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Department of Landscape Architecture

Understanding Children's play and outdoor play environment in rural China under transformation

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Submitted in fulfilment of the requirements of the Degree of Doctor of Philosophy

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Abstract

The process of urbanisation and industrialisation in rural China has instigated significant transformations in both the natural and social landscapes. These changes encompass modifications in rural land use and the migration of the population in pursuit of employment opportunities in China. Consequently, a spectrum of challenges has emerged, including the relocation of rural populations from traditional villages to urbanised areas, closure and mergers of rural schools, issues associated with left-behind children due to parental migration for employment, and the disturbance and fading of rural cultural elements.

Within the literature dedicated to children's outdoor activities, prevailing research has predominantly focused on urban outdoor environments. Studies investigating children's living conditions in rural settings have primarily been conducted in Western countries and a select few developing regions. Notably, there exists a discernible gap in research concerning children's outdoor spaces in the rural milieu of China, particularly in regions undergoing rapid urbanisation and industrialisation.

Therefore, the primary objective of this research is to understand children's play and their outdoor environment in rural China undergoing transformation, concurrently examining potential influencing factors. The study was centred on nine villages and one resettlement community in Henan province. Findings indicate that children predominantly engaged in play in the vicinity of their residences and those of their relatives. Children encountered distinct challenges for outdoor play in the traditional village and resettlement community settings. The changes in the physical, social, and cultural aspects resulting from local transformation have influenced their mobility and utilisation of spaces. Creating environments that facilitate activities, foster interaction, and assist local communities in adapting to environmental changes is deemed indispensable.

Content

Chapter 1

Introduction

1. Introduction

The possibilities of children choosing their own activities and of creating their own spaces in the environment are important components of children's play (Moore, 1986). Outdoor places offer children a space where they can play (Fjørtoft, 2004), interact with peers (Kyttä, 2002) and experience other diverse social interactions (Hoskins, 2008). It is essential for fostering independence, decision-making skills, resilience, and conflict resolution abilities in children (Ginsburg, 2007).

The majority of previous research on children's environmental experiences has been conducted in urban rather than rural contexts (Matthews, Taylor, Sherwood, Tucker & Limb, 2000). Nonetheless, there remains a great deal of knowledge to be gained about the lives of young people growing up in rapidly changing rural communities. (Henderson, 2005). Rural areas are gradually being shaped by the influences of local development and the wider context, such as urbanisation, counter-urbanisation and tourism (Matthews et al., 2000; Sancar & Severcan, 2010; Malone, 2011). Children have less available places to play and socialise due to degraded natural resources (van Heel, van den Born & Aarts, 2023) as well as limited mobility due to the lack of transportation, increased road danger and the density of living spaces (Hillman & Adams, 1992; Hillman, 2006; Holt et al., 2016). Privatising of spaces, socio-spatial exclusion by others, as well as parents' control can further restrict children's outdoor play opportunities (Chawla, 1994; Matthews, Limb & Percy-Smith, 1998; Matthews, et al., 2000; Malone, 2002). Although a significant amount of research has been carried out on children's locations in the Global North, there remains a significant lack of studies on the outdoor experiences of children in the Global South (Severcan, 2018).

In China, rural areas have been becoming industrialised, urbanised while facing challenges such as changes in land use, decreased quality and quantity of natural environment, outflow of the population for jobs, and the loss of local culture. As part of this transformation, people who used to live in traditional villages have been relocated to urbanised areas. Schools in the villages closed and children travelled to

the nearest towns to study. Parents migrated in search of work, leaving their children behind in rural areas. All these issues can bring changes to the physical and social environments in which children reside, study, and interact with others. How these specific contextual changes in rural China affect children's play is underexplored.

The current thesis starts with an introduction to the context of rural China and addresses the physical and social changes in children's environment that might influence their outdoor play. The aim of the research was to understand children's play and the outdoor play environment during the current transformation of rural China while investigating potential influencing factors. Nine villages and one newly built resettlement community in Minquan were selected as the research sites in which local outdoor play environments were explored. More specifically, children's use of the environment for play, differences in subgroups of children, and other influential factors were studied.

1.1. Background: the transforming rural area in China

China's economic reforms and opening up policy in 1978, moving from a planned economy to a market economy brought about economic development, urbanisation and industrialisation and it increased the movement of the rural population and the redevelopment of rural land (Zhang, 1998; Xu, 2015; Li, 2017; Zhang et al., 2020). The rural development was accompanied by land policy, urbanisation, rural industrialisation and migration that have led to environmental, social and cultural changes in the rural areas. These changes can have a profound impact on children and are of immediate relevance to them. These changes are introduced below as background to the present study of children's play and outdoor play spaces in the current research.

1.1.1. Adults' out migration and left-behind children

Before and at the beginning of China's economic reform and opening up, farmers' main income was still largely dependent on farming, and there were no significant differences between urban and rural areas (Zhang, 1998; Sun, Wu & Cheng, 2014). Since the implementation of the economic reform and opening up policy, particularly in the 21st century, there has been a substantial growth in rural industrialisation. In parallel with this rapid industrialisation, the difference in rural and urban development has been increasing at a quicker speed (Tian, 2005). Local farmers have not enjoyed many of the benefits of industrialisation. Instead, the benefits have gone to entrepreneurs and to the urban areas (Li, 2017). Other gains from the opening up policy have brought rapid urbanisation to cities, far outstripping rural areas in terms of urban infrastructure and income which has led to a serious imbalance between urban and rural development (Yan, Wu & Sui, 2020). Meanwhile, the growth of cities has been accompanied by an increase in demand for labour, especially in service and labour-intensive industries, leading to a mass exodus of young adults to work in cities as a way to improve their lives and the prolonged exodus of working adults has led to the hollowing out of the countryside (Jiang, 2011; Xu, 2015; Li, 2017).

Fei (2012) pointed out that in ancient China the migration of people rarely occurred. Chinese people's feelings and culture were one of settling down on the land. People passed on their acquired survival skills and traditional rituals from one generation to the next through the accumulation of social experience on the same land over a long period of time, and the next generation could live peacefully and contentedly in the same environment as long as they received the knowledge and the land from the previous generation. The process of passing on experience and land from one generation to the next resulted in an established Chinese rural culture (Fei, 2012). But the changing social structure has diminished rural cultural activities. In a study of 52 villages in China, Xue, Zhang and Yang (2014) found that traditional events such as temple fairs, rituals, festivals and operas were gradually disappearing. Rural society's nurturing function for children is therefore gradually disappearing (Jiang, 2011).

Another serious problem arising from the migration of young rural adults to urban areas has been the emergence of a group of children left behind. According to Ye and Murray (2005) left-behind children (LBC) could be defined as children whose father and/or mother have migrated for work and are often taken care of by someone from the older generation or others. This is because of the current dichotomy between the urban and rural household registration system (Hukou system) since 1950, which divides the urban population from the rural population on a household basis (Zheng & Wu, 2013). Children in rural areas, did not have direct access to urban education resources, health care and housing benefits, which limited the possibility for children to move freely with their parents' families (Xu, 2015). Although the differentiation between agricultural and non-agricultural households was abolished in 2014, and rural and urban residents receive equal social benefits at the local level, moving household registration to cities is still influenced by local policies and remains difficult, especially in economically developed areas (Chen et al., 2018). The young migrate to metropolitan centres to work. At the same time, these young rural adults wish to maintain their family vested interests in the villages including the right to contract agricultural land, free residential land allocated from government, collective dividends, and the potential for compensation for demolition and relocation, thereby lacking the necessary drive to relocate their hukou to the city at present (Chen et al., 2018). Without moving the families' hukou to cities, the families of rural migrants could not enjoy the benefits and the infrastructure of the cities, as a result, the elderly and children are left in rural areas. The problem of left-behind children has been rapidly increasing. It has been argued such children would be negatively influenced on their physical (Harmon et al., 2014) and their psychological development (Luo et al., 2009; Graham et al., 2012; Mou et al., 2013). In this sense, understanding whether children left behind differ from children not left behind in terms of outdoor play is important for safeguarding children's rights and meaningful for children's landscape design.

1.1.2. Resettlement and school merger

Rural land in China often consisted of scattered spatial structures that could not support the industrial agglomeration which is important to securing food supply and the integration of industries (Liu, Li, & Yang, 2018). In China, the rural collectives

own the rural land, and the land cannot be sold. This led to a land use dilemma between urban and rural areas, in which villages own extensive unutilised land that cities could not use (Zhao & Zhang, 2017). In 2005, to increase land use efficiency, China started the Increasing versus decreasing balance land-use policy (Zhan, 2021). This allowed adjustment of land use in a project site to a reasonable amount while ensuring there was no increase in construction land and no decrease in cultivated land in quantity and quality (Gao, de Vries, & Zhao, 2021). Following this, a series of policies about rural land requisition and homestead regulation were implemented since 2015, resulting in nationwide 'rural resettlement (撤村并村)' (Zhan, 2021) to compensate homesteads that local governments reclaim. Villagers who left their land were offered free apartments to move into (usually, each family could get more than one apartment) in the town (higher in the administrative level) the villages belong to. These towns were more urbanised areas with better public infrastructure (Zhang et al., 2020). Children's outdoor environments for daily activities have therefore changed suddenly.

The large number of 'urban' style apartments have had an impact on traditional settlement forms (Kuang, 2014). Children's play spaces were once predominantly outdoor spaces, including the perimeters of yards, village squares, and small woods, but have been replaced by man-made environments since their resettlement (Zhao et al., 2018). Public spaces in the resettlement communities have been designed without consideration of children's use (Li & Yang, 2011). Children play more indoors and gradually get obsessed with electronics (Liu, 2017). In addition to this, the inhabitants who move in are outsiders from the perspective of the local inhabitants of the villages and towns. Children might feel inferior and are at risk of being excluded in the process of the changes to the local community (Dong, Fang & Li, 2018).

Children's play environment can also be affected by school merger policies. Before the 1990s, rural children used to study in small-scale primary schools or middle schools run locally in traditional villages with poor educational facilities (Zhang, L., 2015). Because of villagers' migration to cities, these small schools started facing challenges. In the late 1990s, a 'school merging policy' (撤点并校) was introduced, which recommended local governments shut down small-scale schools and optimise

their education resources to offer children better educational opportunities in quality schools built in the more urbanised towns nearby. However, this policy received criticism because of the increased travel distance and cost, safety issues, and its disconnection from local culture (Zhang, L., 2015). Although the policy was halted in 2012 and then amended by putting more emphasis on the need to consider the local context (Wang, 2018), children could still be affected in the post-school-merging area (Zhao & Zheng, 2021). Children who studied in the large-scale schools the local government built in towns benefited from better education quality free of charge. However, for those children who were still living in the villages, they had to travel to schools and back to their homes, therefore, making them only temporary users of the school spaces and the “urbanised” areas. It is thus of significant to investigate children's outdoor play in the sudden altered environments resulting from relocation and school merger.

