed here *playspace*.

Playspace, cities and suburbs, and urban planning

Children's play and the environment in which it takes place are not topics which excite most urban planners, especially if discussion of gender differences and bias against females is involved. Apart from being fun, which, according to the philosopher Huizinga (1970) is its prime justification, play is one of the complex shapers of experience, intelligence, competence, values and creativity. The physical environment of play, especially of the free adventure play of middle childhood, is an important part of the child's growth experiences, at least as important as the formal education process upon which society spends so much time and devotes so many resources.

A serious study of play and its territorial imperatives has important implications for the way cities are planned and shaped. Such study not only has academic value, but also can provide important practical insights for urban planners. Much valuable theoretical work has in fact been done. Highlights of this work are the efforts of Iona and Peter Opie (1969), who comprehensively studied children's games and folklore as well as the environments in which they took place; Colin Ward (1977) who looked at the child's relationship to the city in a holistic way; Joseph Chilton Pearce (1977) who reminded us of the inherent creativity of childhood; and Roger Hart (1979), Robin Moore (1986) and Hugh Matthews (1992) who comprehensively studied the relationship between children and the physical environment. Moore in particular (p.9), introduced the term *Terra Ludens*: 'the special quality of children's relations with living environments and the particular knowledge and developmental support that can be acquired through playful interaction with natural materials and phenomena'.

To a great extent, the field owes a debt to the work of the epistemologist, Jean Piaget, whose many works developed the theory of stages of human development, understanding and growth of competence. While many psychologists now doubt if those stages are as clearly defined as Piaget believed, there is nevertheless general agreement on the significance of play in development, and the importance to the child of complex, manipulable and especially natural environments in middle childhood.

In Australia, an important and practical manual, *Planning with Children in Mind,* authored by Suzanne De Monchaux (1981), was published by the New South Wales Government, and indeed this manual was recently updated (2000). This encompassed an excellent literature review, and a wealth of research and anecdotal evidence, including primary research done especially for the report, all of which demonstrated both the complexity of the subject and its importance. While it provided a very sound theoretical basis for understanding children's environmental needs, this report quite rightly avoided recommending simplistic 'rule of thumb' formulae for planners in the field.

Unfortunately it is such formulae, rather than the complex considerations that emerge from research, that appeal to practical everyday planners. A passage from Louis Keeble's (1983), *Town Planning Made Plain*, provides a good summary of the current attitude of many urban managers towards provision of public open space, and which incorporates virtually the only context in which children's needs are actually considered by planners.

> *'...Let us first try to distinguish sensible steps in the hierarchy of open space and then suggest how the members of each class may be related to each other.*
>
> *(a) A large town park for the whole town or the whole of a district of a large city, including bandstands, boating lakes, pitch and putt fields, and playing fields.*
>
> *(b) Smaller but similar areas each serving a locality with a population of the order of 10,000.*
>
> *(c) Local open space, mainly for children's games and exercising dogs, with perhaps a few tennis courts and ornamental planted areas, catering for a population of the order of 2000.*
>
> *(d) Minor open space for sitting in and exercising small children, placed wherever one is needed to ensure there will be some public open space within about _ kilometre of every home'* (Keeble 1983, 26).

There is much of value in Keeble's prescription, and few communities are in fact able to match it. Nevertheless, it represents the epitome of adult thinking about urban planning for children. Here is an orderly hierarchy of land uses distributed systematically throughout the urban area, with client users specifically anticipated and provided for in design. The usual rhetoric of open space — and the Keeble model is quite typical of such rhetoric — particularly stresses the needs of children and implies equality of access for all.

In reality, not all people have equal access to play space, even when the accepted model with its maximum (and, in practice, minimum) spacing of parks at one kilometre intervals is adhered to. Not all play needs of children are found in parks and open space, a point that is emphasised by the findings of this paper. Not all children have access to appropriate play environments, and this is particularly true of female children. As we shall see, few children are able to range as far as 500 metres to find their playspace. Girls,

in particular have a very limited play range which is rarely taken into account in planning of open space facilities and, even if it were, the details of design or access to that space may deny its use to them.

Play and the environment

While there is a huge volume of literature on childhood, play and child development, very little of this relates to the landscape of play (Moore, 1986, 11). Less again deals with the years of middle childhood when children increasingly seek independence from adults, explore their environment, and test themselves against it. Pringle (1974, 78), after Maslow (1954) argues that children have a 'ladder' of needs, each later step requiring the previous 'rung' to be negotiated, as they progress from the dependence of babyhood to assuming the mantle of independent and responsible adulthood. The rungs in this ladder are:

      1 Love
      2 Security
      3 New experiences
      4 Sense of achievement
      5 Fantasy and adventure
      6 Acceptance of responsibility.

