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Opportunities and Affordances in Outdoor Play

Margaret Kernan

INTRODUCTION

Many would agree that the existence of childhood is inextricably linked to being able to play. In many instances, this is understood as space and time to play outdoors. Why outdoors particularly? The persistent if somewhat nostalgic adult association of a good childhood and play in nature is one factor. But perhaps of more significance are the dimensions of play outdoors, which serve both to distinguish it from being in an indoor environment and to capture its appeal for children, such as its characteristics of being freer and less controlling or restricted; more open to change and variation; sensorially rich; spacious, physically vigorous; less tidy, unstructured; encouraging feelings of capability and competence; and scary, risky and adventurous.

During the first decades of the twenty-first century there has been a noticeable urgency in the manner in which young children's

(lack of) opportunities to play outdoors has been discussed by child advocates, paediatricians, educators, parents and children alike. This discussion is typically framed within changing conditions of childhood globally and with reference to phenomena such as increased urbanization, traffic danger and migration; the proliferation of attractive indoor play technologies; and pressures of educational attainment at ever younger ages (IPA, 2010). Three prominent themes of investigation regarding the 'state of play' outdoors have been: (1) diminished opportunity for movement, specifically freedom to explore and engage in physically active play outdoors; (2) loss of contact and familiarity with the natural habitat and (3) children and risk outdoors. These concerns are also commanding the attention of early childhood education and care (ECEC) researchers and practitioners, especially since increasing numbers of girls and boys worldwide are spending more time in organized ECEC settings.

BROADENING THE PLAY RESEARCH AGENDA

For much of the twentieth century, the majority of play research about children in the early childhood years focused on play in indoor environments and through the analytical lens of developmental psychology, child development and ECEC (Piaget, 1962). However, the combined impetus of public health concerns, such as cardiovascular disease and rising levels of obesity and environmental concerns, such as depletion of natural habitats, along with the conceptualization of play as a childhood right, has resulted in a broadening out of the research agenda on young children's outdoor play. Collaborative work from researchers from the fields of urban planning, public health, landscape architecture, environmental psychology, sociology of childhood, developmental psychology and ECEC has introduced new perspectives to learning and development in the early years.

One result of such interdisciplinary work has been a new focus on interactional and reciprocal relations with the physical and social environment outdoors – sometimes termed a 'socio-ecological' perspective. A central ecological concept that came to the attention of outdoor play researchers is that of affordance. It was developed by perception psychologist James Gibson over many decades and explained in his seminal text *The Ecological Approach to Visual Perception*, published in 1979.

THE ATTRACTION OF AFFORDANCE FOR PLAY RESEARCHERS

When Gibson first coined the term 'affordance', he explained it as follows: 'the affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill' (Gibson 1979: 127). His analysis concerned visual perception of the physical environment in terms of action and exploration. As summarized by Greeno (1994: 339), 'affordance

refers to whatever it is about the environment that contributes to the kind of interaction that occurs'. Thus, flat, uncluttered surfaces afford walkability, objects – depending on whether or not they are detached or attached – afford carrying, throwing, grasping or containing. Crucially, in Gibson's theory, perception of the environment was understandable in terms of both the perceived and the perceiver. For example, a small step, hardly noticed by an adult, might be perceived as sit-on-able or jump-off-able by a two-year-old close to the ground.

In 1988 Heft conducted a meta-analysis of three earlier studies of children's outdoor environments, the outcome of which was a functional taxonomy of affordances in children's outdoor environments. This offered a way of thinking about environments that was fundamentally active and goal-directed (Heft, 1988) and was also relevant for those concerned with supporting young children's physical activity, curiosity, exploration, play and learning. Naturally occurring features (such as shrubs and edging) and designed-in physical features or installations (such as swings and sand pits) of outdoor environments in ECEC outdoor play spaces began to be defined in terms of their affordances and their 'playability'.

As researchers further explored the concept of affordance, definitions, theoretical understandings and applications became elaborated and diversified (see for example Reed, 1996; Stoffregen, 2000; Kypta, 2002, 2004). Whilst Gibson had focused primarily on physical environmental systems, it became clear that when applying the notion of affordance to children's engagement with the physical environment, whether at home, in an organized and institutionalized setting such as ECEC or indeed in public space, it was necessary to take account of the social and cultural world, including child-rearing practices and opportunities and constraints placed on children. Merging ecological psychology with concepts and methods of ethnographic social science offered a promising way forward (Greeno, 1994).

