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Space, people, activity and time: A theoretical model for understanding children's outdoor play with specific reference to the historical protected central areas of Beijing, China

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Abstract

Aiming to document children's daily outdoor play experiences in a rapidly developing urban environment, this research is based on a case study involving children living in the central Shichahai area in Beijing to provide an understanding from the scarce Chinese perspective. Based on the development of the SPIT model, this study proposes the SPAT model and investigates its subject from dimensions of space, people, activities and time. This study employs a qualitative triangulation approach to investigating childhood experience, using data collection methods including interviews, observations and diaries. This data record the children's outdoor play experience and its analysis addresses the lack of knowledge and understanding of childhood play experience in Chinese cities. The factors which have a profound influence on children's play experience in a developing urban contexts are discussed and interpreted in terms of a range of factors which have influenced the transformation of the urban environment, including economic development, policy implications and cultural traditions. Based on the insights from this evidence, this study offers recommendations that

the SPAT model provides a mechanism for exploring children and their experiences of outdoor environments in different contexts which has a strong adaptation to various contexts.

KEYWORDS

children, China, constructed, flexible and found space, outdoor play

INTRODUCTION

Children's freedom to play and explore the outdoor environments of cities has been reduced over generations in many parts of the world. This includes evidence from New York in USA (Gaster, 1991); Newcastle in Australia (Tandy, 1999); Netherlands (Karsten, 2005); Brumunddal in Norway (Fyhri & Hjorthol, 2009; Skar & Krogh, 2009); Tokyo in Japan (Kinoshita, 2009); Sheffield in the UK (Woolley & Griffin, 2015) and Finland (Kytta et al., 2015). Analysis of this freedom to play and explore has identified four dimensions where there has been a dramatic reduction over generations: the types of outdoor spaces visited, the number of companions for play, the number of activities undertaken and the distance travelled (Woolley & Griffin, 2015). Reasons for these reductions include increasing car ownership and working parents (Whitten et al., 2013), parental concerns about neighbourhood safety (Kimbro & Ariela, 2011; Hand et al., 2018), the changing opportunities in outdoor environments (Kytta, 2002, 2004) and in some instances increasing time spent in front of television and computer screens (Kimbro & Ariela, 2011). Two of these reasons are not new with concerns about increasing traffic existing since cars were invented and time in front of televisions in the 1980s (Moore, 1986). These reductions in freedom to play have occurred in the changing context of the built environment, demography and technologies (Karsten, 2005) over the approximately 100 years covered by the existing research. This implies that societies do not deem children's outdoor play to be important despite the United Nations Convention on the Rights of the Child (United Nations, 1989) asserting that every child has the right to rest and leisure and to engage in play and recreational activities.

Existing research about children and their experiences of outdoor environments is mainly set in the context of North America, Europe, the UK, Scandinavia and Australasia. Very little has been researched and published in international journals about the experiences of Chinese children, which is a significant omission in light of the rapid urbanization that China has undergone in the last 70 or so years. The innovative research reported in this paper will begin to address this gap in knowledge by reporting the findings in the context of Beijing, the capital city of the People's Republic of China. Uniquely, the study focuses on the Shichahai area on the northern side of the Forbidden City and within the second ring road. For over 800 years, this area has been the central area of the capital city and for 30 years has been protected by the Historical District Preservation Plan. Given the overwhelming trend of rapid urban development, this ancient inner-city area seeks equilibrium in the conflict between development and conservation (Wang et al., 2012). In any city, the specific environmental, social, political and cultural contexts of the surrounding environments can influence children's outdoor experiences. This is particularly so in the study area with its rich historical and cultural context and changing physical and social environment which make children's daily play experiences

distinct from children growing up in other cities, either in China or overseas. This research addresses the following questions:

- Where do the children play?
- Who are the people children play with or who accompanies children's outdoor play?
- What do children play?
- When and how long do children play outdoors?

THEORY: DEVELOPMENT OF THE SPACE PEOPLE ACTIVITIES AND TIME (SPAT) FRAMEWORK TO UNDERSTAND CHILDREN'S OUTDOOR PLAY EXPERIENCES IN CITIES

Dimensions for understanding children's outdoor play experiences

Children's outdoor play experiences play a pivotal role in their physical, cognitive and social development. Research in this area has expanded to uncover the multifaceted dimensions of children's play. Key elements in children's play experiences include having access to play spaces, designated playtime, playmates and engaging play activities. These elements are central to understanding children's outdoor play experiences.

The significance of play spaces is particularly influential in shaping children's play experiences (Valentine, 2004). Scholars in children's geographies, such as Valentine, argue that the physical characteristics and design of play spaces significantly impact children's outdoor play experiences. This emphasizes the critical role of physical environments in shaping children's play experiences. Building on the idea that children can play in diverse settings (Lester & Russell, 2008; Matthews & Limb, 1999; Opie & Opie, 1969; Woolley & Kinoshita, 2015), children have reported various spaces as their preferred play areas. To categorize these spaces effectively, various theories have been developed. These include concepts like 'territorial range' (Moore & Young, 1978) to describe social and psychological constraints on children's outdoor play space and time; 'free range' (Hart, 1979) to describe adult supervision conditions during children's outdoor play and "affordance"(Kyttä & Otamedia), 2003) to evaluate the quality of space. These spaces can be classified into two main types based on their intended purpose and design (Woolley, 2015).

Furthermore, Moore (1986) reminds us that interpersonal relationships can either enrich or inhibit childhood play experiences. Interactions with peers, caregivers and others can either enhance or restrict play experiences (Moore, 1986) while Valentine (2019) underscores the influence of sociocultural factors, including gender and ethnicity, on children's outdoor play experiences. This emphasizes that social factors are just as pivotal as physical settings in shaping childhood experiences. Therefore, understanding children's interactions with their immediate social environment, including family, friends, neighbours, teachers and even strangers, becomes crucial. John McKendrick's research adds another layer to this understanding by examining the impact of socioeconomic factors on children's access to high-quality play spaces, highlighting how disparities in income and resources can exacerbate social inequalities (Mckendrick, 2004).

Regarding play activities, children engage in play in diverse settings and with various objects. While the concept of play is intuitive, providing a precise theoretical definition is challenging.

Sutton-Smith's notion of the 'ambiguity of play' (Sutton-Smith, 1997) underscores this complexity. To address this ambiguity, Sutton-Smith proposes seven rhetorics of play, each describing play from the different angles of progress, fate, power, identity, imagination, self and frivolity. Additionally, Roberts and Sutton-Smith classify games into three categories based on the determinants of competition results: games of physical skill, strategy and chance (Roberts & Sutton-Smith, 1962). In contrast, the Opies' system, based on observations of children's play activities in the UK from the 1950s to the 1980s, categorizes children's games into 12 types, including chasing, catching, seeking, hunting, racing, duelling, exerting, daring, guessing, acting and pretending games (Opie & Opie, 1969). While the Opies' system is practical for describing and recording children's play activities, it has been criticized for its level of detail when dealing with limited data (Bishop & Curtis, 2001).