This idea is useful for placing environmental exploration and manipulation in perspective with the constellation of other development needs resulting in a fully developed, self-directed human being. Interaction with the physical, and especially natural, environment, as part of steps 3 through 5, may be a necessary, though not sufficient, condition of such development. The quality of environmental play is particularly important during middle childhood (Hodgkin 1976, 96). Before we can engage in abstract reasoning and creative thinking we need a storehouse of knowledge and experience of the world and its phenomena. This inner need of the individual to influence, and be influenced by, the environment is stressed by Björklid (1982).

Responsibility for the environment grows out of the understanding of it. Michael Hough (1995) writes of the alienation of industrial society from the understanding of landscape, and he particularly refers to the need for children to be exposed to landscape processes in their play. Earlier commentators on child development, such as Froebel, Winnicot and Margaret Mead also speculated on the significance of environmental play as a developmental stimulus. New play experiences must become available with biological growth, and too many barriers to such experience will destroy motivation towards competence. Hadfield (1962, 61-67) stresses the critical role of environmental play in skills development. Taken all in all, the necessity for children to interact with complex, and especially natural, environments that they are free to manipulate is a constantly recurring theme, usually implicit and sometimes explicit, in the literature of child development.

Formal play spaces are also a necessary part of the childhood environment. Middle childhood is a time when children are playing games of two distinct kinds. There are firstly the informal games, rhythms and rhymes of universal childhood celebrated in the

work of the Opies (1969) and in that of the Australian collector of children's folklore June Factor (1991). Such games have complex cooperative rules and no prescribed territorial boundaries, but are part of the playground, the street or the wild places. Secondly, and at the same time, children are developing an adult-inculcated interest in formal sports. These have tightly prescribed, though simple, competitive rules and are played on level spaces with very formal boundaries which are part of those rules. Although the games are adult devised, or cut down versions of the same, it would be absurd to say that the motivation to play them is entirely adult driven. The basketball rings that are a feature of many Australian backyards, the impromptu cricket pitch or baseball diamond in the street or backyard, the homemade rugby goal posts in the paddock are all testimony to the fact that children take spontaneously to these adult-encouraged pursuits. Indeed this is an important part of the rites of passage into the adult world. Sports fields, and places for impromptu sport, are a very necessary part of the physical environment of childhood, but are also possibly the only part that is readily recognised by many urban officials and planners.

The usual mode of planning, however, does not encompass the complexity and the holistic nature of children's environmental needs and use. It assumes that all these needs can be met by open space reserves of a fairly limited type. It ignores the ubiquitousness of play and the multiplicity of environments — the backyards, streets, shopping centres, drainage reserves, wastelands and bushland — as playspaces. Conventional ways of planning also assume a unisex view of children and take no account of male and female play patterns or the reasons for them. Failure to understand that these exist, and the reasons why, may lead to unthinking discrimination against children in general and girls in particular in the allocation of community resources.

In fact, our work in Lismore NSW and Ipswich Queensland (Cunningham, Jones *et al* 1996, 1999) has found relatively few differences in the way that boys and girls use their freely chosen play environments, but the differences that are there could be important. Boys have a greater propensity to favour places where they can operate bicycles, skateboards and the like in ways not always envisaged by those who manufactured the machines. Girls have a higher propensity to favour playground equipment and gymnastic activity. This is not to say that either of these ways of using the environment were exclusive to either sex: plenty of boys enjoyed play on fixed equipment and plenty of girls enjoyed hooning around on bikes. Boys and girls appeared to have an equal attraction to natural areas, bushland and to secret places and cubbies. In a seemingly paradoxical finding from children's photography, girls seemed to play with boys more than boys played with girls. The record of mixed-gender play was nevertheless significant and demonstrated that the seemingly hard dividing line between the sexes in this age group, frequently reported in literature based on observation in crowded school playgrounds, is more apparent than real.

Research on the environment of children's play thus firstly emphasises the complex and holistic nature of environmental use. Children play anywhere and everywhere (Young, 1980; De Monchaux, 1981; Moore, 1986). They use whatever environment happens to be available, and they manipulate it to suit their ends. That any environment can serve their

purpose does not mean that all environments are equally suitable for realising the developmental benefits of play. Moore (1986, 4) writes of the delicate relationship between parents, child and the environment. Children are looking for challenge in complex settings that they can manipulate, and are particularly attracted to wastelands or natural landscapes. Parents seek to minimise danger to the child. These, not necessarily conflicting but not easily reconciled, differences in outlook require negotiation of territorial limits. Children must find their challenge and adventure within a tightly circumscribed local area. Where, as we found in Ipswich, there are features of the environment that present obvious danger, such as roads heavily used by motor traffic, the child's range will be even more restricted (Cunningham, Jones *et al*, 1999). Parental perceptions of danger from strangers, danger in rough land or bushland, or in water bodies, old industrial sites, or even parks, will impose tighter limits on play range. These appear to apply with more force to girls (Moore, 1986, 207-8). In parts of Ipswich parental fear of 'stranger danger' was a significant, though not overwhelming, constraint on children's independent exploration.