1.1.3. The urbanising rural area

In 2010, to address the disparity between urban and rural development, the central government introduced policies to accelerate rural urbanisation (Zhang et al., 2020). Along with the improvement of infrastructure, urbanisation has had a growing impact on the countryside, with traditional farming undergoing rapid changes in the farming landscape and rural life (Wang et al., 2019). Traditionally the rural villages in China were mostly dotted about in small patches of lands in the natural environment, with woods, bridges, flowing water, old trees and courtyards providing a poetic landscape. But local development has led to reduction in green areas and an increase in pollution (Liu, J., 2013; Li, 2017). Natural and semi-natural land such as farmland, orchards and wells are gradually being replaced by artificial land such as concrete roads, built water features and squares. This spread of 'urbanised' landscapes in the countryside has become a common phenomenon in recent years and the landscape in the countryside is slowly losing its traditional character (Wei, Lu & Wang, 2015). The comfort and aesthetics of the landscape in rural area has been reduced (Kuang, 2014). Children’s play is often a result of the context where people live and the provisions in the environment for children’s growth (Singh & Gupta, 2012). As a result of the changes, children are facing the loss of their outdoor play environment and a reduced interaction with nature. It has been argued that only through rural children’s contact

with nature, especially their involvement in agriculture, forestry and fishing, can they learn their position as members of society and become cultural bearers (Liu, T., 2013). However, the industrial way of farming has led to the disappearance of traditional public spaces, such as the mill, or the wheat field (Xue, Zhang & Yang, 2014). Rural life has lost its appeal to children and has taken away their sense of identity (Liu, J., 2013).

In addition to the physical change in rural areas brought by local development, the structure of rural society as a culture has also been impacted by local development. The industrialisation in agriculture production means that farmers no longer have to work together and rely on each other. It has transformed the traditional agrarian way of life of co-production and therefore the relationships of reciprocity, trust and exchange of goods that were built up (Li & Luo, 2022). For example, traditionally, in northern China, because of the lack of livestock for cultivation, it was customary for villagers to borrow the livestock of fellow villagers to cultivate their land. The free use and exchange of favours allowed villagers to build up a close relationship and dependence in the exchange. People worked collectively and collaborated with each other in farming. All villagers participated in and prepared together for such village events as rituals, festivals, birthday celebrations for the elderly, marriages and funerals (Xia, 2010). He (2000) pointed out that with less shared life experience, the familiarity and frequency of interaction between villagers causes alienation and unfamiliarity among family members and neighbourhoods and reduced community ties. Traditional villages as 'acquaintance societies' were transformed into 'semi-acquaintance societies' (Fei, 2012; Liu, T., 2013). At the same time, modern media such as television and the internet play a more important role. People no longer obtain information from other people and it has changed the collective and communicative nature of local events in rural areas (Jiang, 2011). Traditional crafts, arts, festivals and other events, which were created and passed on by the local rural inhabitants during their social activities, are gradually being lost in the process of economic growth and urbanisation (Xia, 2010; Liu, J., 2013). For children, this change in living environment and social activities led to them losing the opportunity to understand and be in contact with rural life and culture, resulting in their 'absence' from rural life (Yu, 2009).

The research described above has shown the environmental, social and cultural changes brought about by rural change. However, the potential impact of these changes on children's play in rural China has not been clear. Questions including, “whether and how urbanised and industrialised rural China changed children’s play and their use of the outdoor spaces?”, “do resettlement and school mergers affect children's play and their use of outdoor spaces?”, “whether rural children's play could be affected by parents out migration?”, have not been fully answered. This study is focused on understanding the impact of these changing contexts on children’s lives and play. Therefore, for the current research, a literature review was conducted and the gaps were identified in relation to understanding the influences of rapid rural transformation on children’s play and the play environment in rural China. This is discussed in the literature review chapter next.

1.2. Thesis structure

This research contains seven main chapters.

Chapter 1 Introduce the study and the research background.

Chapter 2 reviews the relevant literature, including general studies in children's outdoor activities and environments as well as studies focused specifically on rural children's outdoor environments. Aspects of the outdoor environment previous scholars have explored and research areas they have focused on are discussed. By focusing on these components in the literature review, a systematic understanding is attained and the current research is clearly positioned.

Based on a critical review, several gaps in the literature are identified - in particular, a lack of relevant research on outdoor play and the environments in which it takes place in rural China undergoing transformation. Further, inconsistent findings of previous studies are identified, including differences in subgroups and influential factors. Based on these gaps, several research questions were created for the purpose of understanding the status of the current play environment as well as children's outdoor play, including the location of their play space, the type of play

space, play activities, playtimes, and playmates. Differences in subgroups and other influential factors are also considered.

Chapter 3 discusses the methodology of this study. Qualitative and quantitative methods were adopted, including GPS (global positioning system) tracking, interviews, focus groups, child-led walks, play diaries, and observations. Before discussing the specific methods, however, the research philosophy and criteria for selecting the methods are outlined. Then, each proposed method was critically reviewed via discussion of each one's advantages for the current research and potential limitations. To evaluate the proposed methods, a pilot study was conducted beforehand. The method of play diary and interviews for children were excluded from the main research. Instead, focus groups were used to collect qualitative data form children. Based on the revised methodology, the fieldwork for the main research was confirmed and is described, including: sampling strategy, recruiting processes and the actual onsite practices.

The findings are presented in two chapters, Chapters 4 and 5. For the quantitative analysis, the data retrieved from the interview and focus groups were coded quantitatively. Because of the limited samples, only simple statistics and cross-comparisons were used. It helps to identify patterns and evidence for in-depth qualitative analysis. For the qualitative analysis, thematic analysis was conducted, and answers from caregivers' interviews and children's focus groups were coded. With coding and repetitive reviewing and modification, several main themes and subthemes emerged from the data.

Chapter 4 reveals children’s outdoor play and the play environment from children’s perspective with results from the focus groups and activities recorded by GPS. Overall findings include the location of children's places, their range of play, the type of spaces they played in, play activities, and playmates. This is followed by an in-depth analysis of different sub-groups according to age, gender, place of residence, and whether the child was left behind or not. Observations and results from the child-led walks are discussed at the end of the chapter, offering an understanding of the play environment in situ as evidence for discussions.

Chapter 5 illustrates the findings based on data from the caregivers. Four main themes emerged: caregivers' control, caregivers' supervision, caregivers' beliefs and the influence of the current physical and social environment. These factors were believed to be influential to children's play. Each of these themes contained several sub-themes that offered an understanding of how children's play was affected.

In Chapter 6, the key findings are discussed in a consolidated way. Both consistencies and contradictions are addressed by referring back to previous research to answer the research questions addressed in the current research, with focus on children’s play and the issues in the transforming rural areas in China.

Conclusions are drawn in chapter 7. Based on the discussion, suggestions about children's play environments and the role of landscape in transforming rural China are given as implications. Limitations and scope for further research are discussed. Last, key findings in the current research and other highlights are summarised at the end of chapter 7.

Chapter 2

Literature Review

2. Literature review

In this section, previous studies are reviewed to develop the aims and research questions. First, the general literature on children's play and outdoor play environment is reviewed. This provided valuable guidance for informing the direction of the current research and determining the approaches to understanding the problems. After the general review, to identify gaps in existing research, the chapter takes a critical approach to examining studies carried out within rural areas, with particular emphasis on similar issues present in the transformation of Chinese rural regions that were introduced in the background section. These studies focus on children's play amidst rapid changes brought about by urbanisation, local development, resettlement, and the issue of left-behind children in rural area around the world. Based on the research gaps, the aims and research questions were created.

2.1. Start from learning about play

Play can be observed in every society and shares universal features, though play appears in various forms due to the differences in physical, social and cultural context where the play occurs (Gosso & Carvalho, 2013; Lai et al., 2018). Therefore, what can be described as play is important for researchers and practitioners (Smith & Vollstedt, 1985), but from a review of the literature, it is clear that the definition of play is ambiguous (Smith & Vollstedt, 1985; Treasure, 2018; Vasileva, 2022).

2.1.1. Classical theories of play

In early studies, the exploration of play often emphasised answering why the play exists and the purposes it serves. In the surplus energy theory play was an aimless activity for the expenditure of exuberant energy (Takhvar, 1988). Play was then regarded as an instinctive behaviour with no specific goals (Santer et al., 2007). It was considered as a product of surplus energy even after the satisfaction of basic

needs (van Reet, 2016). Children play in childhood as they use less energy for survival while they remain dependent on parents (Saracho & Spodek, 1995). However, arguments about play being a non-productive activity contradicts theories of evolution that the surplus energy theory developed on, which emphasise that only activities that are advantageous to the organism can be maintained in the process of evolution (Mellou, 1994). Quite contrary to the energy surplus theory, the relaxation theory described play as a way of restoring energy rather than spending energy, as described in energy surplus theory. Through recreational activities, people's energy consumed by work could be restored (Mellou, 1994; Henricks, 2018). Both energy surplus theory and relaxation theory have been criticised for their lack of evidence and the exclusion of play's cognitive function (Takhvar, 1988).

Despite associating play with energy, the pre-exercise theory proposed by Karl Groos (1901) states that the very existence of play is due in part to the necessity for play. Play could be viewed as practice for their future (Mellou, 1994). Play was considered a process, rather than a product, through which children could rehearse adult skills (Santer et al., 2007). The more complex the organism the longer the period of childhood is, and therefore more time is available for play, and for children to practice their skills for adulthood (Takhvar, 1988).

Contrary to describing play as instinctive practice for the future, the recapitulation theory proposed that children's play followed the very same stages as the stages of human evolution in the past (Saracho & Spodek, 1995). For example, climbing and swinging could be the representation of the animal stage, rough and tumble play as savage stages (Saracho & Spodek, 1995). Play could help a person briefly pass through these stages and eliminate the skills that were considered primitive and unnecessary in the future (Vasileva, 2022).

Although these classical theories attempted to explain the existence of play mainly from an instinctive and biological perspective (Vasileva, 2022), the theories have been criticised for their lack of evidence and a failure to consider other types of play, such as symbolic and abstract thinking (Takhvar, 1988; Mellou, 1994). Despite the criticism of classical theories on play, they have been valued for providing the base for later, modern play theories (Takhvar, 1988; Henricks, 2018).

2.1.2. Contemporary theories of play

Compared to classical theories that focused on the question of why play exists, more recent theories have explored the role of play in the development of the child (Mellou, 1994). Freud (1958) viewed play as an act of children's "wish fulfilment" and "pleasure-seeking" in his psychoanalytic theories and later he viewed play as a way that children gain pleasure from being able to control all the elements of a situation (Henricks, 2018). Erikson (1963) propose that play is a way the children to dramatize bodily and social challenges in the past, present and future and divide them into segments which is easier for them to process and master (Saracho & Spodek, 1995; Vasileva, 2022). These views of play explored how children respond to the external environment. However, play was mainly treated as a by-product or a result of unsatisfied desire (Santer et al., 2007). In contrast, cognitive development theory by Piaget argued that play is actively created to make sense of the external world and to contribute to cognitive development (Piaget, 2013; Huang, 2021). Play is a strategy children use to understand and administer the environment through interaction (Henricks, 2018). Three types of play were introduced to explain the play's contribution in different stages of development. These types of play are sensorimotor play (repetitive actions focused on physical activities), symbolic play (pretending, making stories and acting out) and games with rules (Saracho & Spodek, 1995).