MOVEMENT FOR LEARNING

In the 2010s the importance of physical activity for learning and development is slowly regaining prominence, having been a rather neglected dimension for many decades. Once again, public health concerns may drive the debate, such as evidence showing that physical inactivity is a major contributor to death and disability from non-communicable diseases worldwide (Lee et al., 2012). Babies and young children are primed to be physically active in order to learn and develop. Gains in movement during the first year of life greatly facilitate young children's deliberate and organized exploration of their environment and perceptual learning, and 'upright locomotion demands virtuoso control of equilibrium of the whole body and at the same time opens up the world for exploration of its useful offerings and its geography' (Gibson and Pick, 2000: 48). Other researchers have similarly highlighted the significance of the attainment of unsupported sitting (freeing hands for exploration) and independent walking for babies' and toddlers' perception of the world and the opportunities they have for acting on their environment and receiving input from the environment (Thelen and Smith, 1994; Oudgenoeg-Paz, Volman and Leseman, 2012).

Walking children can carry objects from one place to another and are also better able to direct adults' attention to specific objects, resulting in joint attention, which facilitates the development of communication skills (Clearfield, 2011). An important conclusion of Oudgenoeg-Paz et al.'s (2012) study, which examined the predictive relationship between attainment of walking and the productive vocabulary of toddlers (16–28-month-olds) was that once motor milestones are achieved, children's exploratory behaviour plays a much larger role in language development than the actual attainment of the milestones. These are some of a growing number of studies that are demonstrating the importance of experience of the physical environment in the first

three years of life for the sensory motor coordination and cognitive advances necessary for children to thrive as learners in the early years and later during school age (see also Piek et al., 2008; Goddard Blythe, 2012).

One could conclude that with developing competencies in locomotion, combined with more control of objects and developing communication skills, children's field of experience indoors and outdoors extends, offering a broader world to explore that is rich in information and diverse in terms of affordances for action. However, as observed by Reed (1996), children are generally not placed in a natural environment replete with possible affordances. Rather, often they are 'put in a modified environment in which specific possibilities are emphasized and others are downplayed' (Reed 1996: 124) by adults. Developing this notion, Reed described affordances in terms of the 'field of free action' (FFA) and the 'field of promoted action' (FPA) whereby the former represents an independent, active exploration and striving for meaning, and the latter includes all the affordances 'made available to or emphasized for the child by other people and excludes those affordances forbidden to the child by other people' (Reed, 1996: 130). Therefore, it is important to take into account both fields of free action and promoted action when considering young children's opportunities for physical exploration and movement. Basic housing conditions, the choice of which is certainly outside the realm of young children, also need to be considered.

ASSESSING AFFORDANCES AT HOME

Mindful of the importance of motor development in the early years and the primacy of the home environment as an influencing factor in children's learning and development, Rodrigues et al. (2005) developed an instrument for assessing affordances in the home environment of young children, otherwise known as the AHEDM-SR. It is designed to

measure the quality and quantity of factors (affordances and events) in the home that are conducive to enhancing motor development in children aged 18 to 42 months. It is based on the assumption that toys, materials (for example simple puzzles, shape sorters), play apparatus (for example slides, stairs, tunnels) and indoor and outdoor space afford opportunities for action or physical activity and thus promote fine motor and gross motor development. In a later instrument, AHMED-RD, items relating to stimulation and nurturing by parents (and others) are included, providing an additional component of events. In total, AHMED-RD comprises 67 items divided into 5 subscales: outside physical space; inside physical space; variety of stimulation; fine motor toys; and gross motor toys. Outside space items referred to space associated with the house, such as back yard, front yard, garden – for example, 'In the outside space is there more than one type of ground texture?'; 'In the outside space is there any apparatus or platform that permits your child to climb on/off and step or jump from?'

The validity and reliability of AHMED was initially examined with Portuguese and US families and its validity has subsequently been validated with families of young children attending day care services in Iran (Haydari et al., 2009) in The Netherlands (Burgt et al., 2010) and in Taiwan (Yu-hsin et al. 2011). A second instrument designed for 3–18-month-olds, AHMED-IS, has also been developed (Cacola et al., 2011).