Whatever the reason, most researchers note the markedly smaller play ranges of girls (Saegart and Hart, 1978; Moore, 1986; Walmsley, 1988, 32). Studies by Cunningham and Jones (1987, 1995, 1996, 1999) show similar play ranges for 10 to 12 year old children in many different Australian urban settings. Table 1, below, indicates these play ranges. In all cases the children were asked where they played after school on a fine weekday in spring or early summer. The figures are remarkably consistent, considering the varied nature of the places where the surveys were done. Lismore and Armidale are provincial cities, Canley Heights and Canley Vale (Sydney), Para Hills (Adelaide) and Ipswich (Brisbane) are outer fringe metropolitan suburbs, Semaphore Park is a middle ring suburb of Adelaide, while Rose Park and Thebarton are inner Adelaide suburbs. There is also a wide range of socio-economic status and ethnicity represented in these places, but the differences between the sexes in play range appear to transcend both culture and social class. In all cases, except Armidale, fewer girls than boys played away from home, and in all cases, without exception, the range of boys who played away from home was greater than that of girls who played away from home.

In Goonellabah, a fairly recently developed suburb of Lismore, and in Ipswich, however, the difference between the sexes was less striking. This was not because girls had more freedom — their play range patterns were similar to those of girls elsewhere in Australia — but rather because boys seemed to have less. Gender equity in this sense was not necessarily a better deal for children as a whole. In both Goonellabah and Ipswich the main constraining factor seems to be motor traffic.

Few, even of the children whose play range exceeded the median, played very far from home, though of course some individual children travelled independently to places quite distant from home. One girl in Armidale played more than three kilometres from home. It is apparent, nevertheless, that the blanket planning formula for one kilometre spacing of parks will serve less than 30% of boys well, and only a tiny proportion of girls.

TABLE 1 PLAY RANGES OF AUSTRALIAN CHILDREN

Place	Median play range of girls who played away from home	% of girls who played *only at home*	Median play range of boys who played away from home	% of boys who played *only at home*
ARMIDALE				
Armidale	200	31	500	33
SYDNEY				
Canley Heights	200	85	800	52
Canley Vale	200	71	300	23
ADELAIDE				
Rose Park	300	77	700	43
Thebarton	100	83	400	76
Semaphore Park	200	63	300	28
Para Hills	250	64	500	58
Para Hills West	150	68	350	50
LISMORE				
Lismore	150	75	400	40
IPSWICH				
Ipswich	75	50	350	50
ALL CHILDREN	200	71	500	44

Source: Cunningham and Jones 1999.

One of the implications of this table is that playspace for children, including parks and open space, needs to be close to their home. If children in middle childhood have access to complex, yet manipulable, environments near their home this may predispose them to later enjoyment of the broader resources of the landscape as adults. Women commonly feel fear, not only of attack by strangers in natural environments, but also of the environment itself (Little, 1997). Such fear can be experienced by either sex where there has been no opportunity to explore both the built and natural environment early in life (Tuan, 1978). The greater adult male propensity to use public spaces, parks and the natural environment, which was clearly evident from observation studies in both Ipswich and Lismore, may well reflect the wider freedom of males to explore and interact with their environment in childhood.

Certainly, at times when there is competition for the use of open spaces, males are the dominant users. Studies by Cunningham and Jones et al (1987, 1991, 1994, 1996, 1999) in several parts of Australia confirm the results of overseas work in this respect, but the Ipswich results (1999) are more ambiguous. Associated with the greater freedom of boys to explore is the tendency for wild places and bushland areas to be used more by boys than by girls as playspaces. In a study of weekend recreational use of the Wolli Creek Valley in South Western Sydney, Hawke (1988) found that children in middle childhood were by far the most numerous users of a lush, but environmentally threatened area. She looked at three sites within the three kilometre linear reserve. The first was accessible by vehicle and contained conventional play equipment. In this area boys and girls were present in roughly equal numbers. In the other two sites — a fairly accessible wetland area and a fairly inaccessible rugged area of bushland — the proportion of boys increased with reduced accessibility. It would not be true to say that the inaccessible areas were unattractive to girls, since significant numbers of girls did play there. It is important to note also that children were by far the most numerous users of this reserve.