However, for symbolic play, Piaget did not consider children could accommodate or adapt to reality (Lillard, 2015). He believed that children in the early stage of development explore the world individually and in middle childhood explore the world with peers at the same level of development (Smolucha & Smolucha, 2021). Play was seen as mainly to confirm or reinforce knowledge and skills learned (Beresin, Brown & Patte, 2020) and reality is forced to match the children's existing perspective, rather than adapting their thinking to reality (Saracho & Spodek, 1995; Vasileva, 2022).

Vygotsky (1986) challenged the idea of "individual learning" and "peer in the same development level" in his sociocultural development theory which focused on symbolic play. Children could behave beyond their age and beyond their daily

behaviour (Santer et al., 2007). Vygotsky believed that through interaction with people with more experience and higher development levels children could perform a task that Piaget would have considered to be beyond a child's mental capability (Huang, 2021) and this argument has been emphasised by recent literature (van Reet, 2016).

The varied and sometimes contradictory theoretical thinking in researchers' efforts to unveil the essence of play indicates the difficulty in coming to consensus definition. Play as a wide-ranging subject, is broad in human experience, varies in space and time and is diverse in activities (Eberle, 2014). Play can be interpreted from many perspectives including characteristics, approaches, categories and types (Treasure, 2018). As Moyles (2015, p.27) described, "grasping the concept of play is like grasping a bubble" and it might be more helpful to consider play as a multifaceted layer of activities containing a range of motivations, behaviours, skills and opportunities.

The ambiguity in defining play might be due to researchers who could only understand play on the ground as reflected by the time and space they lived in. However, this does not overshadow the valuable insights in previous theories: 1. Play exists in childhood throughout human history (Saracho & Spodek, 1995; Lai et al., 2018) and even the very childhood itself is due in part to the existence of play (Groos, 1898). It is considered as child's being and becoming simultaneously (Jelić, et al., 2020). 2. Play is important due to its role in children's mental, physical and cognitive development (Uren & Stagnitti, 2009; Lai et al., 2018). 3. children's play which is their own way of interpreting reality is closely related to the environment (Treasure, 2018). In such an environment, children include materials and symbols to create their own time-space of play and at the same time, ignoring order and limitations in the real world (Lester & Russell, 2010). The environment where the play happens can be distinct physically, socially and culturally (Veitch et al., 2006; Staempfli, 2009;). In more current research, human-environment interaction and the development potential of different types of environments have been emphasised (Kernan, 2007). As a landscape researcher, these points inspired the author of this Ph.D. to investigate the relationship between play and the environment, especially how children's play corresponds to changes in the environment.

2.2. Positioning of current research in play and environmental literature

In this section, a general review of the literature relating to children's play was first conducted. This helped to set the course of the current study and to determine approaches to understanding play and play environment. The aspects of the outdoor environments considered by previous researchers and the research foci are summarised. The position of the current research is given at the end of the section.

2.2.1. Research aspects and foci in previous children's play studies

Play is considered an essential activity during childhood (Canning, 2007). It helps children make sense of their world and of themselves (Ihn, 1999; Emfinger, 2009) by picking up cues in the environment and by performing physical actions such as climbing, catching, walking, running, sliding, rolling, and jumping (Cosco, 2007). The results of play studies vary, depending on the specific aspect that researchers are investigating, and the focus of research may differ across disciplines and for different purposes. To establish a clear research emphasis for the thesis, it is necessary to position current research through a review of previous studies on play and the play environment.

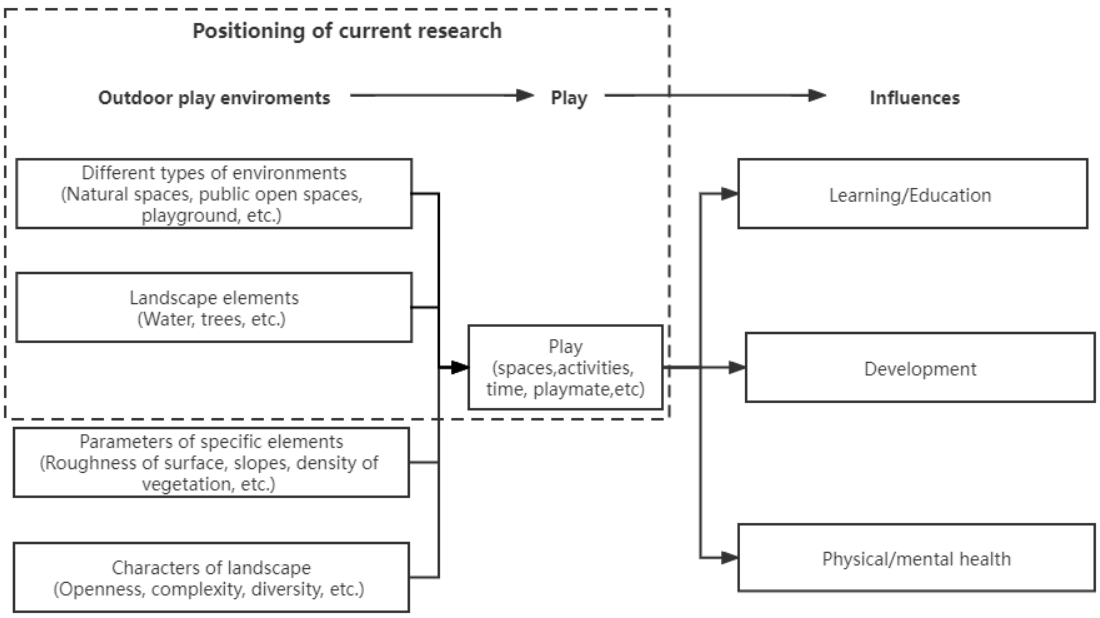

Figure 2.1 Positioning of current research

Researchers have examined various aspects of children's outdoor environment in previous studies. These include studies on different types of outdoor environments, characteristics of the environments, landscape elements, and specific parameters of the elements. For example, for research on specific type of spaces, Lisewski-Hobson & Watkins (2019) studied children's attitudes towards and experiences of woodlands, finding that children saw the woodland environment as adventurous, free, and calm. Korfiatis et al. (2009) researched children's attitudes toward changes in activities in a local wetland. Rigolon & Flohr (2014) compared accessibility to play in parks for young people. Some other researches focused on the affordances of the environment, which is described as the features that are functionally important in an environmental context (Gibson & Pick, 2000), for example, Kyttä's (1997, 2002, 2004) research on understanding children's play and its relationship with the affordance in the environment. Some researchers have focused on particular elements such as trees and grass. For example, Kuo et al. (1998) found that the density of trees and the amount of grass can affect landscape preferences. Fjørtoft (2004) and Fjørtoft & Sageie (2000) found that children's motor development was related to the parameters of landscape elements, such as slope of surface, roughness of elements, and physiognomy and density of trees. Other researchers have focused on studying environmental characteristics and concepts such as openness, diversity, richness, and complexity. For example, Müderrisoglu & Gültekin (2015) summarised nine characteristics of the landscape of children: complexity, coherence, disturbance, stewardship, imageability, visual scale, naturalness, historicity, and ephemera. Lerstrup and van den Bosch (2017) suggested four characteristics for understanding the affordance of the environment: variation and uniqueness, size and degradation, novelty and change, and degree of abundance.

Along with research aspects, the research foci can also vary. As Skår and Krogh (2009) suggested, children's research mainly falls into three perspectives: (1) the social-cultural perspective, which focuses on understanding children's use of space, experiences, and trends; (2) the adaptive perspective, which focuses on children's adaptation of the environment as biological beings; and (3) the psychological perspective, which focuses on the physical and mental development of children in relation to their environment. These foci mainly have two broad groups: (1)

Environment-play (or physical activity) relationships – for example, studies of children's physical activities have found that enriched environments increase children's physical activity level (Best, 2010). Preference studies have found that children had a predilection for outdoor settings and a universal appreciation for vegetation (Wells & Evans, 2003). (2) Influences of play on children's learning, development, and health – for example, the landscape was found to positively affect children's concentration, cognitive function and socialisation capability (Herrington & Studtmann, 1998; Wells, 2000). Children who attended day-care facilities surrounded by natural elements such as orchards, pastures, and woodlands had better attention capacity and motor coordination than those who attended urban day-care facilities surrounded by buildings (Wells & Evans, 2003). Physical activities encouraged by the landscape environment can reduce diabetes and cardiovascular incidences and may affect children's physical activities and mental or even spiritual renewal (Thompson, 2011). In contrast, playing in enclosed areas could have a negative influence on children's physical, mental, and social development (Müderrisoglu & Gültekin, 2015).

2.2.2. Positioning of current research

Inspired by the issues of rural transformation in China, as discussed in the background section, the author wanted to understand children's play in a rural context undergoing rapid local transformation. In the current study, environment and play were considered two most relevant subjects to look at in order to understand children's play and the environment the play occurs in. The other research approaches described above in this section including, children's physical activity level and potential environmental influences on children's education and development were not included in the main focus of the current research. The focus of the current research is to reveal the impact of the outdoor environment on children's play through an exploration of its current state and the children's use of it within a quickly transforming rural environment in China. The aspects include outdoor play spaces, landscape elements in the spaces and children's interaction with the environment. Having determined the research focus and angle of entry for this study, it was important to confirm the precise research aim and research questions. Therefore, in the next section the relevant literature on the outdoor environment and children's play, particularly children's play in rural settings globally and in China,

is reviewed to identify the research gap.

2.3. Identifying research gap

To develop the research, aim for the current study, a review of studies in relations to children's play and the outdoor environment was conducted. This review contains two narrative strands: 1. a discussion of the literature on children's environments in urban and rural areas in general, through the literature on rural environments, and then a consideration of the specific literature on rapidly changing rural environments, especially those about local development, resettlement and left behind children; 2. a discussion of research on children's environments, especially rural children's play environments, from different regions of the world to the local literature on children's play in rapidly changing rural environments in China.

After the review of related literature, inconsistencies were discovered regarding children's play in rural settings. Few studies have investigated play in rural China undergoing transformation, and the outdoor environment has not received sufficient attention in the local research. In this context, physical and social changes in the environment, particularly have rarely been discussed in relation to children's outdoor play.

