



# Young children's and adults' perceptions of natural play spaces: A case study of Chengdu, southwestern China



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## ABSTRACT

Urbanization has resulted in children in many cities being separated from contact with nature, despite the many benefits that this can provide for play and learning. Influenced by research and practice from the 'west' there is increasing evidence that in recent years these benefits for young children are being acknowledged and expressed in policy and practice in China. Chengdu, a rapidly expanding city in the south-west of China, has playgrounds in public spaces dominated by the Kit, Fence, Carpet approach but also has some kindergartens with a more natural approach, which supports a higher play and educational value. Nothing is known of parents' perceptions of different approaches to the provision of playgrounds and this paper seeks to begin to fill this gap. It reports on research with parents and young children at two kindergartens in Chengdu that sought to understand parents' perceptions of different playground styles, aesthetics and play risk associated with the different styles and children's perceptions of different playground styles. The results of an on-line questionnaire revealed that over 87% of the parents understood and recognized the benefits of natural elements within a playground. Vegetation and water were the most popular elements followed by sand and stone, landform and then insects and small animals. Physical and creative developments were the two most recognized development functions of natural elements acknowledged by the parents. Images of different playground styles were used with both adults and children and revealed that both groups tended to select a natural style with parents more inclined to select a higher degree of nature than children. Parents also considered that more natural playgrounds to be of low risk and attractive to look at. Two policy changes in China make this work of great significance: the change from one to two-child policy and the introduction of a natural education approach. The resultant increased numbers of children in future will benefit if the positive findings of this research inform policy and practice.

## 1. Introduction

### 1.1. Introducing the relationship of children and nature

The importance of nature for children's play, development and being as individuals is increasingly acknowledged by a growing body of international scholarly literature, in particular from North America, Europe and Scandinavia (Lester & Maudsley, 2007). Children enjoy playing with and using natural elements (Titman, 1994) and educationalists put great value on learning from direct experience of nature (Fjørtoft & Sageie, 2000; Malone & Tranter, 2003). Benefits for children accessing natural environments (Lester & Maudsley, 2007) can include increased confidence, independence, development of motor skills and reduction of symptoms of Attention Deficit and Hyperactivity Disorder (Fjørtoft, 2004; Grahn, Martensson, Linblad, Nilsson, & Ekma, 1997; Murray & O'Brien, 2005; Taylor, Kuo, & Sullivan, 2001; Wells & Evans,

2003). The availability of nature can also improve language and collaborative skills, foster more imaginative and creative play (Fjørtoft & Sageie, 2000; Moore & Wong, 1997) and advance an individual's intellectual, emotional, social, spiritual and physical development (Kellert, 2005). In China little evidence exists about the relationship of children and nature but there is a suggestion that contact with insects and small animal habitats can contribute to emotional development (Wang & Liu, 2015), an aspect not identified elsewhere in the world.

### 1.2. Playgrounds: an opportunity to reconnect children with nature?

Across the world urbanization has resulted in higher density housing, increased transportation, industry, associated pollution and changes in technology. These environmental and technological changes have been accompanied by a reduction in children's independent

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mobility and associated contact with nature as identified in cities such as New York, USA (Gaster, 1995); Newcastle, Australia (Tandy, 1999); Amsterdam, Netherlands (Karsten, 2005); Brumunddal, Norway (Skår & Krogh, 2009); Tokyo, Japan (Kinoshita, 2009) and Sheffield, England (Woolley & Griffin, 2015). Such separation from nature thus denying children the benefits of contact with nature already discussed.

In some cities urbanization has also been accompanied by the development of playgrounds in which society deems it suitable for children to play, sometimes with the expectation that children should only play in such designated spaces and not elsewhere. Playgrounds can be built to replicate natural environments (Greenman, 1993; Wardle, 1995) providing opportunities for children to reconnect with nature with a positive therapeutic benefit for children's development (Cosco & Moore, 2009). However, in many situations this does not happen and playgrounds are often of the Kit, Fence, Carpet approach (Woolley, 2007, 2008) where a range of fixed play equipment (Kit) is surrounded by a Fence, rarely designed in a creative or playful way and where the ground surface consists of a rubber Carpet which is both expensive and of little play value.

### 1.3. Defining a natural playground style

A natural playground can be understood to include elements such as landform, vegetation/trees, natural materials (e.g. stone, water, sand, bark, moss, leaves, mud, logs, fruit, sticks) and moving/loose parts (Woolley & Lowe, 2013). In China this more natural style of playground is understood to use landform and naturalistic planting (Wang & Liu, 2015). The research reported here uses the four commonly recommended natural elements suggested by Chinese researchers together with one more recent suggestion: vegetation, landform, sand and stone, water, insects and small animal habitats (Wang, 2009; Hu & Zhang, 2009; Wang & Liu, 2015). A continuum of approaches from a Kit, Fence, Carpet to Composite and Natural approach to playgrounds was identified by Woolley and Lowe (2013) and this research takes that continuum further by suggesting different degrees of Natural and Composite styles of playgrounds according to the elements contained within them.