Nor would it be true to say that boys actively drove the girls away from these play spaces, indeed mixed gender play was not uncommon there. The competition for space between males and females is rather more subtle. When males are occupying the territory, females tend to avoid it. When adults are in the space, children simply drift away and play elsewhere (Cunningham and Jones, 1991). Where there is enough space, such as urban bushland, it is easy enough to carve out alternative territories. If, however, space is relatively scarce, as in the school playground or formal sportsfield, a pecking order—Adult males/ adult females/ child males/ child females—is typically asserted. The further down the pecking order you are, the more likely you are to miss out.

Different parental attitudes to boys and girls in play territory probably explains much of the dominance of male children of the richer, more complex play spaces. While innate or learned aggression and competitiveness of males may provide part of the explanation for the smaller number of girls in wild places or natural areas, there is evidence (I. and P. Opie, 1969) that play in such places is less aggressive than in confined and sterile playgrounds. The reduction in male aggression is accompanied by a greater tendency towards mixed age and mixed gender play than would normally be found in the school or municipal playground. Much of the thinking of urban planning about play is based on observation of the behaviour of children in artificially confined play spaces where the carrying capacity of the space is well exceeded. In children's photographic studies in both Ipswich and Lismore (Cunningham and Jones 1996,1999) there was significant incidence of mixed-sex play (31% and 49 % respectively, of all images showing children). Table 2 summarises those findings.

TABLE 2 MIXED-SEX PLAY DEPICTED IN CHILDREN'S PHOTOGRAPHS: IPSWICH AND LISMORE
(as % of all images which included children)

Attribute	Ipswich	Lismore
GIRLS (as photographers)	n = 122	n = 58
Mixed sex group	29	21
Only boys in image	20	31
Total	49	52
BOYS	n = 127	n = 70
Mixed sex group	4	20
Only girls in image	12	27
Total	16	47
CHILDREN		
Total: implied mixed-sex play	31	49

Source: Cunningham and Jones 1996 and 1999

Children and lifestyle changes

Two major challenges to society are also very relevant to the provision of appropriate space for both children's and adult recreation. These are firstly the changing nature of community, occasioned by affluence, different ways of doing work, and increasing emphasis on the individual at the expense of community. The second, closely related to the first, stems from the changing roles of women and men in society. Adult roles, which

are both consciously and unconsciously communicated to children, condition the way that recreation is pursued, and the sorts of places where it takes place.

These changes are clearly reflected in the current debate on urban design, particularly as it relates to urban containment, urban consolidation, or whatever currently fashionable term is used to advocate more compact cities and city living. The supporting arguments for abandonment of the, so-called, quarter-acre-block are based solely on adult imperatives. The efficacy of the home backyard as a play space for children may be mentioned in passing, but it is assumed that the open spaces and streets of the more compact city will provide acceptable substitutes (Evans, B.1992, 38). Children in Lismore, Ipswich and the Blue Mountains continued to affirm the importance of the home yard as part of the child's environment (Cunningham, Jones *et al*, 1996, 1999, Cunningham 2002).

On the other hand, the commercial land development market is aggressively pursuing a policy of *less* compact cities. With low-density suburbia and rural residential development, the distinction between city and country is becoming very blurred. Again, the value of the setting for children is frequently raised as a selling point, while children's needs are actually deprecated or ignored in development practice and the urban design that results from it. For example, in the northern Ipswich suburb of Karana Downs, while children in the age group under study had excellent access to natural and open places, parents were greatly concerned about the lack of facilities for older children and young teenagers as well as the lack of an effective public transport system to give these young people adequate access to urban facilities (Cunningham and Jones *et al* 1999).

In fact, *either* of these forms of urban development are potentially capable of producing very satisfactory children's environments, provided that planners and designers consider children's needs as important as those of adults. The *new urbanism,* advocated, among others, by Duany and Plater-Zyberk (1992), can produce the interconnected streets, the frequent and cheap public transport, the sense of community and the freedom from domination by motor vehicles that children need to be able to explore their environment in a holistic way. On the other hand the 'garden-suburb' can potentially provide the generous yards and the proximity to natural areas that attract children, and that children need. Unless adults are prepared to recognise that good, or even just adequate, children's environments require compromise on the achievement of adult objectives of convenience or mobility, it is unlikely that *any* approach to urban design or form will, of itself, achieve good children's environments. Generically, however, sense of community appears to be an important ingredient of such environments (Engwicht 1992), and this has been eroded by the modern industrial culture that fosters individualism and deprecates community (Bellah, 1985; Seabrook, 1990, 11; Cunningham, 1996, 91).