2.3.1. Play in rural context

Research on children's experience has mostly been conducted in urban scenarios, which dominate the literature (Philo, 1992; Valentine & McKendrick, 1997; Matthews, Taylor, Sherwood, Tucker, & Melanie Limb, 2000; Veitch et al., 2013). Though more recently, a number studies have discussed or included play in rural area in various research contexts (Tyrrell & Harmer, 2015). These include analysis of urban fringes (Zylicz, 2002; Woolley & Griffin, 2015; Hewitt et al., 2020), urban villages (Ergler, Freeman & Latai, 2020), rural areas (Valentine, 1997; Matthews, Taylor, Sherwood, Tucker & Melanie Limb, 2000; Escalante, Backx & Saavedra, 2014; Power, Norman & Dupré, 2014; Bowen, 2015; Li & Seymour, 2019), semi-rural areas or suburban areas (Malone & Hasluck, 2002; Carroll, Witten & Kearns, 2011; Moran, Plaut & Merom, 2017; Kerr, Klocker & Gibson, 2021), low-income or social housing areas (Sutton, 2007;

Kimbro, Brooks-Gunn & McLanahan, 2011) and comparisons of urban and rural play environment (Kyttä, 2002; Percy-Smith, 2002; Loucaides, Chedzoy & Bennett, 2004; Loucaides, Plotnikoff & Bercovitz, 2007; Machemer, Bruch & Kuipers, 2008; MacDougall, Schiller & Darbyshire, 2009; Malone & Rudner, 2011; Veitch et al., 2013; Barton et al., 2015). These previous studies have provided valuable insights relating to children's play and activities in various contexts across the globe. However, the existing literature has produced mixed results about children's outdoor play and their play environments in rural area.

In previous studies, rural areas were widely regarded as places for children because, compared with urban areas, they offered more opportunities for play in spaces which were full of natural and adventurous characteristics (Loucaides, Chedzoy, & Bennett, 2004; Loucaides, Plotnikoff & Bercovitz, 2007). Kyttä (2002) highlighted the affordances of the environment for children's play and found that the rural outdoor environment could support a variety of activities because of the green spaces, forests and fields that characterise rural areas. Such areas allow everyone to wander through them and the materials in rural context could also encourage children to create their own play. Similarly in Adelaide, MacDougall, Schiller and Darbyshire (2009) found that children living on rural islands had more access to the natural environment and wildlife, such as dams, creeks, sea beds and rocks. In contrast, children in the inner city were mostly indoors and had limited access to nature. In addition to the rural environment offering more space for children to play, activity levels for children in rural areas were also found to be higher. For example, in rural Cyprus, Loucaides, Chedzoy and Bennett (2004) found that rural children had higher levels of physical activity because they had more space in their gardens and neighbourhoods and they spent more time outdoors than their urban counterparts. The relatively high activity and independent mobility levels of children in rural areas due to the availability of spaces, safety and rich environmental affordance have been found in many studies of children's physical activity (Kyttä, 2004, 1997; Loucaides, Chedzoy & Bennett, 2004; Lindgren, 2009; Bell et al., 2016; McCrorie et al., 2020).

However, in a growing number of studies, it has been found that rural children had fewer opportunities due to environmental and social problems. In terms of the play spaces and facilities, a lack of actual or perceived availability, quantity, quality and

accessibility has been found to hinder children's play opportunities in rural areas, either directly or indirectly (Veitch et al., 2013; Woolley & Griffin, 2015). Veitch et al. (2013) examined 433 urban parks and 195 rural parks in Melbourne Australia. The result suggested that parks in urban areas were supportive of activities as they were more accessible and had a greater variety of play equipment for children than parks in rural areas. This is consistent with research carried out by Moran, Plaut and Merom (2017) in Israel. They found that despite their high level of independent mobility, suburban children reported fewer opportunities for outdoor activities than their inner-city peers, which might be due to the particular form of the park, including factors like poor accessibility, absence of people in suburban parks and the hard boundaries surrounded by roads. In comparison, urban children could embrace more environmental diversity, accessibility and other play opportunities than their rural peers (Çubukçu, Kahraman and Yavaşal, 2018).

Socially speaking, the occupation and definition of public and semi-public spaces by adults and their negative stereotyping of children leads to the loss of opportunities for children to play outdoors and their exclusion from the community in rural areas. (Matthews, Taylor, Sherwood, Tucker & Melanie Limb, 2000; Malone, 2002; Percy-Smith, 2002;). Rural children often felt dislocated and detached from the life in villages (Matthews et al., 2000). Giddings and Yarwood (2005) addressed the trend of decreasing play opportunities in rural England because of limited natural spaces in which children are allowed to play. In the study, parents were concerned about the safety and their need to see their children. But other adults wished children to be out of sight and unseen in the adults' owned spaces. Children desired to be seen by their peers in public spaces, but also to be unseen by adults. The paradox of children wanting to be 'seen' and 'not be seen' has been found by a number of researchers (Matthews, Limb & Percy-Smith, 1998; Matthews et al., 2000; Percy-Smith, 2002; Tyrrell & Harmer, 2015). While some adults have moral panics and negative stereotypes about children, children's 'revenge' such as vandalism, graffiti, violence and confrontation in response to injustice in the use of limited outdoor space reinforces their 'bad image', thus creating a vicious circle in which children are further alienated from their communities (Malone & Hasluck, 2002; Percy-Smith, 2002).

It can be seen that previous studies have given inconsistent conclusions about rural children's play opportunities and outdoor experiences. Despite the variation in results, these studies highlight the value of understanding children's play in rural settings in terms of physical and social characteristics. However, it was often not clearly stated in some studies whether the environment was undergoing change or transformation. In this thesis research, the author argues that it is necessary to understand children's play in the midst of the ongoing changes and influences in which they 'grow up', rather than in places that are simply characterised as urban or rural.

2.3.2. The research gap: Playing in transforming environment

Children's play is often a result of the context where people live in and provisions of the environment for children's growth (Singh & Gupta, 2012). As described in the background chapter, rural China is experiencing rapid development. These places have been experiencing both physical and social changes. Whether such changes influence children's play and how they might impact play require attention.

Previous research in urban settings has found that children have limited opportunities to explore and experience the outdoor environment, and that these opportunities are becoming fewer (Yin, Kasraian & van Wesemael, 2022). Industrialisation and the city expansion in urban areas has been considered the cause of lack of outdoor play opportunities (Dipeolu & Ibem, 2020). Specifically, the increase in cars and motorways, the increase in violence and crime, the decrease in the quantity and quality of natural spaces, the decrease in the number of children and the commercialisation and privatisation of spaces have been identified as barriers to children's play opportunities as a result of changes in the urban environment (Hillman, Adams & Whitelegg, 1990; Percy-Smith, 2002; Wridt, 2004; Karsten, 2005; Hillman, 2006; Malone & Rudner, 2011).

In rural settings, it has been argued that continuing urban development in a rural area can change the contours of the landscape and affect children's safety, accessibility, and diversity of spaces in terms of play (Cummins, 2009). Specifically, urbanisation reduces the area for play in places where children live, increases

distance to available natural spaces and therefore hinders opportunities for play (Gaster, 1991; Little & Wyver, 2008; Malone & Rudner, 2011; Karsten, 2015; Aitken, 2018; Soga & Gaston, 2018;). However, there is still limited understanding of rapid changes in rural settings and its influence on children's play (Matthews et al., 2000; Holt et al., 2016). In China, rapid local development, the resettlement of children and the migration of adults to work as described in the background section in this thesis have not been well explored in relation to children's play and outdoor spaces.

2.3.2.1. Rapid development, urbanisation and play

Generally, it was believed there has been a decrease in children's overall play opportunities due to urbanisation in both built and natural environments. For example, Woolley and Griffin (2015) studied the differences of play in childhoods across three generations in an urban rural fringe of Sheffield, UK which, from the 1960, has been experiencing urbanisation accompanied by a reduction in mining and farming, the construction of roads, improved housing conditions and an increasing population. They found, under parents' permission or not, there was a major reduction in children's travel distance, types of outdoor space, play activities and play companions. Karsten (2005) examined three places in Amsterdam which varied in physical form, population and social class. Children's outdoor spaces at the time of the research were compared with those in the 1950s and 1960s. Changes in the character of the outdoor spaces were found in two of the study sites, where children's outdoor spaces became adult spaces, such as changing from public open spaces to car parks, and as a result children became more active indoors rather than outdoors. The lack of natural space and public space for children's play in rural areas also made children more inclined to organised activities. In the Netherlands van Heel, van den Born and Aarts (2023) highlighted the issues of decreased play opportunities due to urbanisation and the expansion of cities. They collected drawings from primary school children and found that children mainly favoured playgrounds and spaces for organised play such as sports fields and theme parks, rather than natural spaces and suggested there had been a decrease of play in natural environment in Netherlands in recent decades. Such increase of organised play in rural area was also found in a study by Holt et al. (2016) in Canada where local children living in a rural area were offered more playgrounds and were involved in more organised play than in their parents' and grandparents' time. Karsten (2005) questioned this benefit through

organised play as it is still limited by the accessibility of resources depending on the family, manifested as social class. In Karsten's (2005) research, it was argued, the outdoor play of the past was not necessarily better than the play of the present, as new forms of play emerged which can benefit the children of today. Digital play is one of those kinds when the lack of outdoor facilities makes children retreat to their homes and rely on entertainment like video and digital games (Chawla, 1994; Malone & Hasluck, 2002;).

However, some researchers have pointed out that children may not perceive their current environment to be worse because of generational amnesia which means that people living in their generation tend to tolerate the situation they grow up in (Kahn, 2002; Muñoz, 2009; Soga & Gaston, 2018). Each generation accepts a degraded biodiversity and this became an inappropriate reference point for later generations. This can be evidenced by Zylicz (2002) who found that, in Poland, even though the natural and built environment has changed so much for economic and political reasons that more than 40 percent of children no longer knew what their surroundings were like before, and they had accepted the deterioration of their environment. This environmental amnesia would cause continuing decrease in children's contact with, experience and familiarity with nature (Soga & Gaston, 2018).

Although the criticality of urbanisation and local development on children's play has been recognised in previous research, the rapid changes brought about by rural development have not been considered in most of the studies. Previous studies often show the influence of changes that have occurred over a relatively long period of time and highlight differences between generations. In comparison, rapid development and change could impact on children's current childhood. The sudden changes to the environment in which children experience their outdoor play is a subject that is under-researched.

Only a few studies have articulated the rapid urbanising background with a focus on children's outdoor play. Sancar and Severcan (2010) reported a change in children's play in a city that experienced major transformation because of tourism in Turkey. They found that although the children had freedom in their environment, their

preference for the type of place was shifting towards spaces of tourism and consumption as these replaced local traditional landscapes. In villages in Mayurbhanj, rural India, where local development brought the construction of infrastructures, schools and local commercialisation, Bowen (2015) reported that earth was replaced by concrete roads and discarded refuse became children's play materials. Children who had more access to commercial goods tended to play with store-purchased products such as dice and board games than autonomously produced props as they did before. This commercialisation of play was also found in the UK by Percy-Smith (2002) in children during suburbanisation when retail and leisure functions were relocated out of town. Percy-Smith (2002) also addressed the fragmented cohesiveness and the lack of identity, lack of sense of belonging and sense of place among suburban children due to the short history of their suburban community. This loss of history was also discussed by Severcan (2018) in Turkey who studied children's outdoor spaces under regeneration during which residential homes were built in 'one night'. From children's perspective, the street changed from a playground and a social place to a mere road. The stories and legends of historical spaces attracted children and, as a result, the disappearance of those spaces affected the creation of collective memories and social identities. Psychically, socially and culturally, these impacts changed the texture and experience of children's games and activities (Bowen, 2015).