Additionally, the time children allocate to play is a crucial factor in their overall play experiences. To gain a comprehensive understanding of children's activities, it is essential to document their daily routines, with particular attention to playtime. A typical child's daily routine includes play, reading, mealtimes and bedtime (Ferretti & Bub, 2014). For example, in the 1970s GUIC research projects, children in Melbourne adhered to structured routines, involving school, homework and television on weekdays, with limited free time spent either outdoors, in their rooms, or at friends' homes (Lynch, 1977). Recent research highlights that reduced outdoor playtime can have implications for children's physical health, as less outdoor time corresponds to decreased physical activity and increased sedentary indoor activities, potentially contributing to childhood weight gain (Sijtsma et al., 2015; Stone & Faulkner, 2014).

Development of the SPAT model

To comprehend children's daily play experiences within their surrounding environments, many studies have focused on specific aspects such as the types of spaces children use, their various play activities and their companions (carers or friends) during outdoor play or travel. While these single-perspective approaches provide in-depth insights into particular issues, they do not offer a comprehensive understanding of the complex context of children's play experiences in their daily environments. Such approaches often lack a broader consideration of spatial, social and cultural contexts. To address this gap, we propose the theoretical Space, People, Activities and Time (SPAT) model for play, offering a more holistic understanding of children's play experiences and the context in which they occur.

The SPAT model builds upon the SPIT model (Space, People, Intervention and Time), which was initially used to analyse children's outdoor play spaces in post-disaster areas in Japan (Woolley & Kinoshita, 2015). In adapting the model for a non-post-disaster context, the SPAT model replaces the 'intervention' dimension with 'activity', as suggested by both the literature, especially Senda (1992), and our fieldwork.

Within the four dimensions of Space, People, Activities and Time, various research concepts can be applied. To understand children's use of physical environments, we employ the concept of constructed and found space (Woolley, 2015), adding a category of flexible space based on our research findings. The role of people is considered in the context of interactions between children and their surrounding playmates and caregivers. Play and play-related activities in childhood are described by examining the content of children's activities. Lastly, we explore the time children allocate to play in their daily routines (Figure 1).

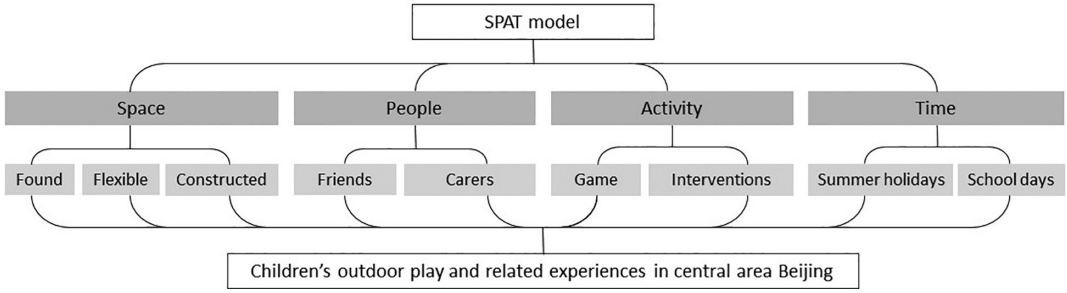


FIGURE 1 The SPAT model and its contents.

METHODS

Methodological approach

This research adopts a qualitative research approach, employing a case study methodology to delve into the life experiences of a specific group of children and their interactions with their surrounding environment, utilizing the Space, People, Activities and Time (SPAT) model to offer a critical Chinese perspective on children's outdoor play experiences, particularly within the context of rapid urban development. As part of the flexible qualitative research approach, the data collection strategy underwent continuous refinement, especially during the pilot study phase. For the main study, the predominant data collection strategy involves the synthesis of various qualitative methods, including interviews, observations, diaries and the utilization of data archives. The utilization of these diverse data collection methods offers a dual advantage. First, it ensures data triangulation, where multiple data collection methods complement and reinforce each other, enhancing the overall validity of the research findings (Yin, 2014). Second, the combination of data gathered through different methods creates an evidence chain (Yin, 2014), facilitating a more comprehensive and nuanced understanding of the complex social phenomenon under investigation. This multifaceted approach to data collection is essential for capturing the intricacies of children's outdoor play experiences within the rapidly changing urban landscape.

Data collection

The fieldwork was conducted on two separate occasions, during the summer of both 2016 and 2017, in Shichahai, Beijing. These data collection efforts utilized a combination of interviews, behaviour mappings and diaries. Each round of data collection was independent and distinct, organized differently to suit the specific data collection methods.

Interviews

Interviews served as the primary data collection method and were conducted with the assistance of the local residents' committee by visiting local families. These interviews were conducted with children, aged 6–13, using various approaches, including one-to-one interviews, focus groups and the photo-voice method. This diverse approach allowed for accommodating children's

varying levels of comprehension and developmental stages. For the dominant group of children aged 6–9, one-to-one interviews were carried out to ensure that each child could independently express their opinions. For older children aged 10 and above, focus group interviews were conducted when multiple children expressed a desire to be interviewed together. Additionally, interviews were conducted with adults, offering valuable descriptive and interpretative insights into their children's daily lives from the perspectives of adults. In total, during the field research, 131 children (68 boys and 63 girls), 15 parents (12 mothers and 3 fathers) and 5 grandparents (3 grandmothers and 2 grandfathers) participated in interviews. The participant profile is attached in Appendix A.

Behaviour mappings

Behaviour mapping was systematically conducted at Shichahai Children's Park to assess children's behaviour in relation to the physical characteristics of the play environments, following an organized approach (Cosco et al., 2010). This mapping process collected key information, including children's play activities, caregivers' activities, the spatial location of these activities and the general environmental context. Mapping procedures lasted for 10 min in the park, with each child's play activity recorded once during the recording time. The process was repeated every 15 min and spanned 2 h each day over 6 days in July 2017. In total, data were collected from 404 children and 334 accompanying adults, comprising 219 parents and 115 grandparents.

Diaries

With the aim of recording children's daily activities, the research used a diary, a method borrowed from the research tradition of time budget studies, in which the main research objective is the way individuals allocate their time to different activities (Plewis et al., 1990; Szalai, 1972). The diary was organized in the format of daily activity logs, asking children to record their activities in each of the individual 24 h on an ordinary summer holiday, with help from local primary schools. In total, 70 valid diary forms were completed and collected from the field research, with 29 boys and 41 girls responding.

Data analysis

The data analysis strategy for this research unfolds in two distinct stages. First, descriptions of children's outdoor play experiences were developed within the framework of SPAT, which encompasses Space, People, Activities and Time. These descriptions were generated by examining the contextual data, incorporating the social, environmental and cultural background. This 'ground-up' approach (Yin, 2014) enables a comprehensive understanding of the phenomena and the underlying processes that shape childhood play experiences within the central areas of Beijing.

For the data collected during field research, including interviews, observations, diaries and data archives, are presented in various formats such as texts, photographs, maps and colour-coded tabulations. To analyse the qualitative data, which encompasses textual information (interview transcriptions, written descriptions and archives) as well as visual data (photographs captured by

both the researcher and children, along with historical maps), a coding process was employed in NVivo. This coding process helps extract meaningful themes and provides insights into the data, fostering a deeper understanding of the subject matter. Furthermore, special-related mapping data obtained through behaviour mapping and the coded tabulations recorded in diaries were visualized using ArcGIS. This visualization enhances the presentation of spatial and quantitative aspects, contributing to a more comprehensive and accessible analysis of the collected data.