This is not to say that the suburb, and especially the detached cottage with its private yard cannot be both good community and good children's environments. The Australian country town or outer metropolitan suburb which developed prior to the advent of mass car ownership was a genuine community and its physical form reflected that community. It was more or less surrounded by open land—farmland or bushland—which helped to

establish a clear boundary to that community. At the centre was the railway or tramline which was universally used and cheap, especially for children. There was an authentic community culture. The schools, local shops, the cinema, local sports teams with genuinely local sporting heroes, were all focal points in that culture. The growing child, exploring in the bush, buying sweets at the corner store, riding the tram or train on longer excursions to the city, the beach or the hills, was always moving in a familiar milieu. Environment and society were understandable and escape from adults was easily and safely achieved close to home. The national political culture was parochial and pro-suburban. Intellectuals, then as now, condemned the suburban ethos as stifling and uncreative, but from the recounted experiences of its children the suburb appears to have been an unusually good environment in which to raise children (Cunningham and Jones 1994). The instincts of ordinary Australians appear to have been sound. Since the 1950s, however, two artefacts—the private motor car and television—have between them strongly influenced changes in the nature of the suburb and particularly to children's play patterns and opportunities.

The effect of the car has been profound. Its heavy demand for land, for both roads and parking, has changed urban form. The open land between and around towns and suburbs has been developed. The so-called 'quarter acre block' has more or less remained, though somewhat shrunken, but its community context has been attenuated. Whereas in the past most employment was local, and that which was not was in the centre of town or 'down the line', the private car now gives the freedom of the city to the job seeker. Teachers, doctors or shopkeepers no longer need to live within the community where they earn their living. Social polarisation, which is always present, now occurs on a scale beyond that of the local community. In North American cities, 'gated communities', where the rich isolate themselves in walled and guarded ghettoes, remote from the general community, are now common. We are also seeing their appearance around Australian cities, and pressure for development of such enclaves can be expected even in provincial cities. Individual residential districts within the city have become more socially homogeneous, although neighbours do not necessarily know each other. Urban districts are neighbourhoods in name only.

Diminishing play ranges and children's mobility
The car has affected the child's lifestyle in both obvious and subtler ways. Ownership and use of cars by most households has made the suburb a large generator of traffic. Networks of heavily used roads are fine-grained, even in residential areas. This poses a major danger to children, who do not develop traffic sense until their early teens. Their potential free range is thus curtailed. The uptake of land for urban development beyond walking range of fixed public transport routes has diminished the availability of happenstance open land even within their limited range. The parks and playgrounds provided by local edict to serve this new development do not adequately substitute for this loss. They are often bland, uninteresting sorts of places. The main objective of their landscaping is to ensure economical maintenance by labour-saving machinery. Municipal councils and authorities, with the possibility of negligence suits in mind, like such places to be open, grassed, and with few if any shrubs, water features or landforms such as cliffs

or gullies, which landforms are particularly attractive to children in their search for adventure.

Perhaps, for children, the most critical effect of the shift to the private car as the main means of transport is the erosion of their *independent* mobility. There is an increasing tendency for the family car to ferry children from place to place in pursuit of adult-directed educational, cultural and sporting activities. This loss of freedom noted by Perez and Hart (1980) and Zill (1984) in North America, Hillman (1995) in the United Kingdom, and Tranter (1993) in Canberra, is obvious in most large and medium sized Australian cities. In Ipswich the data provided by children show that even the bus is a relatively minor mode of transport for the journey to school — seven out of every ten children were driven to school by their parents (Cunningham, Jones et al, 1999). This high level of car-dependence has profound implications for children's independent mobility.

The play ranges in Australian studies quoted above are echoed in studies done elsewhere in the world, and most researchers comment upon this diminishing of children's independent range over time. Parental anxieties about children's safety and the changing nature of childhood are the two most significant influences on children's access to independent play (Valentine and McKendrick 1997). There appear to be many forces at work to cause this. Media reporting of violence against children clearly adds to the perception of fear held by parents. In many places a majority of households either have both parents, or a sole parent, in the paid workforce, giving rise greater incidence of non-parental, and professional, adult supervision of children. There is naturally a fear of legal liability on the part of carers, and children are likely to be accorded less independence at a given age than a stay-at-home parent or guardian might allow. Overwhelmingly, however, decline of children's independent mobility appears to be a function of the rise in popularity of private car transport and the increase of motor traffic on streets.