It has been suggested that with further research the AHMED-RD could function as a screening instrument for detecting children at high risk of developing motor problems (Burgt et al., 2010). Its applicability for ECEC practitioners has also been proposed, as a best practice instrument, to guide early intervention with respect to the home environment and to provide insight for practitioners regarding pedagogical aspects of homes of families from different cultural backgrounds (Gabbard et al., 2008). However, the cultural appropriateness of items needs further attention, particularly if AHMED-SR is to be used with more representative populations (low socio-economic

status (SES) as well as mid and high SES) and in non-industrialized countries and cultures. The developers themselves acknowledge this, describing the tool as experimental.

DESIGNING FOR MOVEMENT IN PLAY

Interdisciplinary approaches to studying children's movement outdoors are also evident in the projects of Cosco and colleagues at the Natural Learning Initiative at North Carolina State University, in the United States. Cosco et al. (2010) integrated behaviour-mapping techniques with affordance in order to research the design components associated with increased physical activity. Behaviour mapping is an observational method which allows the simultaneous recording of people's locations and their activity levels. A detailed mapping analysis was undertaken in two ECEC centres, providing insight into how children interact with different aspects of the physical environment.

Two of the areas on which the researchers focused were playground surface and pathways. It was found that the amount of use and level of activity on pathways was substantially affected by surface quality (hard or soft), path width and path form. It was also observed that looped pathways were more interesting for children than linear ones and that typically children are more active on hard and curvy pathways, which afford speed and circular motion – both attractive to children. Cosco et al. (2010) point to the differing priorities of play space designers and children when it comes to surface selection. Typically, safety is prioritized by designers and practitioners, and speed and ease of movement is prioritized by children (see also Sandseter, 2009).

PROMOTING OR CONSTRAINING AFFORDANCES?

Tensions between children's play priorities and the intentions of practitioners within the

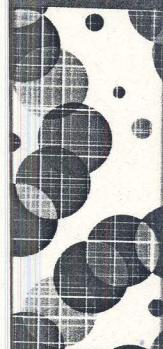
institutional constraints of ECEC settings were addressed in Kernan's (2010) study of outdoor play in ECEC settings in Ireland. Kernan built on the earlier influential work of the Finnish researcher Kyttä (2002, 2004), who had analysed affordances for eight and nine-year-old children in terms of fields of free action, promoted action and constrained action in urban and rural settings in Finland and Belarus. Kernan's study considered the pedagogical relation between adults and children, part of which involves adults creating learning opportunities and environments for play, indoors and outdoors, that engage, challenge and interest young children. Historical and cultural traditions regarding play and learning outdoors, whether services are located with the formal education sector or within the care sector, and regulatory frameworks were also accounted for. Outdoors, as defined in this study, encompassed three interconnecting arenas of action: indoor-outdoor connectedness; the enclosed outdoor space in an ECEC setting; and the wider outdoors. Qualitative fieldwork in four diverse ECEC settings incorporated observation, photography (child and researcher), and interviews with children, practitioners and managers of services. The following analysis relates to one of the settings studied:

The principal argument for the laying of the manufactured safety surface was to facilitate maximum accessibility across time (both seasonal time and the ages and developmental stages of children) and weather conditions. The trade-off was the removal of grass, shrubs, climbers, and overhanging trees. The elimination of these elements reduced the direct contact with nature and the possibility of finding naturally occurring loose parts. On the other hand, it increased the amount of time and space available outdoors in the enclosed outdoor space. In this area, multiple affordances were perceived, actualized and shaped by children. The raised rim around the sandpit and the slide platform afforded balancing and being high up. Boys and girls were often observed creating small hiding spaces, particularly when facilitated by adults who provided empty cardboard boxes, old sheets or large construction blocks (Kernan, 2010: 164).

One of the findings of Kernan's research was that the outdoor environments which young children enjoyed most were often the places where adults enjoyed being with children. Both adults and children were observed to share the delight of observing change outdoors, with joint wonderment and discovery of the 'real' world. Waters and Maynard (2010) have also commented on how the outdoors prompts expressions of awe, wonder, excitement and questioning. Their study focuses on child-initiated interactions on walks to a local country park in a large inner-city school in South Wales.