Ethics and language

Prior to commencing data collection, the entire field research procedure underwent review and received approval from the Ethics Committee of the Department of Landscape Architecture at the University of Sheffield. The researcher underwent training before formally collecting data. Informed consent was obtained from all subjects involved in the study. Additionally, the local government also granted approval for the data collection. Furthermore, all the data collection was conducted in Mandarin. In particular, the interviews were conducted and transcribed in Mandarin, then translated into English by the researcher (first author) during the period of the data collection.

RESULTS

The environmental and social context of the Shichahai area

Shichahai lies within ring road 2 and to the northwest of the centre of Beijing, outside the Forbidden City and close to the Zhongnanhai State Council. As a historical place, the Shichahai area is an official administrative division within which different areas hold multiple folk narrations for longstanding local people. Taking the boundary of the administrative division, field research was conducted in seven street committee areas within the Shichahai sub-district in Xicheng District. Xicheng District is famous for its rich historical figures and cultural heritage and the history of its urban planning can be traced back to the Ming Dynasty in the 1400s. Through the turbulent history of regime change these historical constructions have experienced repeated destruction and reconstruction.

In Shichahai the population surged in the 1970s, due to domestic migration, created a high demand for living space. In response, a Historical District Preservation Plan was implemented two decades later to safeguard the historic city fabric. This plan restricts new construction and the demolition of old buildings. As a result, the area's historical evolution reveals a denser city centre with buildings from different eras (see Figure 2). Notably, older private constructions dominate the historic area, while illegal private structures fill gaps in the crowded hutongs and courtyards (see Figure 3). This densification has significantly reduced outdoor spaces. Traditional courtyards, once private family outdoor areas, have dwindled in size due to room expansions and storage. Simultaneously, hutongs, serving as public spaces, have narrowed due to private construction and parking demand. The scarcity of space for outdoor activities is a direct outcome.

Despite the absence of high-rise buildings, Shichahai is one of Beijing's most densely populated areas, with 300–400 people per hectare. The conflict between constrained construction and space demands has contributed to this density. Additionally, the presence of the Forbidden City, a major tourist attraction with 19 million annual visitors, adds to the congestion. However, amidst

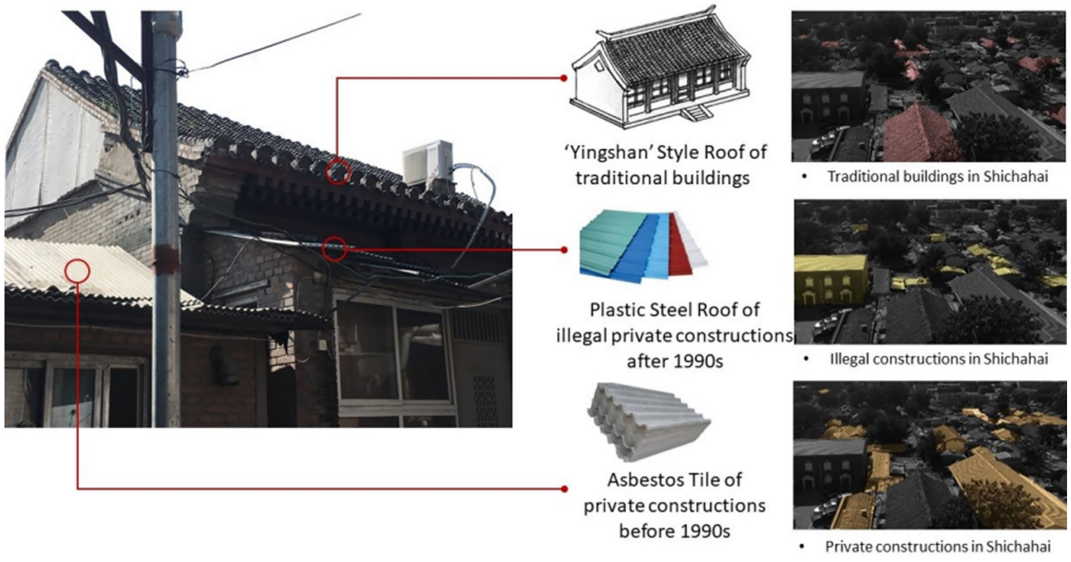


FIGURE 2 Three types of buildings with different construction histories.

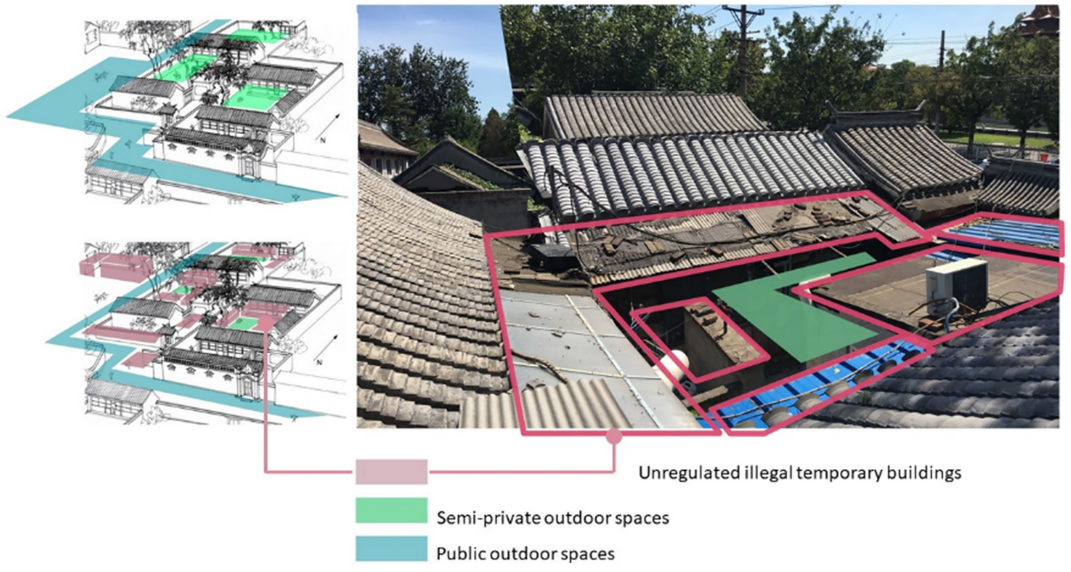


FIGURE 3 Changing of courtyard house outdoor spaces.

the hustle, Shichahai boasts two large urban parks, Beihai (70 ha) and Jingshan (23 ha), and a smaller street park, Shichahai Children's Park (0.07 hectares). Unlike the touristy city parks, the small park caters to local residents, offering a quiet space for daily outdoor activities.

Another result of the boom in domestic migrants has been that the traditional atmosphere of trust and cooperation in its neighbourhoods has gradually changed. In the local people's eyes, the migrant people flowing into the Hutongs and courtyard communities have made the atmosphere

of their stable lifelong neighbourhood unfamiliar and even hostile. During the fieldwork many respondents, especially local elders, expressed that with their familiar neighbours moving out and new residents moving in, they no longer enjoy community lives. These changes make the local residents spend less time on social activities and more time on their children and family affairs.

At the same time, the 'One-child' policy introduced in the late 1980s and changed to the 'Two-child' policy in 2016, has also had a profound influence in changing the structure of urban families, making the only child the centre of each family, changing the distribution of family responsibilities. At the time, the research was conducted the one-child policy was just changing thus in most of the urban families involved in this research, there was usually only one school-age child.