This decline in children's independent mobility is well documented. A survey conducted over two decades in the United Kingdom has shown a steep decline in the mobility of junior school children in spite of an increase in bicycle ownership (Hillman 1997). A parallel study in Canberra, Australia, has shown a similar and precipitant decline in children's mobility (Tranter, 1993). Girls are suffering more restriction within their neighbourhood than boys (Hart 1979, Moore 1986, Matthews 1987, 1992), and this was clearly evident in the studies by Cunningham and Jones quoted above.

Individual play opportunities, together with children's development of environmental awareness and social interaction, have all suffered because of this declining mobility of children (van der Spek and Noyon 1997). Hillman (1997) found that boys were twice as likely to make the journey to school alone or in company of another their own age than girls, who were more likely to be accompanied by a parent. The freedom accorded by the car has, perhaps, made it easier for adults to maintain social networks. Nevertheless, the quality and frequency of public transport, necessary for the independent mobility of children to explore their broader environment and maintain their own social networks, is reduced as adult usage declines, and travel costs increase. There is also a perception,

exacerbated by sensational media reporting, that public transport is unsafe (Tranter, 1993). The steady increase in motor traffic over the past four decades has reduced the ability of children to use streets safely, and at the same time has reduced the general utility of streets as social places (Appleyard 1970, Engwicht 1992). Children are separated from desirable playspaces by major roads, and safe cycleways are rare.

Effects of the electronic revolution
Television, and the subsequent electronic revolution, has also changed the nature of the child-friendly town or suburb. It has created a generic universal and individualistic commercial culture that transcends local community. As an example of this, high profile sporting teams are no longer genuine city or suburban institutions with local heroes, but commercial enterprises selling their wares in a national or international marketplace. The culture of materialism fostered by television subverts children's developmental needs and subjects them to the commercial imperatives of the marketplace. To a significant extent, television has pre-empted some of the best time available to children for free and independent play. The child is becoming increasingly adult-directed, whether that direction be well intended or merely commercial. The advent of the home computer and a huge choice of electronic home entertainment options through cable and other networks, despite the many benefits these bring children, threaten to further reinforce this adult direction of their lives.

The child's play world

Free play and exploration of the environment, as well as participation in social cultural and sporting activity, is therefore important for both sexes in that development. The city's parklands have a significant role to play in children's environmental explorations, but they are not the only places where such exploration is important. The whole city is, or should be, the child's world.

It is difficult enough to redress gender imbalances in provision of sportsfields, where demand is capable of measurement, and space or time allocation of resources is administratively possible. This may well be a less daunting task than attempting to measure and account for the bias in provision of facilities for so-called free play or passive recreation, which, children themselves tell us is more important than sport. Gender bias in investment in recreational resources is rarely raised as a planning issue.

The advent of child care centres for infants, and long day care for older children has created opportunities for women to forge careers and assert their own independence. Nevertheless, without understanding of the innate needs of children, these institutions could easily place further constraints on the child's capacity for independent play and exploration. The main justification for design and location of child-care centres in Australian cities currently appears to be their commercial prospect (Walsh, 1994). On the other hand if they are appropriately located, designed and managed with consideration of children's needs as first priority, they could be a liberating influence in the lives of those children who are otherwise rigidly confined to the home yard by parental fears for their safety.

After-school long day care is frequently provided in school buildings and grounds. This may not be appropriate in that the logistics of care provision, as well as legal liability, focus attention on adult-directed 'activities'—keeping children occupied and out of trouble—rather than play. These centres should certainly have a domestic rather than an institutional character. Like homes, they should be located in places where children have access to quiet and attractive streets, parks and natural areas. Older children attending, especially after-school and in holiday times, should have freedoms equivalent to those they would enjoy from a parent at home.

Why playgrounds?

When children are under discussion by planners or urban designers the word 'playground' instantly enters the discussion. Playgrounds are an important part of the child's environment, but they cannot provide for all of the child's environmental needs. The playground provided and operated by the local government authority, often, but not always, associated with public parks, is clearly a significant element in the city's pattern of land uses for children aged from three to eight. Children are the main beneficiaries, though parents or guardians who accompany them on their excursions to play also benefit. The school playground is just as obviously important for younger and older children. Children spend of the order of 200 days at school. Up to two hours of each school day is spent within the confines of the school playground. An environment in which young people spend so much time is surely worth serious consideration. Thus, while its cause is passionately espoused by a minority who recognise the importance of planning for children's environmental needs, the playground is not usually one of the more important places in the repertoire of most urban designers or built environment researchers.