### 1.4. Development functions of children's play

The play value (Woolley & Lowe, 2013; Jenkins et al., 2015) of a space can be derived from its ability to maximize a child's developmental functions and opportunities for different types of play (Woolley & Lowe, 2013). Five developmental themes have been identified as environmental, physiological, creative, educational and social (Heseltine & Holborn, 1987). Five development aspects of children play: physical faculties, creativity, sociality, sensitivity and readiness to challenge have been suggested by Senda (2012). Czalczyńska-Podolska (2014) proposed that to function effectively as a play environment a playground should be built supporting physical, social, emotional, and cognitive development. Woolley and Lowe (2013) further interpreted that physiological development helps both sensory and motor function which contributes towards creativity and suggested four types of play: environmental development, physiological and creative development, educational development and social development. Based on these research findings five developmental types were identified: physiological development, educational development, emotional development, social development and creative development. These were adapted to five, more understandable, terms for use in the questionnaire for this research: physical strength, intellectual development, sensitivity and sympathy, social and communication development and creativity.

### 1.5. The value of natural elements for early childhood play and education

Some have addressed how children's play and development can best be accommodated in outdoor environments for early childhood play.

Seven Cs are considered as key to such outdoor provision: character context, connectivity, change, chance, clarity and challenge by Herrington and Lesmeister (2006). Others acknowledge that outdoor environments can provide a crucial pedagogical setting for early childhood and that diversity of landscape elements such as vegetation and topography provide a stimulating and varied play environment for young children. This positively affects the range and levels of physical activity and supports the motor development and fitness of young children (Fjørtoft, 2004; Fjørtoft & Sageie, 2000). Topography, slopes, steps, terraces and other level changes increase the affordance for movement and play potential and provide great provocation for use of the body (White & Woolley, 2014). For young children, it is particularly essential to have materials, resources and equipment, such as sand, water and vegetation, that are 'open' (Prescott, 2008), versatile, adaptable and responsive to whatever the child wants to do. These elements also provide the supportive characteristic of 'softness' which can meet the rapid change of energy level of young children (Prescott, 2008). Providing a sense of control and empowerment or agency and security is also critical to make a good experience of outdoor play space for young children (White & Woolley, 2014). Outdoor spaces with such provision reflect the natural playground style already discussed.

### 1.6. Policy changes in China

China has urbanized rapidly during the last 50+ years with cities expanding at rates not experienced in other parts of the world. During this time children's outdoor play spaces supporting contact with nature disappeared (Fu, 2012). The first children's playgrounds appeared in Concession Park in Shanghai in the early 1900s (Zhang, Liu, & Li, 2012). Research on children's play spaces in China started in the 1990s, compared to other countries where such research started in the 1900s (Han, Sternudd, & Zhao, 2011). In recent years there is evidence that the importance and contribution of nature for children's development is increasingly recognized in China, largely as a result of the introduction of western nature education concepts (Dou, 2012; Sun, 2015; Wang & Liu, 2015). One expression of this is a China Nature Education Forum with the theme of 'promoting the diversity of natural education and social participation', held in 2014 and 2015. Another expression is the *Kindergarten Working Guidance* of 2016, published by the National Education Council. This requires all kindergartens to make full use of natural elements, such as sunlight, air, water, and local natural environments to promote children's physical activity. In addition, the first national nature education text book *Have Our Own Nature School* was published with support of the Ministry of Environmental Protection in March 2016.

Another policy change is from a one child policy to two-child policy in January 2016. The annual new birth population of China is predicted to increase from 2.3 million to 4.3 million, so the total new birth population from 2016 to 2020 is estimated to be 18 million (Wang, 2016). There will be a resultant increased demand for children's education as parents, particularly in urban areas, pay increased attention to the quality of their children's education (Li, 2015).

Only a few publications about young children's outdoor environments in China can be found in Chinese journals, non in international journals. This is therefore the first article on this subject in an international journal. In addition no literature has been found that explores parents' perceptions of different styles of playgrounds. The present research aims to explore two issues. First to provide an initial understanding of the perception of natural style playgrounds by parents and children, and second how to appropriately incorporate this approach into design in order to meet children's needs. To do this the following questions were posited:

- 1) What is the perception of parents towards natural style playgrounds?
- 2) What is the difference between young children and parents' towards

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