All these particular characteristics make this central area traditional but dynamic and viable. Urban development leaves traces on residents' life experiences, and from the children's perspective, their daily lives depend on that environment and are transformed by it.

Space for outdoor play

In the case study area, though the outdoor environments are crowded, children still find ways of using every place they can access. Data about children's use of places in their daily environment were mostly gathered through photo-voice in photographs taken by the children. In these photographs, various types of public spaces were identified including car parking, roads, square parks and so on. These different types of outdoor spaces are classified as found spaces, flexible spaces and constructed play spaces depending on their original—designed—function.

Found spaces

Found spaces (Woolley, 2015) are the most informal play places where children commonly conduct outdoor play and where the original design and function of these places were not to cater for children's use. According to the photos taken by children and their descriptions, parking areas and vehicle access alleys are the most informal spaces but commonly used in their daily environments. Evidence from children's descriptions reveals that they climb trees, play hide and seek and ride bicycles in these places. However, playing at these places together with vehicles coming and going can be dangerous.

Planting areas, raised and level, are also considered play spaces by children. Most of the time, these planting areas are not accessible, especially in residential areas. One child participant explained that he and his friend always try to climb the tree in a specific raised planting area when there are no adults watching, otherwise, they would be told off by adults for not behaving. Another child explained that the path on the lawn, is her favourite play space because there they cannot be seen from the main road and she can play with mud, climb the trees or pick the leaves for 'playing house'.

Flexible spaces

Flexible spaces are available for outdoor physical activities and shared by all age groups without any priority for children. In the photographs taken by children, these flexible spaces contain a

large amount of public spaces, such as the pavements, squares and green spaces and a vehicle-free road in the public spaces within renewed residential neighbourhoods and pavements in the hutong communities. These latter two places were identified by children as the places they usually play rope jumping (skipping).

Similar to pavements, squares provide people with more spacious open space for gathering and doing things together. For children, this means that they use squares for activities with a higher physical content and large spatial demand such as playing with scooters, ball games, chasing and running. However, these indispensable spaces are shared by all age groups with the different uses and purposes of the different groups taking place at different times, including the elders dancing after 7.30 PM in the evening. One child expressed that this is also the time she can conduct outdoor play and without any other spacious outdoor spaces close to her home, she usually plays with other children next to the dancing elders. In the afternoon, there are usually fewer people on the squares, but, as another child pointed out, the afternoon is the time he cannot play outdoors because he is in school.

Outdoor sports fields are also considered a flexible type of play space for children which are used by mixed-age groups. Usually, the outdoor sports fields are simply designed to provide basic facilities for sport, but children report that they use these spaces for other activities, such as the ping-pong field in the residential area and the badminton field painted on the ground in the Shichahai Children's park.

Constructed play spaces

Comparing these different types of play spaces, the constructed playgrounds equipped with fixed play equipment and rubber carpets (see, e.g. Woolley, 2007, 2008) are considered by some to be more suitable for sustaining children's play by providing protection and facilities for encouraging play. According to the photographs taken by children, within these constructed playgrounds in the residential areas, the fixed play equipment areas are of two distinctive types: fixed play facilities for children; and fixed exercise facilities for adults. Places equipped with both these types of equipment are perceived and used by children as their play spaces.

However, observations and interviews reveal that the play opportunities provided by these two types of play equipment are different. The fixed play equipment designed for children, such as slides, can attract a large number of younger children under 6 years old by providing direct and obvious play opportunities, but such spaces can easily lose their appeal for children over 6 years old and teenagers. The older children are observed to use the fixed exercise facilities for adults more often than the younger children. However, the exercise facilities designed for adults can have potential safety hazards for children when they are inappropriately used.

To conclude, in the surrounding daily environment, children use various places to conduct outdoor play. According to the original functions, these spaces are classified as found spaces, flexible spaces and constructed spaces. Each of these spaces has its advantages and drawbacks in providing children with play opportunities and places (Figure 4).

People related to children's outdoor play

Following our understanding of children's use of their physical environment, the children's outdoor play experiences are now explored from the dimension of other people. The evidence

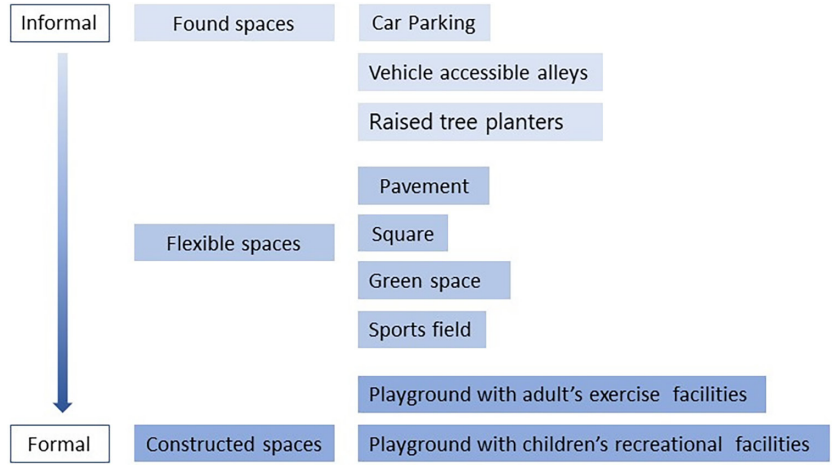


FIGURE 4 Places used for play.

presented has been collected from interviews and behaviour mapping with a focus on carers of children's outdoor play as well as children's outdoor play friends.

Carers for outdoor play

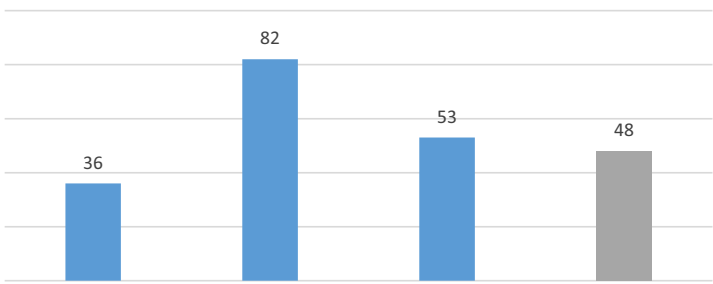
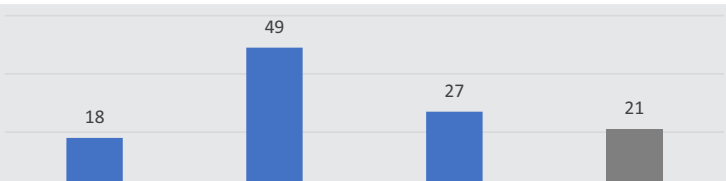
For children living in the central area of Beijing, most of their outdoor play needs to be accompanied by adult carers in order to protect a family's single child from any potential safety risk. The behaviour mapping data collected in Shichahai Children's Park recorded a total of 404 children and 334 accompanying adults consisting of 219 parents and 115 grandparents. Over 80% of the children were playing outdoors under adult supervision and both parents and grandparents were supervising children's outdoor play.

To understand the relationships between children and adults while children were playing four modes of interaction were identified: playing together; close supervision; watching at a distance; and walking together, taking into account the extent and frequency of the communication and interaction between the child(ren) and the adult(s), as shown in Table 1.