Play is now well recognised as an important factor in development of the child's social and intellectual capacities. The classic works of Lady Allen of Hurtwood (1964), Clare Cooper (1970) and Arvid Bengtsson (1973) led to recognition that the playground must go beyond the provision of a few pieces of static equipment and provide opportunities for adventure, free play, exercise of the imagination, and independence from adult manipulation of play time and process. Many researchers, including Iona and Peter Opie (1969), Moore (1986b), Kritchevsky and Prescott (1977), Corkery (1987) and Walsh (1991) have contributed to the debate on the relationship between play and appropriate design of the playground and its composite elements, including the right allocations of space for equipment, free space and nature, so that it better fits the behavioural needs of its young users. Many Lismore and Ipswich children told of the need for suitable equipment for the nine-to-twelves: most playgrounds are designed for the under-eights (Cunningham and Jones 1996, 1999).

Beyond the ardour of playground designers and researchers, who seek this right balance of nature and artifice in the playground environment, are the manufacturers and purveyors of equipment and novelties with their claims for the developmental benefits or educational excellence of their products. Almost any conference on the topic of play and playgrounds is largely sponsored by these industries and their various colourful wares are prominently displayed for delegates. Paediatricians, concerned at playground injuries

reported in their casualty departments, advise on safety standards to minimise risk. Social scientists, ever mindful of current ideological rectitude, advise on the appropriate social milieu to ensure lack of discrimination against any individual or group, while lawyers advocate measures in design and location of playgrounds and equipment to ensure that parents will be unable to blame the community or local authority for even the least hurt or injury sustained by children when using playgrounds. As with many aspects of modern life, the central players in all this — the children — are apt to be forgotten.

As we have seen, town planners develop formulae for the right distribution and sizes of playgrounds throughout the community. Above all, one gets the impression that designers of the built environment have developed the notion that *all* children's environmental needs can be encompassed in the design of the playground. Lismore and Ipswich children gave a more balanced picture of the role of the playground in their play (Cunningham and Jones, 1996 and 1999). In their photographs, playgrounds and play equipment were important but not dominant elements. In their recording of feelings about favourite play spaces, and suggestions to planners concerning improvement of their environment, play on playground equipment ranked well behind other activities.

Most adults, and especially those with some record of achievement in the community, have fond childhood memories of freedom to explore their urban or rural environment with considerable independence, and from a surprisingly early age (Aldrich, 1979, Sobel 1990). Colin Ward (1991,105) describes the ability of city children to explore the metropolis by public transport, or the wonder of urban children exposed to the freedoms of the countryside by wartime evacuation (Ward, 1988, 48-56).

Both the present authors had childhoods which involved freedom to explore both nature and the city. These were perhaps privileged, but not unusual, experiences for children at the time. Similar stories are told of small children independently using the Glasgow tramways to access the countryside of Milngarvie from the central city slums (Liverani, 1978). The playscape, for many children of the mid twentieth century, was the whole city and surrounds, rather than specific parts of the environment set aside especially for children. The playground and its equipment was there, and for most it was a significant, but not overwhelmingly important, part of their playscape. The Ipswich children's responses suggest that the attraction of nature and the urge to explore, not only the natural but also the artificial environment is still part of the drive of children (Cunningham and Jones 1999).

Consulting with children
Perhaps the most conspicuous way that planners have failed children is in their failure to consult directly with children. Where consultation on children's needs is undertaken it is usually with parents, teachers and other adults who are responsible for children, rather than with the children themselves. This is, of course, important, but it assumes that the views of such adults are congruent with those of children. It is not easy, but certainly not impossible, to consult directly with children in the age groups from eight to twelve, and results of such consultation can be very rewarding. There are many ways in which such

consultation can be undertaken to produce valid results, of which a few examples are outlined below.

In Lismore and Ipswich, the authors used several techniques to get much useful information from children, results from which are presented in this paper. Questionnaires completed in the classroom allowed children to express their own opinions on play, the play environment, and things that town planners could do to improve it. Their responses were sensible and modest. Many children were also given disposable cameras to record their play activities in after-school hours and this provided very valuable data on the settings, locations and nature of free outdoor play. It is important to note that, on responses from both children and parents and from independent systematic observation of use of parks and nearby streets, that children were the most numerous users of these areas (Cunningham and Jones, 1996, 1999).

At a conference of the Royal Australian Institute of Parks and Recreation in 1996 children from Gilles Street primary School in Adelaide City themselves made a presentation to the assembled delegates. The class wrote essays on the importance of play and places for their play. We analysed their essays for content, and the data was sent back to the children in both tabular and graphic form. From this they organised and planned their paper themselves with some editorial help from their class teacher. Their presentation, which involved all the children in the class, was forthright, entertaining and informative (Gilles Street Primary School, 1996). Table 4 summarises their conclusions.