2.3.2.2. Resettlement and play

The environment in which children live, particularly home as their immediate environment, is of great relevance to children's play (Carver et al., 2013; Bowen, 2015). However, resettlement affects children's experience because they have experienced part of their childhood elsewhere (Tyrrell & Harmer, 2015). Yet few studies have addressed the impact of resettlement and changing schools on children's outdoor activities.

Moving into a city from a rural area due to urbanisation and housing intensification (Carroll, Witten & Kearns, 2011; Kerr, Klocker & Gibson, 2021), and moving out to a rural area due to the idyllic portray of rural life (Matthews et al., 2000; Henderson, 2005; Tyrrell & Harmer, 2015) have been two main topics in the literature about children moving homes and their outdoor experiences.

Tyrrell and Harmer (2015) found that urban children who migrated to rural areas faced lack of facilities, lack of activities and exclusion. The children often had less access to spaces and friends due to travel distances and lack of transport provision in the rural context. Migrant children try to fit in with local children and if they want to play in places other than with local children, they may have to go to places not intended for children's activities and may therefore be excluded. However, children in the study by Tyrrell and Harmer (2015) reported a general positive feeling of safety and appreciated the nice quality of living in a rural area which reflected migrated children's paradoxical feeling towards rural life. In the transforming rural China studied in this thesis, children were rural residents who had moved to more urbanised area in the same region and they were therefore confronted with a more urban lifestyle. Rural children's play in the more urban environment needs to be understood. A study by Carroll, Witten and Kearns (2011) in Auckland, New Zealand, examined the drivers of moving into the inner city and children's needs in the context of local housing densification. Although Carroll *et al*. focused on families' requirements in an urban area, the families used to be suburban residents who had now moved to a city centre. In their research, parents showed their concern about a lack of play spaces for children to play both outdoors and inside the apartments. In India, Singh and Gupta (2012) carried out research on parents' perception of play environments in two residential areas. These two places differed greatly in living environment, socio-economic status and public resources. Singh and Gupta (2012) also recruited a group of participants who used to live in temporary shanty dwellings and then moved into a housing complex. In their new residential environment, street, home vicinity and neighbourhoods' homes were most preferred play spaces by the relocated residents with low socio-economic status and far fewer resources. A home garden was the preferred play space by high-income residents with much more home space. However, Singh and Gupta did not consider how children responded to, or potentially adapted to the new environment after their resettlement.

In the current thesis, the resettlement community in the 'urbanised area' was not completely cut off physically or socially from the surrounding rural areas. In fact, the new resettlement neighbourhood area was developed on rural land. A study comparable to the current study was carried by Kerr, Klocker and Gibson (2021) in a

transforming suburban area due to house intensification. Families with children reported a shortage of space in flats which were built and marketed for single people or couples. Besides the physical limitation, parents had the emotional burden of feeling guilty by not providing children with ideal homes with detached dwellings and ownership. Apartments were therefore not viewed as homes.

More complicated than moving between urban and rural areas, the children in rural China often have multiple identities in terms of their use of local spaces. Resettled children in a modern community might face "urban" buildings, public spaces and roads while still having connections to surrounding rural life and some even still own homes there. For these "urban" residents in the urbanised area, they used to be rural residents not long ago and had their own rural experience in the recent past. Henderson (2005) gives a concise classification including 4 types of population in such a context: native inhabitants, incomers, dormitory dwellers (who use the village as a satellite suburb) and weekenders (who own a second home in the village). However, there are still differences between current context and the contexts included in previous research. The driver of moving was neither enjoying merits in urban life nor pursuing an idyllic rural life. Instead, resettlement due to land acquisition and transferring to the centre school in towns due to school mergers were the main reasons, as discussed in the background section. In such specific context, children play in the same space could be who are living in the town (or migrated from cities or even other places of China), residents from intermediate traditional villages, new comers that have just moved to the new resettlement community from surrounding village, or those who have moved into this area for a period of time and adapted to the new environment to some extent.

Due to the differences in current research context and the lack of research in relation to children's play and resettlement in rural areas, the current research can contribute to this small, but growing body of literature on understanding influences of physical and social change due to resettlement on children's play.

2.3.2.3. Left-behind children and play

In addition to changes in the home environment caused by resettlement, parents

working outside the home have led to changes in the family structure of children, resulting in some children being left behind. These children are often referred as the left-behind children (LBC), a group that has experienced early separation from parents geographically (Graham & Jordan, 2011; Su et al., 2013). The absence of parents has negatively influenced their physical (Harmon et al., 2014) and psychological development (Luo, Wang, & Gao, 2009; Graham et al., 2012). Although the LBC issue has attracted attention across disciplines (Fan et al., 2009), studies on LBC's outdoor play environment is very limited. Studies on LBC mainly falls in three disciplines: psychology, health, and education. For example, previous researchers have expressed concerns that LBC suffered from a poor state of health (Asis, 2006; Wen & Lin, 2012), including physical and mental health (Graham & Jordan, 2011) and behavioural problems(Su et al., 2013). Other researchers have studied specific issues and possible links relating to LBC. Depression among LBCs has been the focus of several studies (Fan et al., 2009; Wang et al., 2015). Loneliness (Su et al., 2013) , anxiety, happiness (Fan et al. 2009; Fan and Zhao 2010; Gao 2010; Liu and Ouyang 2010), and academic performance (Amuedo-Dorantes & Pozo, 2010; Song, Ma & Ruan, 2021) have also been considered.

The difference among the left-behind children and none left-behind children has often addressed by previous researchers. They have suggested that LBC could be affected by lack of parents' support (Asis, 2006), lack of parental supervision (Wen & Lin, 2012), lack of communication (Fang and Fang, 2003; Fang et al., 2006; Wen, 2008) and weakened parent-child relationships (Wang et al., 2015). The lack of these social connections can exert a negative influence on left-behind children. Other than the social factor, social-economic factors such as family wealth and remittance from migrant parents can influence left-behind children as well. However, some scholars have reported that the negative influence on health (Xiang, 2007; Su et al., 2013), school behaviours (Xiang, 2007) and behavioural problems (Zhang et al., 2006; Hu et al., 2008; Yi & Wu, 2010) were not supported in their research compared to none-left-behind children in rural areas.

The results for these studies are mixed and unclear. When discussing LBC as one of the special groups in a rural context, what was noted is that labour migration, which first caused children to be left behind, is now a common phenomenon in rural China.

Not only low-income families but families from all social-economic spectra may have members who have migrated (He et al., 2012). Children left behind could be experiencing challenges brought on as they develop. Children of such parents might have fewer opportunities for challenging but relatively safe play (McNeish & Roberts, 1995). Few studies have discussed the parental influence of caregivers on LBC's play, so this was considered an important aspect of the current research. The issue of whether the detriments faced by left-behind children and their families impact children's play and their utilisation of outdoor environment has not been extensively studied and should be subject to further investigation.

2.3.2.4. Lack of research in Chinese literature on children's play and play environments in rural areas under transformation

Research needs to be carried out in a different environment because people's perception varies from culture to culture (Çubukçu, Kahraman & Yavaşal, 2018). The research on children's play environment have been mainly conducted in the Northern America, Europe and Australia (Ardoin & Bowers, 2020; Severcan, 2018). There is a need for researchers to explore these issues in developing countries (Adams & Savahl, 2017). Recently, a number of studies in the developing countries have addressed related topics such as in Turkey and India (Sancar & Severcan, 2010; Singh & Gupta, 2012; Çubukçu, Kahraman & Yavaşal, 2018; Meyer et al., 2021). In comparison, the presence of children and play in rural landscape research in China is limited (Geng & Shen, 2013).

In China, general landscape research has been a main area of the literature and the research interests have gradually shifted from land use and agriculture to long-term values such as biodiversity and sustainability (Yue et al., 2012). Among studies about the rural environment and children, rural urbanisation and its impact on rural youth life has been a focus with emphasis on education, health and the influence of modern media, and little attention has been paid to the characteristics of rural children's spaces (Xu, 2015; Dong, Fang & Li, 2018; Zhao et al., 2018).

Jiang (2011) has noted the disintegration of rural cultures. The single-minded pursuit of wealth as influenced by an urban life style has led to the loss of rural culture and contributes to children's loss of identity (Jiang, 2011). Alienation of neighbourhoods

weakens the community's parenting of children. The absence of parents in the in family due to labour migration has left children behind and has caused uncertainty in children's development.

Only a little research has considered children's play in transforming rural China. For example, in Gansu province, Zhao et al. (2018) carried out a study to understand spatial characteristics of rural children's life. They found the play spaces for rural children was limited mainly to their homes and public squares. Children were excluded from local public facilities, such as bookshops and public cultural spaces, which were not originally designed with children's use in mind. However, in their study, issues of left-behind children and resettlement have not been addressed and rural children have been studied as a universal group. In regards to left-behind children, only a few studies have explored LBC's use of the local environment in rural China, for example in Hunan Province (Wen & Lin, 2012), Sichuan Province (Chen, 2013), Jiangxi Province, and Anhui Province (Murphy et al., 2015). A few researchers have focused on the influence of landscape and school environments, but without including the elements of play (Zhu, 2008; Wang, 2016). For example, Li and Wang (2015) found LBC spent significantly more time doing chores. Their parents' absence negatively influenced their free time. In terms of emotion Tang (2011) found that in addition to a lack of facilities and support from others, feelings of aesthetic inferiority, loneliness, and lack of cooperation caused LBC's low level of physical activities. However, "play" and "environment" in the transforming context was not the focus of their study. Another study by Dong, Fang and Li (2018) addressed the economic development that has led to a 'same-looking' and urbanised rural landscape. Children's outdoor spaces were therefore further reduced and deteriorated, leaving children with fewer spaces to play and socialise. Dong et al. (2018) also highlights the issues of left-behind children and suggest that left-bind children need spaces that create a sense of identity and a sense of belonging which they lack in their daily life. Although such research investigated rural children's play from a landscape perspective, the aim of the research was to deliver a design proposal. It did not include actual fieldwork or the collection of empirical data. This type of design-oriented research makes up the majority of the Chinese studies on children's play in rural areas (Wang & Huang, 2015). Planning with children is not simply about providing design, but about understanding the culture of community and the role of

the child in it (Malone & Hasluck, 2002). Whether urbanisation promotes child development and whether the development of children in newly formed resettlement communities differs from that of urban children has not been answered by the existing literature (Zhang et al., 2020). Only a few publications about young Chinese children's outdoor environment can be found in Chinese journals and none in international journals (Wang et al., 2018). To bridge this gap, the present thesis explored children's play in rural China that was under rapid transformation, with a close look at the influence of specific issues of rural development, urbanisation, resettlement, and left-behind children.

2.4. Deciding the indicators for the research

Answering the questions of what, where, and when children play is necessary for understanding children's activities (Escalante, Backx & Saavedra, 2014). Children's play can be influenced by the local culture, children's temperament, and parents' safety concerns and parenting practices (Valentine & McKendrick, 1997; Bornstein et al., 1999). To be able to understand children's outdoor play in rapid transforming rural environment, it was necessary to decide which indicators related to the environment and which aspects of children's outdoor play should be included and studied. Indicators related to the physical and social environment, including type of place and the characters, location of places for play and range, parental influence and other social influences, as well as indicators related to play, including activities, playtimes, and playmates, were considered key in the current research.