The first mode is obvious and comprises of frequent interaction between adults and children in which the child only plays with adults, not with other children, and is called *playing together*. The second mode is where adults carry out *close supervision* but do not take part in children's play. In this situation, a child plays with other children or on facilities with carers' supervision close by. The third mode is adults watching their children playing from a certain distance without talking or interacting with them and there is no apparent interaction between adults and children which is called *watching at a distance*. Children are given more opportunities to interact with other children and their surroundings. The fourth mode is when the children and their carers are just passing through a space, *walking through together*. This mode can be understood as translocation to join some play activity that is underway or simply passing through without stopping.

Except for the mode of walking together, which can hardly be considered as playing, among the other three modes of interaction between adults and children, it can be seen that close supervision is the dominant supervision and interaction pattern used by adults (Table 1). This is followed by adults watching at a distance without disturbing the children and a small number

TABLE 1 Carer givers of children's outdoor play ($n = 334$).

Interaction pattern between parents and children	Playing together	Close supervision	Watching at a distance	Walking through together
Parents doing their own things	No	No	Yes	—
Children play with other children or facilities	No	Yes	Yes	—
Care-giving pattern of parents				
Care-giving pattern of grandparents				

of adults playing together with the children. Interestingly, there was no difference in this order between parents or grandparents.

Outdoor play friends

From the observation in Shichahai Children's Park, we can see that, sometimes, parents or grandparents can take the role of *play friends* when children are playing outdoors. In this situation, whether there are any other people children are playing with, who are the dominant play friends of children's outdoor play becomes an important question. This was discussed during the interviews with the children. A large number of children reported that most of the time they play with classmates at schools, outside of schools it can be difficult to find classmates to play with because usually they live in different residential areas. Instead, they play with neighbourhood friends, who are usually younger or older than themselves. In their narratives, we can find that there is an absence of siblings taking the role of play friends. Even worse, there are many expressions about how boring life could be when there are not any child-friends to play with at home.

> (in the summer holidays) Stay at home is boring, my parents are not at home, leaving me stay at home alone. I like playing outdoors, because I can play with other children...
>
> (a 12 year old girl)

> I really like playing outdoors, especially playing with other children...outdoors there are many children to play with me, but there is only myself at home...
>
> (a 9 year old girl)

From this, it appears that playing with other children is an essential part of childhood. Without siblings to play with at home, there is a need to play with peers which increases the value of outdoor play.

Activities of outdoor play

Play activities in urban park

According to the data collected by behaviour mapping in Shichahai Children's Park, the main games played in the urban parks are those with a high physical content, including games with and without playthings. The children living in the nearby hutongs usually take playthings such as ropes, basketballs, footballs, badminton, scooters, skateboards and bicycles to play within the park. At the same time, children also take toys to play with in the park including toy cars, water pistols and paper planes. In addition to these more traditional toys, sometimes children also take smartphones to use in the park, as a kind of plaything (Bishop & Curtis, 2001). Without playthings, children usually run and chase with each other: they climb trees, fences, benches, steps and the slopes alongside the steps. Children were also observed digging in the soil under the trees with branches or other tools. The observed play activities in Shichahai Children's Park are summarized in Figure 5.

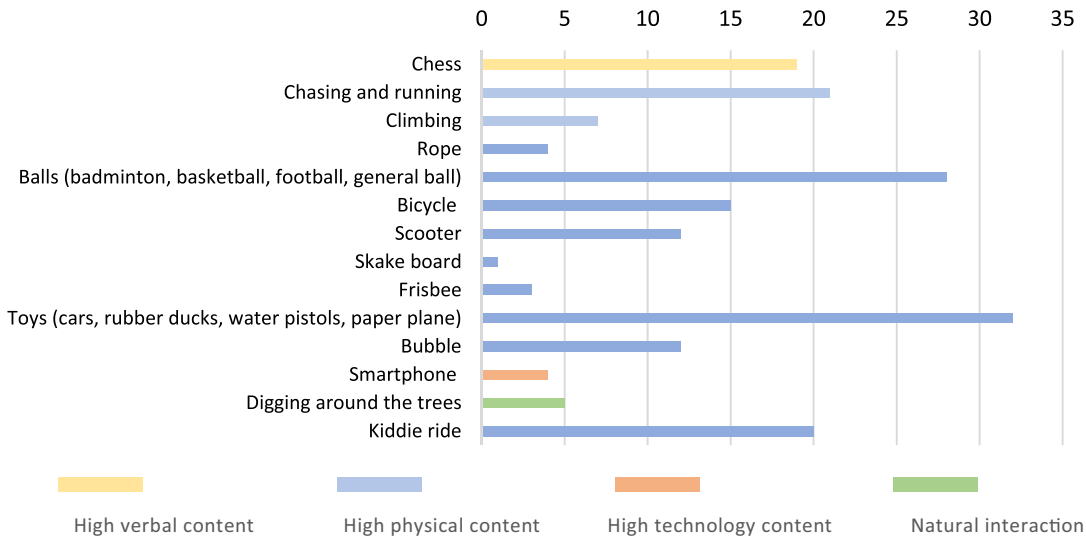


FIGURE 5 Children's play activities in the park.

To summarize, according to the category system proposed by Bishop and Curtis (2001), games in public open spaces in this research mainly had a high physical content. Fewer children were playing games with a high imaginative and verbal content in public open spaces, but games with a high technology content have taken a significant place in children's daily lives. These indoor electronic games compete for children's spare time with high physical content games played outdoors.

Other outdoor activities

Childhood outdoor play activities are not only limited in space to urban parks and the data collected from interviews provides further understanding of children's outdoor play activities in their residential public spaces and school playgrounds. More high physical content games with rules were described by children during the interviews, such as chasing games with different names and rules, as well as games with high imaginative content such as role-playing games of pretending to be Mum and Dad and cooking for the baby, or acting the scenarios of fairy tales or traditional legends.

In addition to games, to encourage children to go outside their homes, play interventions are also sometimes provided for children living in the urban central areas. Unlike the play interventions provided for children in post-disaster contexts, play interventions in the central area of Beijing aim to provide opportunities for the only-child to interact with their peers after school and to learn some particular knowledge through organized play. Such interventional community activities are concentrated in the summer holidays but are also scheduled all year around for weekends and holidays. For example, during the summer holidays, there was a family tree drawing course, Chinese knot course and intangible heritage experience courses and other cultural activities.

During the field research in 2016, 10 such intervention activities were observed within the communities in the Shichahai area. Most of them were provided by the government as a form of social welfare and free for children to participate in, were usually carried out with the help of street committees and announced through social media. When taking part in these activities, the children were usually accompanied by adults. The interviews revealed that these interventions

were well-accepted and even welcomed by both children and their parents. As a result, by providing children with more diverse play opportunities in high-density urban life, these interventions not only help to enrich children's daily lives but also help to generate a supportive and friendly atmosphere in communities.

Time for outdoor play

Outdoor playtime in summer holidays

Children's diaries reveal that in the summer holidays, the main times that they play outdoors are between 9 AM and 10 AM in the morning and 4 PM and 8 PM in the late afternoon until nightfall (Figure 6), with more children usually playing in the afternoon than in the morning. It is also evident from Figure 22 that the most preferred outdoor playtime, in the afternoon after 4 PM, is also the hottest time of each day, when the temperature is usually between 29°C and 35°C. The peak time of outdoor play is around 7 PM, when the outdoor temperature has cooled slightly as it reduces with the sunset. So in the summer holidays, the children play outdoors in the hottest part of the afternoon and in the sun-setting evening.