TABLE 4. ASPECTS OF PLAY MENTIONED SPONTANEOUSLY IN ESSAYS BY 26 CHILDREN OF GLIIES STREET PRIMARY SCHOOL, ADELAIDE

Attribute mentioned spontaneously in 26 essays	No. of times mentioned
PHYSICAL NATURE OF PLAYSPACE	
Water: (sea, river, creek, swimming pool, taps/sprinklers)	33
Animals: (pets and wildlife)	14
Vegetation: (trees, bushes and grass)	12
Areas for formal and informal sport	18
Hard surfaces for skateboards and skates	10
Play equipment	3
Other physical aspects	7
WHAT THE CHILDREN LIKED TO DO AT PLAY	
Informal games with friends	18
Formal sport	18
Riding bicycles	13
Skateboards and skates	13
Being alone	13
PLACES WHERE CHILDREN ENJOYED PLAYING	
Parks and reserves	17
beach	12
Sports areas	8
Home backyard	8
Indoors	5
Natural bushy places other than parks	4

Source: Gilles Street primary School 1996.

The Blue Mountains City Council used a children's competition to involve children in the more abstract task of visualising the future as part of that Council's current consultation process for the 2025 City Strategy. The children were free to write or draw whatever they felt was important for their city in 25 years time. It was the privilege of one of the authors to analyse the content of 269 entries from the competition. A summary table of the results is presented in Table 3 (Cunningham 2002). The comprehensive nature of the children's visions is apparent from the table, as also is the significance to them of play and natural areas.

TABLE 4. BLUE MOUNTAINS 2025 STRATEGY: ISSUES MENTIONED BY CHILDREN (N0 = 269)

Rank and issue	No	%
1 Cars, personal mobility and traffic	116	43
2 Impact of urban development on neighbourhood and city as a whole	109	41
3 Places for children to play, including parks, bushland and urban streets	98	36
4 Protection of trees and natural bushland	90	33
5 The ability of children to keep pets	73	27
6 Availability of public transport	72	27
7 Pollution of the atmosphere, water, and environment by modern lifestyles	69	26
8 The impact of clever machines and technology on lifestyle	68	26
9 The necessity to use solar energy	55	20
10 Toys, play tools and play equipment #	49	18
11 Water scarcity and the need to conserve water #	37	14
12 The need for houses to have their own backyard #	36	13
13 The impact of crime and need for security in urban areas #	30	11
14 The need to grow food and produce in the home garden #	29	11
15 Environmental damage caused by exotic plants and animals #	25	9

These items were mentioned less uniformly, but were very important to one or more of the sub groups of children (Girls 10-12, Boys 10-12, Girls 7-9 and Boys 7-9).

Conclusion: city planning and children's environments

Given the physical and social changes in urban life and lifestyle in advanced industrial societies over the past half-century or so, it is hardly surprising that these have had repercussions on the lives of children. Many of these changes have indeed been positive for children. Reduction of childhood diseases, generally better nutrition, and more interesting educational opportunities are among the many benefits. Perhaps also the fond memories which articulate adults have of past childhoods are somewhat romanticised and do not necessarily represent the typical experiences of all of their fellows. Nonetheless, it is clear that modern life has, at the very least, eroded the potential independent mobility of children, and, in taking away their freedom to move and explore, may have reduced the potential of children to grow up as independently-thinking adults.

Urban design, and especially the more compact city covered by the rubrics 'urban consolidation' and 'urban containment' as currently advocated, is not child-focussed: indeed many of the ideas currently being promoted are positively anti-child. Katz (1995) notes how the society and culture of metropolitan New York is moving from one that ignored children towards one which positively discriminates against them. It is certainly possible, nevertheless, to envisage neighbourhoods which, while being more compact,

can serve children's needs well. Those needs — privacy, freedom, and access to nature — must be understood by urban designers and all who are involved with planning for children.

The park and the playground is a very valuable and necessary part of the child's opportunity spectrum of play environments, but are we asking too much of it to expect it fill all, or even most, of the many losses in children's play opportunities created by changing lifestyle? Certainly there is much that can be done to understand play and to make the playground a more exciting and imaginative playspace. It does often have to substitute for environments for free play and imagination that previous generations of children could find for themselves. But, if thinking about children's environments has come down almost solely to consideration of the design and location of playgrounds, is that not a confession of failure to include children's needs in the broader perspectives of human behaviour, politics and social change as well as in urban planning and design? Clearly the play environment is much more complex, and embraces the whole city and often enough its nearby countryside as well. The first step in understanding the complexity of play and its demands upon the physical environment is to consult with the children themselves about their needs.

Acknowledgements

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