2.4.1. Space: Natural, man-made, or contextual

A few studies have discussed children's outdoor spaces in the rural context, especially areas under transformation. Unlike urban areas, rural areas are considered more natural (Göttlicher, 2020) and more unstructured (Donatiello et al., 2013) thus providing a richer set of potential affordances (Kyttä, 2002; McCrorie et al., 2020) . It is argued that there was a stronger connection between rural children and nature (Schultz, 2000; Kellert, 2006). For example, in two studies, children valued earth, rocks, hills, forests, rivers, and informal conservations for their play (Bowen, 2015; Li & Seymour, 2019). Woodland was perceived as adventurous, calm, and free

(Lisewski-Hobson & Watkins, 2019). Rivers and waterfalls were the most common places for nature-related activities (Mohamad Muslim et al., 2017). However, this preference for nature was not found in some other studies. Skår et al. (2016) found that children used the forest and other natural environments near their homes much less than they used playgrounds, streets and bikeways, which are more part of urbanised areas. Matthews et al.'s (2000) research in the United Kingdom found that, compared with natural places, rural children preferred social spaces with peers and spaces away from parents' supervision more important.

It has been argued that contemporary children have less direct experience of nature (Mustapa et al., 2018). This might be because children today have fewer opportunities to explore the local environment compared to the previous generation, owing to changes in landscapes and land ownership (Smith & Barker, 2001). In the current literature, children's outdoor environments in rapid transforming rural areas remain underexplored particularly in rural China. Whether local affordance for outdoor play has been reduced because of changes in land use or potential pollution remains unclear. Children's perceptions, preferences, and uses of local spaces need to be studied.

In contrast to the dichotomous preference for children's liking or disliking of natural landscapes, some studies, in some studies, children's preferences for spaces were found to be contextual. Chapman and Robertson (2009) found that children living in villages treated nature as a private place, whereas urban children treated their bedrooms as a private place. Watts (2019) in their photovoice research, found rural children selected landscapes, flowers, and animals as indicators of beauty, whereas urban children selected images with people. It might be that village children prefer natural landscapes, whereas city children prefer urban landscapes. Müderrisoglu and Gültekin (2015) argued that children's differences in preference depend on whether they have previous experience of rural play or urban play. Machemer (2006) offered a more direct argument that children's perception of an ideal place might be their real preference or only a reflection of where they are currently living. These arguments on children's play agree with general cultural preference theories, which state that people's perceptions of the landscape are built on their motives, cultural backgrounds, and previous landscape experience (Zube, Sell & Taylor, 1982;

Arnberger & Eder, 2011). Such contextual factors can influence children's actual play behaviours more than just perceptions and preferences. For example, Çubukçu et al. (2018) found that rural children reported streets or open fields in front of their houses as play spaces, whereas urban children reported school areas and football fields as play spaces. Similarly, Grigsby-Toussaint et al. (2011) found in the United States that children with the richest 'green' neighbourhood environments tended to be the most active playgroup, whereas children with the least natural environments tended to be the least active playgroup.

In contrast to these contextual arguments, some researchers have argued that rural children are not sensitive to their context. Some researchers have found that children favoured certain types of spaces regardless of whether they are rural or urban (Barton et al., 2015). Additionally, children do not seem bothered by changes in the environment. For example, children were not found sensitive to changes in the natural landscape and agricultural land (Hewitt et al., 2020). They could play in wasteland (Valentine & McKendrick, 1997) and spaces surrounded by filth (Escalante et al., 2014). This might be because play is a universal need among children, as some biologically based play studies have discussed (Home, Bauer & Hunziker, 2010). These inconsistencies make the current research on play environments meaningful. In rapidly urbanising rural areas, different types of spaces such as wild spaces, semi-natural spaces, designed spaces, and commercial spaces exist in the same time and place. When offered such varied choices, how children view and use those choices and what the influence of those environments is on children’s play behaviour need to be studied.

Certain characteristics of the environment and specific landscape elements have often been found to be children's favourite places for play. Moore (1986) found that children aged 8–13 generally preferred outdoor open spaces, spaces with commercial utility, community spaces, and homesites. Matthews, Limb and Percy-Smith (1998) reported in their study on teenagers that they preferred natural places, places where they could be with friends and be alone, places they could access physically or visually, and places they could call their own. Chatterjee (2015) summarised four types of spaces preferred by children: places with interests, places with creativity, places for study, and places as shelters. Findings on children's favoured landscape

elements have been mixed.

Some researchers have pointed to the functions landscape features which can serve as reasons for children's choices in the environment. These features could be water, plants, animals, sand, colours, and other features in the natural landscape that can be modified, climbed, and used as shelter (Niklasson & Sandberg, 2010). Places with trees and shrubs can facilitate children's climbing, symbolic play, and constructive play. The slope and roughness of the landscape can allow children to slide, climb, and run (Fjørtoft & Sageie, 2000). Small enclosures with a view, and bushes might also be preferred (Kirkby, 1989). Some researchers have pointed out the aesthetic effect of landscapes on children's perception. Tunstall, Tapsell and House (2004) showed that children found river landscapes and trees appealing and treated them as places for play, and water is often a significant feature in the landscape preferences of children (Zube, Sell & Taylor, 1982; Malinowski & Thurber, 1996;). Other researchers determined children's use of places and elements from observation. Zeng and Li (2018) found that children favoured playing in the areas next to the facades of buildings and man-made water features. These findings indicated that children do not discriminate between designed and non-designed areas (Moore, 1986). A rich palette of ‘found places’ can be used for play, such as roads, pavements, gardens, planted areas and wild areas (Woolley, 2015). In China, although large and open spaces in rural areas make it easier for children to construct a play space (Luo & Luo, 2015), children's preference for and use of different landscape elements for play are unclear.

Children view nature as a 'whole community' and associate it with specific activities, elements, and locations (Tillmann et al., 2019). When considering children's outdoor environment, both general and particular geographical variations need to be considered (Valentine & McKendrick, 1997). Therefore, in addition to the type of space for play elements in the space reviewed above, questions relating to the place of children's play relating to children’s mobility and travel range was also included as indicators in the current research and is considered important in transforming rural areas in China.

2.4.2. Range: Around or away

The children's home range has been considered as an indicator for children's play. It refers to the distance children travel away from home during play and leisure outings (Matthews, 1992). It can also be defined as the sum of independent and voluntary encounters with the world centring on dwellings (Gaster, 1995). It is generally adopted in previous studies to help describe children' s engagement with their outdoor environment (Woolley & Griffin, 2015).

Previous researchers have shown that children's home range has been reduced compared with the previous generation (Karsten, 2005; Skår & Krogh, 2009; Nordbakke, 2019) This may be due to increasingly heavy traffic, poor accessibility, long travel distance in between homes, other's homes and schools, and parental concerns about safety, including car accidents, stranger danger and other safety issues (Hillman & Adams, 1992; Karsten, 2005; Holloway, 2014; Tyrrell & Harmer, 2015). More children are taken to and from school by car (Bradshaw, 2001; Fyhri et al., 2011; Kyttä et al., 2015). Chauffeuring by parents to places has made children the 'backseat generation' (Karsten, 2005; Malone, 2007). Their lives have become institutionalised because they travel from island to island containing organised activities in landscapes mainly designed for adults (Zeiher, 2001).

Rural children reported the vicinity of the home as the place for most of their activities, whereas urban children reported being mainly active inside their homes (Çubukçu et al., 2018). On the one hand, the child's home range narrows to the immediate home environment as Moore and Young (1978) worry that the concept of home-range may no longer be meaningful in situations where pathways and places are indistinguishable. On the other hand, paths, as important places where children's independent activities take place, gradually disappear because of parental chauffeuring, leaving only the destination and the home. Gaster (1995) argued the concept of home-range was obsolete as children's outdoor activities are nowadays not roaming their neighbourhood, like buffalos in the animal ecologies from where the term is derived. The term home-range needs to be replaced by a phrase like 'children's independent mobility' in academic discourse (Woolley & Griffin, 2015). Hillman, Adams and Whitelegg (1990) have discussed children's independent mobility

using data from England and Germany. Children's independent mobility has been studied focusing on daily contact spaces, territorial ranges, distances of travel and places children travel to (Kyttä, 2004; Malone, 2011).

However, the findings relating to children's range are not consistent. Babb et al. (2017) found a range of 400m from children's homes to be their daily activity range. Schoeppe et al. (2016) reported that 74% of parents restricted their children (aged 8–12) to a range of 500m from their homes. In Loebach and Gilliland's (2016a) study with GPS tracking, children's time was mostly spent in places that were at short distances to their homes. However, Escalante et al. (2014) argued that there was no clear boundary for play among children. Their research was conducted in low-income areas. The researchers found that children went to places they knew and they were not allowed to visit, such as riverbeds. Usually, the distance to these natural environments could be much greater than the distance to other locations (Hewitt et al., 2020). This indicates that the attractiveness of spaces can affect children's actual travel distance. Zhou, Li and Larsen (2016) in China, found that urban children often travelled away from the city centre to recreational places and commercial sites at the outskirts of the city. Travel tools, safety, and parents' roles were all found influential to children's travel distance (Hillman, Adams & Whitelegg, 1990; Veitch et al., 2006; Malone, 2007; Malone & Rudner, 2011). Especially for parents' influence, the range children can travel is often the result of negotiation and understanding between children and parents (Hart, 1976). Children who were granted with "licences" from parents could play in various place with longer time (Hillman, Adams & Whitelegg, 1990). The travel range and children's mobility remain an under-explored topic in the changing environment in rural China where children might face issues of distant travelling between their homes and schools, dense neighbourhoods in the resettlement community and lack of parental companionship. Children's travel range and their mobility in the context were therefore were investigated in the current research.

Previous research has shown that parental influence has an effect on children's independent mobility, often through negotiation. This negotiation and 'licences' from parents are related to class, to children's age and to gender (Hillman, Adams & Whitelegg, 1990; Hillman, 2006; Holt et al., 2008). Therefore, the inclusion of

parental influences, social influences and children's demographic factors were necessary in this thesis.

2.4.3. Parental influences

Children's play can be restricted, initiated, or dominated by parents. For example, parents might take children to places considered healthy, such as gardens (Söderström et al., 2013). Unsupervised play, such as street play, might be considered less meaningful than adult-organised activities (Mattson, 2002). Children's outdoor play is not necessarily a matter of their individual choice (Karsten, 2005) because their activities may be controlled by adults or confined to schools and commercial leisure spaces (Sancar & Severcan, 2010). However, parents may intentionally foster children's skills through enrichment activities (Lareau, 2002; Vincent & Ball, 2007; Stefansen & Aarseth, 2011). Such activities may be viewed as learning time by parents. The time is spent on productive activities that could give children skills and competencies for future success (Adler & Adler, 1994; Lareau, 2002; Holloway, 2014).