To understand the unexpected phenomenon that children play at the hottest time on summer days, children were interviewed about their feelings and perceptions about the weather conditions and asked whether the hot weather influenced their outdoor play. Their responses were that the hot weather is not a problem because they are used to the seasonal weather conditions. This is the usual or normal environmental background to their daily experience. However, for the children who do not like playing outdoors, the outdoor weather can be the main reason preventing

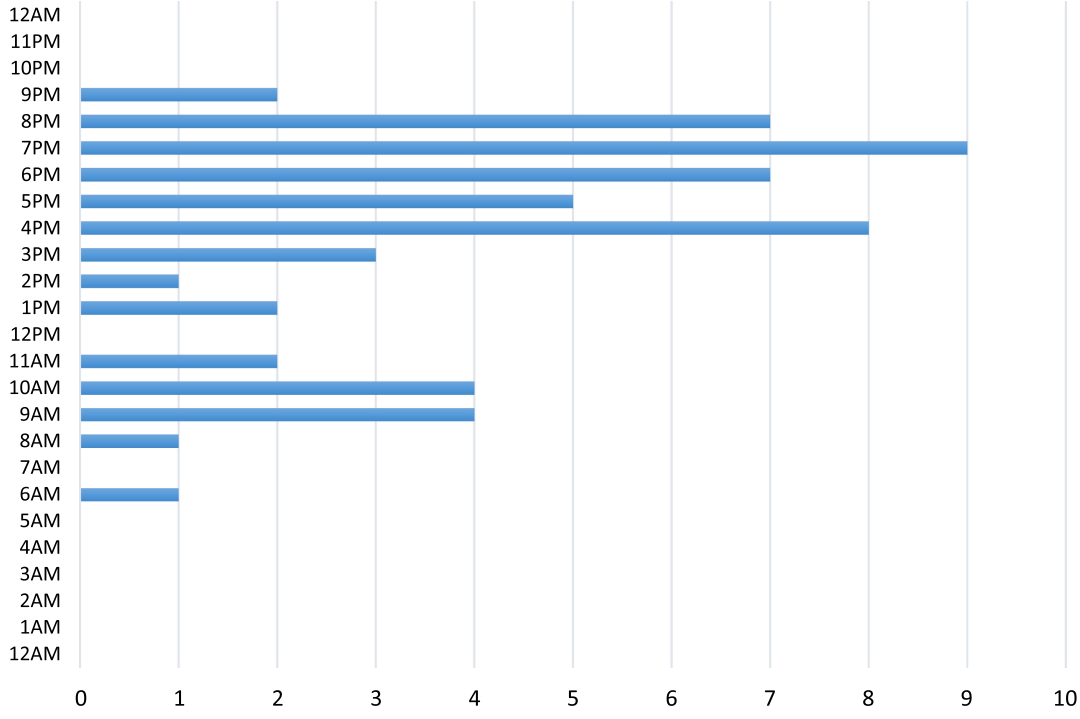


FIGURE 6 Children's outdoor playtime.

them from playing outdoors. That is to say, the weather condition is not the dominant reason for children not playing outdoors.

Outdoor playtime on school days

The diaries show that the children's daily routines in summer holidays are very different from those on school days and a more comprehensive understanding of children's general lifestyles and children's daily activities on school days was revealed during the interviews. When spending most of a day in school, children's daily routines are similar even unified: school classes end at 3.30 PM or 4.30 PM, and after school some go to after school classes to learn more and others go straight home to finish their homework until dinner time. Dinner is usually around 6 PM when parents are back home and then, after dinner, if the children have finished their homework or another learning target, they can spend some time playing outdoors. If not they are usually supervised by parents to finish their homework, and this is followed by washing up and going to bed before 10 PM. In order to be able to play outdoors, there is always a precondition that a child must finish their home-work or home learning tasks. Furthermore, as pointed out before, because children's outdoor play usually needs adult's presence, carers decisions about going outdoors or their perception of the outdoor weather can have a significant influence on whether children can play outdoors or just indoors after they have finished all their learning tasks.

DISCUSSION

Research into childhood experience can involve various perspectives for understanding the nature of childhood while the SPAT framework focuses on understanding children's outdoor play and related experiences in any childhood, considering the environmental, social and cultural context. In this research, conducted in the central area of Beijing, children's outdoor play and related experiences are explored from the dimensions of children's use of different types of spaces, people related to children's outdoor play, outdoor play activities and the time children spend on outdoor play. In each of these dimensions, several sub-topics are explored in detail.

Based on the SPAT model, children's use of outdoor spaces can be understood to take place in different types of outdoor spaces which we have identified as found, flexible and constructed spaces. It can be seen that children perceive and actualise the affordance of many different types of spaces for play, no matter whether these places are designed especially for children's use. This phenomenon is reported in research conducted in other parts of the world (Lester & Russell, 2008; Matthews & Limb, 1999; Opie & Opie, 1969; Woolley & Kinoshita, 2015). Comparing these different types of play spaces children used in the Shichahai area, the constructed playgrounds equipped with fixed play equipment and rubber carpet surfacing are considered to be more suitable by parents for sustaining children's play by providing protection and facilities for encouraging play. Within these constructed playgrounds, the fixed play equipment is of two distinctive types: fixed play facilities for children; and fixed exercise facilities for adults. The simple design of fixed play equipment, can attract younger children (under 6 years) by providing direct and obvious play opportunities. However, the exercise facilities designed for adults are more often used by older children (over 6 and teenagers) by providing more challenging play opportunities, though the inappropriate use of adult exercise facilities might have safety risks for children. Therefore,

this finding indicates that these constructed play spaces failed to provide various and secure play opportunities for children in all age groups. At the same time, children living in the high-density urban central area also use various flexible spaces and found spaces. Designed without a specific focus on children's use, these informal play spaces can be more dangerous when children are creatively playing in these spaces, such as car parking and vehicle access pavements. Moreover, playing in a place with high-risk of traffic dangers can have a negative influence on parents' and children's perceptions of outdoor safety and prevent children from spending time playing outdoors.

As for children's play friends or carers, in the contemporary urban families, parents or grandparents usually take the role of play friends and caregivers. This phenomenon has a strong link to the changed family structure of urban families under the birth control policy. With the application of the one-child policy in the last 20 years, most urban children became the only child in their families, without experience of playing and growing up with siblings but surrounded by adults, the only child spends more time with parents or grandparents. Even when playing outdoors, children are also closely supervised by both parents and grandparents. For supervised children, it is not always easy to meet existing and make new friends when each child is closely surrounded by adults. Playing with the adults around them can be an easy alternative. Compared with research conducted in other parts of the world, where children playing with other children is a common part of childhood (Hart, 1979; Moore, 1986) for children in the central area of Beijing, without siblings but surrounded by adults, playing with adults supervisors is a particular phenomenon recorded in the context of Chinese urban environments.

Play activities in public open spaces in contemporary Shichahai mainly have a high physical content. Toys, fixed play facilities, electronic devices and sports facilities are necessary supporters of children's games. At the same time, with the rapid development of the electronic industry, a mass of electronic devices have already changed urban children's lifestyles. The contemporary children living in the central area of Beijing are provided with various play interventions which aim to encourage children to go outside their homes, interact with their peers and learn something through organized play activities. Most of these play interventions are provided by the government as a form of social welfare. By providing children with more diverse play opportunities in the high-density urban life, these interventions not only help to enrich children's daily lives but also help to generate a supportive and friendly atmosphere in communities, which can help to increase the local sense of belonging to the children and the adults living in the central area.