Waters and Maynard (2010) are amongst a number of researchers who have argued that the quantity of affordances for physical activity (Fjørtoft, 2001), cognitive engagement and social and emotional development for young children (Thompson and Thompson, 2007) is greater in green or natural environments, compared to more traditional playgrounds or built play environments. Here the assumption is that natural environments are sensorially richer, more diverse, flexible, replete with loose parts from nature and have elements which contain fewer predetermined functions. Consequently, play in natural environments is viewed as potentially more complex, extended, free, imaginative, self-determined and 'playful'.

Other studies present evidence of a more nuanced picture regarding natural versus traditional playspaces (Mårtensson et al., 2009; Sandseter, 2009; Storli and Hagen, 2010). In a small-scale study where accelerometers were used to measure levels of physically active play, Storli and Hagen (2010) found no difference in the level of physically active play between traditional playground environment and play in the natural environment, suggesting that environmental diversity may be overestimated as a significant factor to encourage physically active play. The levels of activity of the same children were measured when in the traditionally bounded preschool playground and when they visited wilder natural environments (a stony beach with rock pools, the rugged slopes of hills). Here, the researchers point to individual differences as a



contributing factor – children who had higher levels of physical activity in natural environments were also physically active in traditional playgrounds. Sandseter's (2009) study of affordances for risky play in a traditional preschool outdoor playspace and a natural outdoor playground found a comparable quantity of affordances for risky play (play with great heights, play with high speed, play with dangerous tools) in both types of settings. However, the natural outdoor playground afforded a higher level of risk in children's play.

It is important to acknowledge that both these studies took place in the Nordic country of Norway, where even so-called 'traditional' or ordinary playspaces may afford more challenging and diverse play than traditional ECEC play spaces in other contexts. In the Nordic countries of Sweden, Finland, Norway and Denmark, love and care of nature is regarded as an important part of national identity, and is meant to be learnt during childhood. A certain degree of riskiness is furthermore viewed as being important for development, and there is a high value placed on children's independence and control (Moser and Martinsen, 2010). The ordinary preschool in Sandseter's study had several climbing trees in addition to traditional play equipment such as swings, a slide (switchback) and bikes, and children were free to climb on the roof of the play hut. Of the 117 Norwegian services surveyed by Moser and Martinsen (2010), 70 per cent had climbing trees.

Clearly, cultural factors play a big part in the particular role of nature and risk in early childhood pedagogy in different contexts; many authors have commented on the contrasting approaches to risk and safety in and with nature within Nordic countries, as compared to more risk-averse contexts (New, Mardell and Robinson, 2005; Tovey, 2007).

NATURE AND THE GOOD CHILDHOOD

Geographers, environmental psychologists and health professionals conceptualize

access to nature as a quality-of-life issue for both children and adults and as central to physical and mental health (Louv, 2005, 2011). This is not a new idea; its origins can be traced to the ideas of Jean Jacques Rousseau (1712–1778) and Robert Owen (1771–1858), whose writing coincided with the first wave of industrialization and urbanization. It can also be traced to the subsequent nineteenth-century urban 'project' to provide municipal parks as a means of ameliorating the negative effects of city living (Hendrick, 1997).

By the end of the twentieth century, first-hand experience in and with nature was beginning to be viewed both as a need and a right of children globally (UNCRC, 1989; Moore, 1997) and as central to constructions of a good childhood in many contexts. Furthermore, the importance of early positive experiences in nature was also being linked to concerns regarding the future stewardship of the planet at a time when environmental conservation and sustainable development was gaining global attention. By the 2000s, nearby nature was being proposed as an antidote to violence (Jualla and van Oudenhoven, 2008) and to excessive screen time (Sigman, 2011); as well as an option to soften the blow of abuse and neglect, excessive noise, pollution and traffic in young children's lives (Louv, 2012).