Parents' safety concerns may be the main reason for limiting children's outdoor activities (Cahill, 1990; Valentine & McKendrick, 1997; Tandy, 1999; Karsten, 2005; Carver, Timperio & Crawford, 2008). These concerns include the fear of children getting injured or abducted. Therefore, parents may be unwilling to let their children play in unsupervised public spaces (Cahill, 1990; Hillman, Adams & Whitelegg, 1990; Valentine & McKendrick, 1997). This safety concern also affects children's travel distance and is turning them into a 'bubble-wrap' generation who are protected by parents from dangers (Malone, 2007) and restricted to their home and gardens. Parents have a fear of their children playing in public spaces unsupervised (Smith & Barker, 2001). This safety concern not only derives from the dangers posed by the physical environment, such as the risk of falling from trees (Wojnowska-Heciak et al., 2020), but also from stranger danger (Bauer et al., 2021). However, some rural children can move about without supervision, unlike their urban peers (Çubukçu et al., 2018) and some places in villages away from homes may be perceived as safe, especially unclaimed natural areas (Alexander et al., 2015). In the current research context, parents' influence needs to be considered as a factor in children's choice of play areas.

2.4.4. Neighbourhood social influences: inequality and exclusion

Greater attention has been focused in recent years on neighbourhood settings and the impact of their physical and social conditions on children's health and behaviour (Cummins et al., 2007; Carpiano, 2009). Class is believed to be one of the key factors resulting in variations in the use of enrichment activities (Holloway, 2014). Some researchers have proposed that children with lower socioeconomic status have fewer play opportunities. Tandon et al. (2012) found children of a lower socioeconomic status have greater access to sedentary activities but reduced access to portable play equipment such as bicycles. In comparison, 'paradoxical poverty' was found in play in that children in poorer neighbourhoods had a richer sense of place than children in wealthier neighbourhoods (McKendrick, 1997). Children in poor areas seemed to be playing in rather diverse places. In comparison, children from higher socioeconomic backgrounds often have fewer opportunities for outdoor play and independent mobility (Malone & Rudner, 2011; Han et al., 2018). However, Bartie et al. (2016) addressed the importance of the quality of the play environment as opposed to the quantity. They found that although children in low-income areas engaged in more outdoor play, they were playing in riskier environments.

In rural areas, children from low-income families engage in more outdoor play and experience more of caregivers' supervision and participation compared to their peers from richer families, who engage in organised activities (Cottrell et al., 2015). Social class might also influence parenting styles. Middle-class families tend to be involved in 'concerted cultivation' (Lareau, 2002) and children's time for play is therefore affected. In terms of selecting enrichment activities, children from East Asia have less autonomy than their North American peers (Bidjerano & Newman, 2010).

In previous research, as discussed throughout early sections (section 2.3.1), many researchers have identified exclusion in the community as a key barrier to children accessing local spaces, facilities and playing with their peers (Malone & Hasluck, 1998; Matthews, Limb & Percy-Smith, 1998; Malone, 2002, 2011; Percy-Smith, 2002). This is especially true for children who are disadvantaged by changes in their environment, in the current research context, the children who have resettled and the children who were left behind. The inclusion of social influences as an indicator

is relevant to understanding whether there is inequality and exclusion in the use of outdoor space by children in rural China, and if so, to what extent and how it affects their play. In China, with its diminishing acquaintance society and community watch and an increasing number of LBC, potential social influences on children's play and caregivers' interventions need to be understood.

2.4.5. Activities: Free play or organised play

Children's outdoor environments are closely related to their activities. It is believed that children in rural areas enjoy a greater variety of play activities, especially in free play, compared to their urban peers. Karsten (2015) found that climbing trees or playing with snow were the activities more frequently experienced by rural children and suburban and small-town children compared to urban children. Researchers attribute these opportunities to the rich affordance in rural areas. Because of the agricultural nature of these spaces, rural children may even treat chores as play or may play while doing chores (Escalante et al., 2014).

However, changes in land use, increased pollution, and loss of culture might affect the rural outdoor environment, affordance, and children's play. Safety and traffic issues may lead to a parent-supervised shift to organised play. This increasing trend of organised play is not restricted to urban children, particular areas, or specific physical circumstances (Skår & Krogh, 2009). By investigating children's activities in the present study, it is possible to understand how rural children's activities have changed in the context of rural change. Questions such as whether their traditional activities have been disrupted or lost, whether the new environment hinders or encourages children's play, and how children have adapted to the new environment can be considered.

2.4.6. Time: Free or occupied

Rural children are believed to spend more time outdoors (Donatiello et al., 2013; Mohamad Muslim et al., 2017) and to be more physically active than urban children, who spend more time at home on their screens (Dahl, Sethre-Hofstad & Salomon,

2013). Children's use of time was believed to be flexible and contextual (Njelesani et al., 2011). However, rural children nowadays might experience the same issues as their urban counterparts (Ward, 1990). They are spending less time outdoors than previous generations because of safety concerns, traffic, and parents' fears, especially fears about criminal activities and unstructured and unaccompanied play (Holloway & Pimlott-Wilson, 2014; Soga & Gaston, 2016).

Children's playtime can be significantly affected by homework and organised activities (Skår et al., 2016). It can also be affected by adults' schedules, interests, priorities, and willingness to support play (Skår & Krogh, 2009). Few studies have considered children's play patterns in relation to the specific time of day and the specific date in a rural context under transformation. This topic is essential to understand how spaces are used by children and other members of the local society.

2.4.7. Playmate: Lively or lonely

Spending time with friends, siblings, and other children is critical, especially during unstructured outdoor play (Veitch, Salmon & Ball, 2010). Playmates and play spaces are related and can be mutually influenced. van Andel (1990) proposed that the probability of finding play friends in the area is essential for children to evaluate the aesthetic value of a landscape. It was found that when outdoors, children spent most of their time after school with friends (Matthew et al., 2000; Cummins et al., 2007; Carpiano, 2009). When indoors, they spent more time with their parents or alone, and spent the least time with friends. For rural children, opportunities to find friends might be reduced as a result of outmigration and their left behind status. However, Valentine (1997) showed that children with single parents ironically had better play opportunities and enjoyed the richest environmental experience because they were more likely to independently explore neighbourhood environments and create their own forms of entertainment without adult supervision. However, having more opportunities might not necessarily be positive. Cummins (2009) found that although children reported they had sufficient places to play in, they felt lonely when their siblings and parents were unavailable, instead they might treat animals as playmates. This was especially important for children who were left behind or village children boarding at school in the resettlement community without their parents being there. Few researchers have explored whom children play with in outdoor spaces (Matthew

et al., 2014). Therefore, the investigation of playmates provides insight not only into the availability and variety of children's playmates, but also into their play activities and the physical and social environment they play in.

2.5. Understanding children's play in subgroups

Children are not a homogeneous group sharing the same values, but are diverse because of age (Giddings & Yarwood, 2005; Baran et al., 2014; Visser & van Aalst, 2022) and gender (Chawla, 1994; Matthews, Limb & Percy-Smith, 1998; Karsten, 2003). It is important to understand the diversity of children in assessing their use of spaces (Matthews, Limb & Percy-Smith, 1998). Thus, in the current study, understanding children's difference by age and gender was considered important.

2.5.1. Children's ages

With children's development, their needs change and their preference for types of play and playgrounds evolve (Müderrisoglu & Gültekin, 2015). Contradictory conclusions can be found in literature in relation to play and age. In earlier studies, it was found that children's outdoor play increased with age. Hart (1979) found that boys' travel range increased dramatically after the age of 10. Maturity might be the reason for such changes. The perception of landscape value increases with people's growth (Garcia-Martin et al., 2017). Older children are more likely to have travel tools and, therefore, travel further (Hewitt et al., 2020). However, recent studies have found contrasting results. Children's activity decreases with age, and older children spend more time on their screens (Hewitt et al., 2020). The daily activity level decreases after the age of 9 years (Kimm et al., 2000; Barkes et al., 2010). Escalante (2014) found that older children (11 years old) carried out fewer activities in playgrounds than younger children (8–9 years old). Results relating to age and place were also inconsistent. Compared to older children, younger children might prefer a place that offers a high probability of finding friends (van Andel, 1990). They might prefer the town centre, older children's friends' homes, or their local neighbourhoods (Abbott-Chapman & Robertson, 2009). Younger children's play is more often found in semi-open spaces that offer a greater sense of safety, whereas older children's play offers richer choices (Zeng & Li, 2018). The shift in children's

focus from home to other local areas as they grow might be a reflection of their maturity and growing independence (Hewitt et al., 2020). However, some studies have shown that older children do not refer to the natural landscape as outdoor spaces. Ode Sang et al. (2016) found that although older residents living near green spaces viewed them as important for nature-related activities, they were becoming a smaller part of the residents' physical activities. Social activities and organised activities might be a larger part of teenagers' daily routine. Therefore, they pay less attention to changes in the natural landscape (Hewitt et al., 2020). The difference in age could also affect parental control. For example, as children grow older, parents' supervision tends to be less proximal to children (Dishion & McMahon, 1998). The inclusion of 'age' in the current study is meaningful, not only because it has been included in many former studies with inconsistent findings, but also because associated play behaviour might differ in villages and new communities, especially in the face of external changes.

2.5.2. Children's genders

Children's play and preference for the outdoor environment might vary because of gender. Brown et al. (2008) found that boys prefer outdoor play more than girls do. More girls than boys choose familiar and home spaces (Kyttä, 2002; Abbott-Chapman & Robertson, 2009). Boys prefer open rural areas, whereas girls prefer a community environment. Müderrisoglu and Gültekin (2015) found both genders prefer to play in an environment with people. Boys' activities were influenced by those around them, in contrast to the girls who focused on their own activities. The girls may have been more socially inclined than the boys. The activities boys and girls participate in might also be different (Macdonald et al., 2005). Boys use public green spaces more than girls and enjoy strenuous activities such as cycling or playing football, whereas girls prefer walking (Mäkinen & Tyrväinen, 2008). Children of different genders might also have different preferences for organised play. Newman et al. (2007) found that girls preferred organised play, but others have found that girls were less likely to prefer organised activities (Karsten, 1998). In some studies boys were found more likely than girls to carry out organised play activities (Karsten, 1998; Fyhri & Hjorthol, 2009), but in contrast, Holloway (2014) found that gender made no difference in children's organised play.

These gender-related issues might be caused by society's concern for young women's safety and conservative values (Hewitt et al., 2020). The difference in the play relating to children's genders might be a result of parents' influence. Parents are more likely to encourage boys' risky behaviour than girls' (Morrongiello et al., 2010). In previous studies, when discussing gender differences, parents' influence was mostly related to encouragement on children's exploring of the environment, rather than on restrictions (Brussoni et al., 2015). Boys are allowed to play in further away places compared to girls (Van Vliet, 1983; Matthews, 1987). Girls themselves could be more sensitive to safety issues than boys (McCray & Mora, 2011). The gender effect might also be indirectly influenced by age. Girls who mature earlier than boys tend to do fewer activities compared to boys of the same age (Sherar et al., 2007). However, in Fjørtoft's (2004) research, no difference was found in gender and age groups for children's play in both playgrounds and in natural environments.