Children can only spend very limited time playing outdoors, even in the summer holidays. In more recent days, the academic pressure on younger age children (Woolley & Kinoshita, 2015) and parental controls (Kimbro & Ariela, 2011) has become the main reason preventing children from spending time on outdoor play. From a cultural perspective, the emphasis on academic achievement is deeply rooted in Chinese society (Li & Li, 2010; Quach et al., 2013). The one-child policy also contributes to increase the academic pressure on children's lives. During the 20 years of the one-child policy, Chinese parents have been anxious to prevent their children from, as a popular saying goes, 'losing at the starting line' (Hu et al., 2017). Becoming the only focus and hope of the whole family means that the only child faces unprecedented pressure. However, the emphasis on study for children is not only an issue in the Chinese context. In research conducted in Japan, the emphasis on school education and children's academic achievement is believed to influence the time spent outdoors (Woolley & Kinoshita, 2015).

CONCLUSION

It is evident that using the model of Space, People, Activities and Time (SPAT) has provided a new and unique understanding of children and their experiences of outdoor environments in the densely populated and much-visited ancient Shichahai area of central Beijing. All cities have unique historical, planning, physical, social, cultural and political settings and we suggest that the SPAT model could be used in different cities as a consistent way of framing the analysis of children's use of outdoor environments while at the same time allowing differences between cities and countries to be identified. For instance, we would expect that the way that weather influences time for play would vary even between the three Chinese cities of Beijing, Harbin and Chengdu because of their different climates, while in other parts of the world children's time for play may not be as constrained by academic work as in China. Another example of potential differences between countries is the role of adults, clearly identified in this research as being playing together, close supervision and watching at a distance, whereas in some other countries, we would anticipate much less adult presence while children play outdoors. So SPAT provides a mechanism for exploring similar issues in different contexts while also revealing differences between those contexts.

As Landscape Architects we are particularly interested in the use that children make of outdoor spaces in their cities and have understood and written about the concepts of constructed and found spaces for some years. It was unexpected to find that flexible spaces, available for outdoor physical activities and shared by all age groups, were also important to the children involved in this research. This may be the result of several issues. First, in the densely populated area of the study, the built environment does not include many constructed spaces for children—there is limited space for this. Second, the found spaces serve their purpose for children to actualise the affordances of those spaces (see, e.g. Bozkurt & Woolley, 2020; Bozkurt et al., 2019). The disadvantage of the found spaces in this research is that these are where many cars come and go. However, the advantage of these found spaces is that they have small elements that support children's play and, as the children reported, are out of sight of the adults. Third, flexible spaces may have been identified because there seem to be quite a lot of them throughout the urban fabric, something which could be explored in different cities possibly by mapping and comparing how much constructed and flexible space there is and discussing the merits and dis-benefits of both in any specific context. Finally, perhaps flexible spaces are important because at some time in the day other people, adults, are using them. In a society where one child usually has two parents and four grandparents and are used to them being around when they play outdoors, perhaps each individual child has reasons for using these age (and time) shared spaces, because of the direct (same time) and indirect (shared by time) social connection with adults. To explore these issues would need further research which would be interesting to undertake in cities with different levels of building densities and different adult-child relationships.

One final issue that cannot be ignored for policy and planning of Chinese cities going forward is the most recent policy change to the number of children a family can have. In May 2021, a 3-child policy was introduced and if families choose to have three children then there will be many implications for Chinese society and its cities. For outdoor play, this raises the question of whether there are enough constructed spaces in existing housing areas and whether adequate constructed spaces will be built in new housing areas to allow children their right to play. In mentioning this, we are not only concerned about the number but also the quality of constructed spaces that exist now and in the future and whether they will support the wide range of play opportunities they can do or whether what is provided will only support limited types of play

(Woolley & Lowe, 2013). Consideration will also need to be given to the provision of flexible spaces and whether the planning of new housing areas might include more constructed spaces for play, rather than shared flexible spaces. This is a challenge for all cities in China and those leading the ongoing development of cities: a significant increase in the child population would not only more schools and hospitals but also well-designed outdoor environments, where children can assert their agency and right to play.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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REFERENCES

Bishop, J. C., & Curtis, M. (2001). Introduction. In J. C. Bishop & M. Curtis (Eds.), *Play today in the primary school playground: Life, learning and creativity* (pp. 1–19). Open Univerisity Press.

Bozkurt, M., & Woolley, H. (2020). Let's splash: Children's active and passive water play in constructed and natural water features in urban green spaces in Sheffield. *Urban Forestry and Urban Greening*, *52*, 126696.

Bozkurt, M., Woolley, H., & Dempsey, N. (2019). Children's interactions with water in city centres: A case study from Sheffield, UK. *Landscape Research*, *44*(6), 671–687.

Cosco, N., Moore, R., & Islam, M. (2010). Behavior Mapping: A method for linking prechool phyical activity and outdoor design. *Medicine and Science in Sports and Exercise*, *43*(3), 315–519.

Ferretti, L. K., & Bub, K. L. (2014). The influence of family routines on the resilience of low-income preschoolers. *Journal of Applied Developmental Psychology*, *35*(3), 168–180. https://doi.org/10.1016/j.appdev.2014.03.003

Fyhri, A., & Hjorthol, R. (2009). Children's independent mobility to school, friends and leisure activities. *Journal of Transport Geography*, *17*(5), 377–384.

Gaster, S. (1991). Urban children's access to their neithbourhoods: Changes over three generations. *Environment and Behavior*, *23*(1), 70–85.

Hand, K. L., Freeman, C., Seddon, P. J., Recio, M. R., Stein, A., & van Heezik, Y. (2018). Restricted home ranges reduce children's opportunities to connect to nature: Demographic, environmental and parental influences. *Landscape and Urban Planning*, *172*, 69–77.

Hart, R. (1979). *Children's experience of place*. Irvington Publishers.

Hu, B. Y., Kong, Z., & Roberts, S. K. (2017). *The Policies and Practice of Preschoolers' Outdoor Play A Chinese Perspective on. 4056* (August). https://doi.org/10.1080/00094056.2014.910378

Karsten, L. (2005). It all used to be better? Different generations on continuity and change in urban children's daily use of space. *Children's Geographies*, *3*(3), 275–290.

Kimbro, R. T., & Ariela, S. (2011). Neighborhood poverty and maternal fears of children's outdoor play. *Family Relations*, *60*(October), 461–475. https://doi.org/10.1111/j.1741-3729.2011.00660.x

Kinoshita, I. (2009). Charting generational differences in conceptions and opportunities for play in a Japanese neighborhood. *Journal of Intergenerational Relationships*, *7*(1), 53–77.

Kyttä, M., & (Otamedia). (2003). *Children in outdoor contexts: Affordances and independent mobility in the assessment of environmental child friendliness*. Helsinki University of Technology.

Kytta, M. (2002). Affordances of children's environments in the context of cities, small towns and rural villages in Finland and Belarus. *Journal of Environmental Psychology*, *22*, 109–123.

Kytta, M. (2004). The extent of children's independent mobility and the number of actualised affordances as criteria for child-friendly environments. *Journal of Environmental Psychology*, *24*, 179–198.