These proposals were given momentum in advocacy and awareness-raising initiatives such as the global World Forum Foundation's Nature Action Collaborative for Children, with members in six continents; the more localized US-based Children and Nature Network (www.childrenandnature.org); and the UK conservation charity The National Trust's 2012 campaign '50 things to do before you're 11^{3/4}', a checklist of 50 outdoor challenges for children. Additionally, young children's direct contact with nature was being given form in the growing number of outdoor preschools and forest kindergartens and schools in the Nordic countries and in Germany, UK, Ireland and the United States.

RESEARCHING CHILDREN AND NATURE

The nature and children initiatives described above were, and are, largely based on a belief that being outdoors in nature positively contributes to children's holistic and healthy development. Although the research base is increasing and the affordance approach facilitates both quantitative and qualitative analyses, empirical evidence incorporating robust cause-and-effect studies demonstrating a link between time spent in natural settings and improved development and learning is scant.

In 2011, Gill took on the task of rigorously examining the empirical evidence regarding the benefits for children of experiences with nature, on request from the London Sustainable Development Commission. It is useful to summarize his findings here. The evidence is strongest for claims about physical and mental health. A small number of robust cause-and-effect studies support the claims for a positive link between spending time in nature and mental health, emotional regulation and motor development. There is also good evidence of a link between time spent in natural settings as a child and positive views about nature as an adult. Furthermore, a lack of regular positive experiences in nature is associated with the development of fear, discomfort and dislike of the environment. A more modest body of evidence points to improvements in the quality of children's outdoor play and in their self-confidence, language and communication and psycho-social health. These studies included those which evaluated the impact of two UK-based Forest Schools (Davis and Waite, 2005; O'Brien and Murray, 2007).

A further challenge when considering children's relationship with nature, whether in public space or within the context of pedagogical relations in ECEC settings, is the contrasting perceptions and experience of nature of adults and children. Whereas adults scan the land for picturesque panoramas,

children are on their hands and knees engaged with what is immediately before them. Thus nature is not some scenic backdrop, but nature's elements are close by, and are responsive to children's exploratory urge (Nabhan and Trimble, 1994). In some contexts, typically the more risk-averse contexts referred to earlier, it is precisely this 'hands-on', whole-body engagement of children with nature outdoors that can be problematic for adults and sometimes children, including concerns about children getting dirty, wet or cold (Corbett and Kernan, 2010). As indicated above, the prioritization of risk management in the design of ECEC outdoor spaces in Ireland in the 2000s (laying of safety surfaces and removal of bushes, plants and grass for fear of hazards), was underpinned by an increasingly litigious culture and perceptions of the 'bad' Irish weather, making it difficult for practitioners to balance children's need to experience curiosity outdoors with the demands of safety regulations, inspections and insurance requirements (Kernan and Devine, 2010).

Another view of contrasting adult and child perspectives on nature is Gulløv's (2003) analysis of forest kindergartens in Denmark, which she describes as being extremely popular amongst middle-class parents living in urban areas. Whilst parents are in no doubt that this is a healthy way to spend one's childhood and 'actively choose this kind of institution and support its values and pedagogical aims, it is not unusual to hear the children themselves complain about the cold, the discomfort and the lack of toys' (2003: 27–8). Contrasting adult and child perspectives on playing outdoors in a Nordic winter are also evident in Sandberg and Vuorinen's (2006) study. As reported by one of the interviewees, 'I don't like to be out in the winter and play because it's so cold outside. At my preschool, the preschool teachers always say that one must be outdoors, but we children don't like it' (2006: 13).

A possible compromise which offers regular exposure to nature, but not at the same

intensity as the all day, every day version advocated in the original forest schools, is that which is envisaged in the UK Forest School programme. Here, Forest School takes place within timetabled school sessions in regular preschool and primary schools, whereby children access woodland sites in either the school grounds or the local neighbourhood. Typically, this might take place once a week or every two weeks (O'Brien and Murray, 2007; Ridgers et al., 2012). Such a scheduled visit to nature is also advocated in the Outdoor Learning Project in South Wales reported on earlier, where inner-city schoolchildren spent an afternoon four times a year in a local country park containing 'a wooded area, open scrubland, grassed space, puddles and swampy ground, trees and panoramic views' (Waters and Maynard, 2010: 477).