Kytta, M., Hirvonen, J., Rudner, J., Pirjola, I., & Laatikainen, T. (2015). The last free-range children? Children's independent mobility in Finland in the 1990s and 2010s. *Journal of Transport Geography*, *47*, 1–12.

Lester, S., & Russell, W. (2008). *Play for a change. Play, policy and practice: A review of contemporary perspectives*. National Children's Bureau.

Li, W., & Li, Y. (2010). An analysis on social and cultural background of the resistance for China's education reform and academic pressure. *International Education Studies*, *3*(3), 211–215.

Lynch, K. (1977). *Growing up in cities*. MIT Press.

Matthews, H., & Limb, M. (1999). Defining an agenda for the geography of children. *Progress in Human Geography*, *23*(1), 61–90.

Mckendrick, J. (2004). Fallacies surrounding the geography of family eating. *Children's Geographies*, *2*(2), 293–295. https://doi.org/10.1080/1473328041000172056 6

Moore, R. (1986). *Childhood's domain: Play and place in child development* (Vol. *42*, pp. 513–519). Croom Helm. https://doi.org/10.1249/MSS.0b013e3181cea27a

Moore, R., & Young, D. (1978). Childhood outdoors: Toward a social ecology of the landscape. In I. Altman (Ed.), *Children and the environment* (pp. 83–127). PLENUM PRESS.

Opie, I., & Opie, P. (1969). *Children's game in street and playground*. Oxford University Press.

Plewis, I., Creeser, R., & Mooney, A. (1990). Reliability and validity of time budget data: Children's activities outside school. *Journal of Official Statistics*, *6*(4), 411–419.

Quach, A. S., Epstein, N. B., Riley, P. J., Falconier, M. K., & Fang, X. (2013). Effects of parental warmth and academic pressure on anxiety and depression symptoms in Chinese adolescents. *Journal of Child and Family Studies*, *24*(1), 106–116. https://doi.org/10.1007/s10826-013-9818-y

Roberts, J. M., & Sutton-Smith, B. (1962). Child training and game involvement. *Ethnology*, *1*(2), 166–185. https://doi.org/10.2307/3772873

Senda, M. M. (1992). *Design of children's play environments*. McGraw-Hill Incorporated.

Sijtsma, A., Koller, M., Sauer, P. J. J., & Corpeleijn, E. (2015). Television, sleep, outdoor play and BMI in young children: The GECKO Drenthe cohort. *European Journal of Pediatrics*, *174*(5), 631–639. https://doi.org/10.1007/s00431-014-2443-y

Skar, M., & Krogh, E. (2009). Changes in children's nature-based experiences near home: From sponteneous play to adult-controlled, planned and organised activities. *Children's Geographies*, *7*(3), 339–354.

Stone, M. R., & Faulkner, G. E. J. (2014). Outdoor play in children: Associations with objectively-measured physical activity, sedentary behavior and weight status. *Preventive Medicine*, *65*, 122–127. https://doi.org/10.1016/j.ypmed.2014.05.008

Sutton-Smith, B. (1997). *The ambiguity of play*. Harvard University Press.

Szalai, A. (1972). *The Use of Time. Daily activites of urban and suburban populations in twelve countries*. Mouton.

Tandy, C. (1999). Children's diminishing play space: A study of intergenerational change in children's use of their neighbourhoods. *Australian Geographical Studies*, *37*(2), 154–164.

United Nations. (1989). United Nations Convention on the Rights of the Child.

Valentine, G. (2004). *Children and the future of public space*, 99–111.

Valentine, G. (2019). Geographies of youth–A generational perspective. *Children's Geographies*, *17*(1), 28–31. https://doi.org/10.1080/14733285.2018.1535697

Wang, F., Liu, J., Pan, B., Zhao, L., & Zhang, M. (2012). Stuck between the historic and modern China: A case study of children's space in a hutong community. *Journal of Environmental Psychology*, *32*(1), 59–68. https://doi.org/10.1016/j.jenvp.2011.10.001

Whitten, K., Kearns, R., Carroll, P., Asiasiga, L., & Tava'e, N. (2013). New Zealand parents' understandings of the intergenerational decline in children's independent outdoor play and active travel. *Children's Geographies*, *11*(2), 215–229.

Woolley, H., & Kinoshita, I. (2015). Space, people, interventions and time (SPIT): A model for understanding children's outdoor play in post-disaster contexts based on a case study from the triple disaster area of Tohoku in North-East Japan. *Children and Society*, *29*(5), 434–450. https://doi.org/10.1111/chso.12072

Woolley, H. (2007). Where do the children play? How politics can influence practice. *Proceedings of the Institution of Civil Engineers – Municipal Engineer*, *160*(ME2), 89–95.

Woolley, H. (2008). Watch this space! Designing for children's play in public open spaces. *Geography Compass*, *2*(2), 495–512.
Woolley, H. (2015). Children and young people's spatial agency. In A. Hackett, L. Proctor, & J. Seymour (Eds.), *Children's spatialities: Embodiment, emotion and agency*. Palgrave Macmillan.
Woolley, H., & Griffin, E. (2015). Decreasing experiences of home range, outdoor spaces, activities and companions: changes across three generations in Sheffield in north England. *Children's Geographies*, *13*(6), 677–691.
Woolley, H., & Lowe, A. (2013). Exploring the relationship between design approach and play value of outdoor play spaces. *Landscape Research*, *38*(1), 53–74.
Yin, R. K. (2014). *Case study research: Design and methods* (Vol. *5*, 5th ed.). SAGE. https://doi.org/10.1080/09500790.2011.582317

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APPENDIX A

Interview participant profile **(*N* = 163)**
Children, 131 adults, 32

Semi-structured interviews				Photo-voice			
Children				**Children**			
Age	**Boy**	**Girl**	**Total**	**Age**	**Boy**	**Girl**	**Total**
6	6	5	11	6	0	0	0
7	9	12	21	7	2	2	4
8	13	11	24	8	1	1	2
9	11	11	22	9	1	1	2
10	10	9	19	10	1	1	2
11	11	4	15	11	1	0	1
12	0	3	3	12	0	0	0
12	0	3	3	12	0	0	0
13	2	3	5	13	0	0	0
Sum	62	58	120	Sum	6	5	11

Adults	**Male**	**Female**	**Total**
Parents	3	12	15
Grandparents	2	3	5
Teachers	0	4	4
Committee officers	5	3	8
Sum			32

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Dr. Tang Pai studied for her PhD at the University of Sheffield and is a postdoc in the College of Architecture and Urban Planning at Tongji University. Her PhD research has explored understandings of children's use of outdoor environments in central Beijing. Since then she has also researched children's experiences in Shanghai and is part of the Marsden Funded research project about Changing Chlidhoods in Pacific Rim Countries.

Helen Woolley is Professor of Landscape Architecture, Children's Environments and Society at The University of Sheffield, UK. For 30 years she has researched children's use and perceptions of outdoor environments and the controls that adults and society put on them, including children and skateboarders in town and city centres in the UK. Her critique of many playgrounds of being of a Kit, Fence, Carpet approach, together with the tool to assess the play value of playgrounds/play spaces have been widely used in different parts of the world. Her research interests in children's play and outdoor experiences in high density cities has been accompanied by explorations about what happens to play spaces in post-disaster contexts.