The timetabled Forest School programme described in Ridgers et al.'s (2012) case study included the ubiquitous wilderness and nature activities: building shelters, cooking on camp fires and identifying plant and wildlife, all reminiscent of the elemental experiences of humans. According to Hughes (2001), these are essential experiences for children to connect with the physical and natural environment. However, it is also important to remember that playing in nature doesn't need to happen 'out there' in a forest or 'wilderness'. Nearby nature, in the marginal green areas of housing estates, in city gardens or in a single tree with low-lying branches or a messy area in an ECEC setting which affords hole-digging, can be equally valuable for young children's connection with their environment.

EQUAL OPPORTUNITIES FOR GIRLS AND BOYS OUTDOORS?

The final topic which will be briefly addressed in this chapter concerns equity in opportunities for girls and boys outdoors. The tendency to refer to children in the sexless neutral when writing about outdoor play, as if both sexes

have the same experiences and opportunities to play outdoors, is noteworthy. However, from about age one, it is possible to observe differences in boys' and girls' level of movement, in their play preferences and priorities and in the ways in which girls and boys use outdoor space in early childhood settings. For example, boys' preference to be outdoors and their tendency to make more active choices and use more space than girls have been demonstrated in a number of studies (Henniger, 1985; Dunn and Morgan, 1987; Pellegrini, 2005).

It is widely acknowledged that both biology and socializing effects have a part to play in these differences (Maccoby, 1998; Eliot, 2009). However, a key question arising is whether girls and boys have equal opportunities to benefit from playing outdoors. If boys have a larger action radius, move more from one place to another, have they therefore the opportunity to discover more? Nabhan and Trimble (1994) have referred to the cultural barriers and fears that keep girls from natural spaces, which in turn lessen girls' opportunities to develop competence and a sense of control outdoors. They argue that girls receive little positive reinforcement for climbing trees, digging or turning over rocks. Furthermore, in many contexts worldwide, girls also have restrictions placed on their opportunity to play outdoors because of greater responsibilities at home with respect to domestic chores and care of younger siblings. They are also more restricted due to fears of kidnapping, trafficking or sexual exploitation (IPA, 2010).

MacNaughton (2006) argues that gendered power structures in preschool are not challenged enough. A similar finding is reported by Årlémalm-Hagsér (2010), who comments on the challenges in operationalizing the national curriculum policy in Sweden with respect to gender inequity in a context where the outdoor environment was initially viewed as a gender-neutral zone and the concepts of gender role and gender pattern were interpreted by practitioners as unclear and difficult to explain.

Whilst many of the affordances studies cited in this chapter included both boys and girls in their samples, only a few have specifically analysed actualized affordances as a factor of being a girl or a boy. In contrast to what might be expected given earlier findings, Niklasson and Sandberg's study (2010), which involved 103 three to nine-year-olds in 71 preschools and schools in Sweden, found comparable levels of perceived and utilized affordances amongst girls and boys. Girls in the seven–nine-year-old age-group had the highest levels of utilized affordance overall. Child interviewees, in this study, were taken on adult researcher-led walking tours of the service during which the children recorded on a recording sheet their perceptions of the outdoor environment in terms of affordances whether or not they agreed with the guide, that is, perceived affordance. The same children were then observed during play to assess utilized affordances. One conclusion could be that Swedish practitioners have similar expectations of what girls and boys should experience outdoors, reflected perhaps in the overt gender-neutral zone of Swedish preschools reported by Årlemalm-Hagsér (2010). A second conclusion may be that there is a close match between the affordances taxonomy for children's play outdoors (Heft, 1988; Kyttä, 2002) and preschool teachers' intentions for outdoor play in Sweden. These affordances are promoted to children in the design of outdoor spaces, the available materials and the organized activities. The one exception in this respect is water, which featured considerably less amongst both perceived and utilized affordances for both boys and girls and for all age groups studied (Niklasson and Sandberg, 2010).

CONCLUSION

The concept of affordance has proved to be a powerful tool in gaining insight into young children's engagement with their environment. The benefits of affordance as a research approach are that affordances are objective,

real and physical, and they address the complementarity of the perceiver and the environment. For this reason, affordances have been attractive for play researchers: they open adults' minds to what it is about the topology of the environment and its contents, whether natural or human-made, that engages girls and boys of different ages. When parents and practitioners can put themselves in the shoes of young children and perceive affordances of environments from children's points of view, shared moments of discovery and learning are possible. The same applies to interactions between children. When child players are able to perceive affordances for other child perceivers, joint interests are discovered, the fun of playing together becomes possible and peer relationships are strengthened, not to mention the possibilities of adventure and discovery. It is important to stress that these two kinds of relationships are very important in ECEC settings (Kernan et al., 2011) and opportunities and affordances are central to both. Furthermore, researching utilized affordances along with perceived affordances allows a critical analysis of the kinds of play behaviours outdoors that are promoted and constrained by the adult world. Such a reflective exercise could also be undertaken with children, parents, practitioners and policy-makers as part of a collaborative process to assess the quality of play opportunities children have outdoors.

The synthesis of affordances research as applied to play provided in this chapter has pointed to some gaps in the literature. In addition to the highlighted need to differentiate between girls' and boys' opportunities outdoors and to challenge inequities, it is noteworthy that the majority of studies are focused on contexts where most children are materially secure (Northern and Western Europe, North America). There are small pockets of affordances projects in other parts of the world, such as the work of the research group in Universidade Metodista de Piracicaba in Brazil, as well as research conducted in Malaysia and reported in the proceedings of

the Asia Pacific International Conference on Environment-Behaviour Studies (e.g. Said, 2012). To date, most of the cross-cultural research on affordances and opportunities for outdoor play has focused on children in their middle childhood years (e.g. the Growing Up in Cities project and the IPA Global Consultation on Children's Right to Play; IPA, 2010).

According to Iltus (2012), politicians, the general public, funding organizations and academics fail to realize the strong link between the physical conditions in which children grow up and their health and development. This chapter has highlighted the importance of physical activity and exploratory play indoors and outdoors in the first years of life for learning and development. Clearly there is much scope for diversifying affordances research to include attention to the affordances and opportunities in environments for babies, toddlers and preschool-aged children growing up in lower- and middle-income countries. This is particularly important at a time when ECEC is globally becoming recognized as the first stage of education. A call for more causal research illuminating the natural environment's role in reducing stress in young children's lives and enhancing learning and development worldwide has also been noted. A further area of diversification concerns the opportunities for young children with disabilities to play outdoors.

A small number of PhD studies suggest promising ways forward (Herssens, 2011; Hussein, 2012) and merit further development. In both these studies, attention is drawn to the touching, feeling, hands-on, manipulatory and action-oriented value children place on their environments, which is central to the affordances approach. To conclude, it is worthwhile emphasizing the resilience of children, their play and how they interact with their physical environments, wherever they are. As we are reminded by Kuschner (2012: 104), 'history shows us that that the life force of play is difficult to extinguish'.

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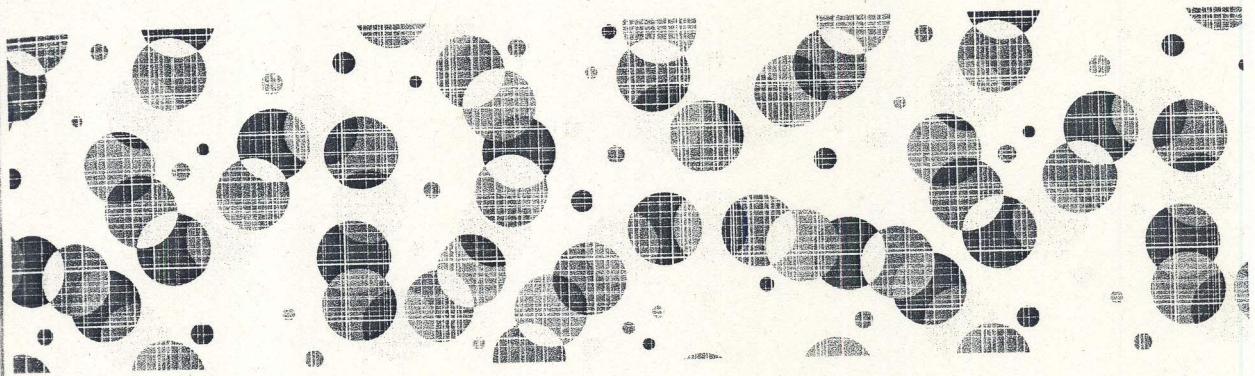
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