In a rural context, spaces and places are usually dominated by males (Donkersloot, 2012). Little is known about the differences in parents' influence on children's play behaviour in relation to gender. These inconsistent findings require more effort to systematically examine gender differences (Brussoni et al., 2015). Few studies have discussed gender differences in play in rural China. The inclusion of gender factors in the present research was considered important.

2.6. Aims, objectives, and research questions

After identifying the gap in the literature, the aim of the current research can be articulated. This research aimed to understand children's play and outdoor play environment in rural China under rapid transformation with a close look at the potential influence of issues of rural urbanisation and industrialisation, resettlement, and the issue of left-behind children considering the potential differences in subgroups categorised by gender and age, to determine how the landscape contributes to the local environment for children's play experience.

To achieve the aim, the research questions had three main objectives: (1) To explore the current status of children's play and outdoor play environment in rural China under transformation at a selected site; (2) to understand children's use of the

environment for play; and (3) to understand the influential factors in children's play in the rapid transforming rural context. Several research questions were constructed based on the identified gaps in the literature: First, in terms of the outdoor play environment, there has been a lack of research on the current status of the environment and potential changes and challenges brought by local development, resettlement and adults' out migration from rural areas to cities. Second, children's use of the environment, including where they play, which type of spaces they are playing in, the travel range and mobility, social influences and other components of play, has not been well explored in the current context. Third, previous findings regarding differences in gender and age, have not been consistent and therefore need to be investigated further in the current context.

Research questions

1. *What is the status of the current outdoor play environment in villages and in the resettlement community?*

2. *Where do children play in terms of the location of places, types of spaces, characteristics and travel range in villages and in the resettlement community?*

3. *What are children's activities, what are their playtimes, and who are their playmates in villages and in the resettlement community?*

4. *Are there any differences in children's play and outdoor play environment in terms of age and gender?*

5. *Is there a determining influencing factor in children's use of the outdoor environment? If so, how and why is the factor influential?*

6. *Do changes in the physical and social environment including local development, resettlement and the issue of children left behind influence children's play and their space to play?*

7. *What is the role of landscape for children's play experience in rural China under transformation?*

Chapter 3

Methodology

3. Methodology

This chapter examines the research design and methodology that underpins this thesis. It explains the research methods, sampling strategy and fieldwork used in this research. First, focuses on the methodological considerations of the research. Prior to discussing specific method, the research philosophy and criteria for selecting the methods are explained. Then, each proposed method is discussed in terms of the benefit and limitations of the current research. Next, the research design and sampling strategy are discussed towards answering the research question. Selection of research site and the fieldwork for the pilot study and the main study is described. Based on the feedback from the pilot study, the methodology was modified. Additionally, the ethics and risks of this research are addressed. Finally, the analysis methods for processing the obtained data are discussed at the end of the chapter.

3.1. Research philosophy

Any methodology applied in a study must be appropriate for the nature of the social phenomena being explored and the researcher's ontology (Tinson, 2009). Before any methods are selected, questions about the nature of being and reality and the knowledge of nature must be answered (Wellington et al., 2005). In the current research, these refer to children and children's play. The objective in current research is to explore the experiences and perspectives of rural children and transforming rural environment. This study does not intend to generate representation, or prove if a certain hypothesis can be accepted or rejected. Thus, the objective of this study is situated in interpretive inquiry in which the focus is to understand the subjective world of human experience (Cohen, Manion & & Morrison, 2022). The ontological stance of interpretivism is to see the world based on one’s position in it (Hammersley, 2013). Realities exist in the form of multiple mental constructions based on the meanings people give to their own intentions, motives and actions and those of others (Guba, Lincoln & Lynham, 2017). This study holds the belief that there are multiple realities which can be better understood through examining different perspectives and acknowledging the validity of each and every

perspective. The researcher's ontological stance is that the experiences of rural children and their caregivers are socially constructed (Greig, Taylor & MacKay, 2007) and there are multiple realities because they depend on the interpretations and meanings given by different individuals (Mackenzie & Knipe, 2006).

In the interpretivist epistemology, the inquirer and the subject of inquiry are fused together with the interactions between the two parties to create the findings (Duffy & Chenail, 2009). The epistemological stance that in current research is that knowledge formed is subjected to assumptions, values and beliefs (Guba & Lincoln, 2005) and that the researcher is part of the research, intertwined with the whole research process (Hammersley, 2013). In the interpretivist paradigm, qualitative methods such as interviews, focus group and observation are used to collect data to achieve the objective of interpretivist approach which is to “understand social life and describe how people construct social meaning” (Fossey et al., 2002). Herein, the author believes that children and their behaviours cannot be understood without in-depth interaction and engagement.

In recent years, the significance of providing children with a voice in research and involving them in participatory research methodologies has been acknowledged (Christensen & James, 2008). For children as the main participants in the current research the author contends that children possess the ability to comprehend and appreciate the concept of space, as well as having the capability to analyse and communicate about their environment. Furthermore, they have the power to actively transform their environment as active agents.

Research has discovered that children possess an innate ability for spatial cognition (Hart and Moore 1973; Hart 1987, 1997). Children are keen observers of their environment and are able to analyse and understand their surroundings (Chawla, 1994). There is compelling evidence that children possess both the interest and the ability to actively participate in the planning, design and management of their local environment for the needs of members of the community (Kaplan, 1994; Matthews, 1995; Malone, 2013) including children from both rural and urban areas. The authors' previous experience can also attest to the ability of children to participate in research, especially research about play spaces. Before this thesis, in the master's

dissertation, the author studied children's space using an interpretivist approach with mainly qualitative methods. The experience and reflections from the engagement with child participants informed the current thesis. Along with the design of the methodology, the author bore in mind the importance of methods to create shared meaning and understanding between themselves and the child participants (Tinson, 2009).

3.2. General principle of method selection

After outlining the research objectives, a crucial step was to decide on the research methods. The chosen methodology should primarily depend on its ability to help answer the research questions. Research questions in the current research fall broadly into two categories: 1. questions relating to understanding the current status of children's play and their outdoor environments, and 2. questions about the underlying reasons of children's use of the environment and influential factors for children's outdoor play. It became clear that both objective records and subjective reports were needed to answer these questions. After reviewing potential methods, both qualitative and quantitative approaches were adopted, including interviews, child-led walks, children's play diaries, GPS tracking and focus groups. General observations of the environment were conducted; however, they were not included as a specific method but were incorporated within the fieldwork, particularly during the child-led walks. These qualitative and quantitative methods allowed words and narratives to add meaning to numbers and vice versa (Tinson, 2009).

3.3. Methods proposed for the fieldwork

To understand the current status of children's outdoor play and environments, GPS (global positioning system) tracking, child-led walks and observations were used. GPS records provided objective, continuous and efficient information on location, frequency, time and route. These helped to reveal the places visited by children and the patterns of their play. Child-led walks and observations provided data on locations, type of space, play activities and play companions. They helped the

researcher to become familiar with local environments, understand participants' responses and interpret data from other methods. Qualitative methods are useful for the in-depth exploration of places and human experiences (Thompson, 2011), and so the participants' presence and engagement fully in the environment are important (Berleant, 2004). Therefore, interviews, focus groups and play diaries helped to answer the research questions about children's preferences and use of outdoor spaces and to identify the underlying reasons. Children led-walks were used for answering experience related questions by talking with children along the walk. This engagement allowed the researcher to understand interactions between the children and the environment (Costa & Coles, 2019). Compared with the data obtained from GPS tracking and relatively subjective observations, the subjective reports from children offered insights into participants' own beliefs and perceptions of children's play and their outdoor environments.

3.3.1. Interviews with children and caregivers

Interviews result in rich and detailed answers about experiences and opinions (Bryman, 2012). In this research, semi-structured (rather than structured or unstructured) interviews were used as semi-structured interviews are flexible and allow participants to express themselves while keeping focused on designated topics.

Although structured and specific questions are quick to administer, the answers might be less in-depth and explorative (Bryman, 2012). Unstructured interviews are too flexible and may be biased due to inappropriate questions or irrelevant and inconsequential responses (Koskei Student & Simiyu, 2015). Semi-structured interviews, in comparison, allow researchers to collect rich information and, at the same time, focus interviewees on specific issues. They also enable researchers to rephrase questions and clarify answers, which are particularly important when interviewing young children or aged caregivers (Bryman, 2012).

Interviewing has been often adopted as a primary research method among studies for children’s outdoor play in both urban and rural settings (Chawla, 1994; Kyttä, 2002; Holt et al., 2016).

In this research, the interviews were designed initially for children (later excluded from the main fieldwork due to low validity) and their caregivers. The questions asked focused on the following: the location of places children often played in, the type of spaces they played in, the time they played, the length of the time, play activities, play companions, caregivers' attitudes towards play, caregivers' interventions and other issues that caregivers believed impacted on children's play (see the appendix E for the interview questions).

3.3.2. Focus groups for child participants

Focus groups are commonly used in many children's studies. For example, Brockman, Fox and Jago (2011) conducted focus groups with children aged 10–11 years to understand the factors that could encourage, facilitate or hinder their physical activities. Similarly, Tay et al. (2021) held focus groups with primary school children aged 9–12 years to understand the influential factors on children's physical activities at social and individual levels. Cammisa, Montrone and Caroli (2011) organised focus groups with younger children aged 4 years to understand their activities in preschool and the barriers to play.

One of the main reasons for using focus groups is that participants can respond to each other's views and build their views based on this interaction, which allows researchers to understand why participants feel a certain way (Bryman, 2012). In the current research, focus groups were not included in the initial design but were added after the pilot research (see section 3.4.2 p57) as a replacement for children's interviews. Compared with an interview between a researcher and an individual participant, a focus group allows the participants to probe each other's reasons and to challenge, qualify, modify or agree on a view that they had not considered until proposed by other group members (Bryman 2012). This also reflects the meaning-making process of everyday life, which is more naturalistic than individualistic (Wilkinson, 1998). This is particularly relevant to the current research because not only is play an individual activity but also a group event. Focus groups can reveal how children as a group make sense of a place and construct meanings around it.

Before conducting the fieldwork, it was crucial to determine the size of the focus

group and its members. Morgan and Scannell (1998) suggests that one group could include 6–10 members and believes the size of the group to be associated with the level of involvement with the topic. If members are more emotionally involved with a topic, the size of the group should be small, but if the participants are not closely involved with an issue, the inclusion of more people could help generate suggestions and opinions. In the current research, the topic of play was closely related to children's lives. The author considered that a small group would allow more opportunities for children to express and discuss their views, thereby providing rich content. A large group of people who are not interested in a topic may often end up in silence (Bryman, 2012). Therefore, in the current research, each focus group was designed initially with six members. However, during daily engagement with local children in the actual fieldwork, the author found that it was impractical to process information from more than five children when they spoke simultaneously. Therefore, smaller groups, each containing no more than five children, were recruited.

In addition to the size of the group, it was necessary to decide on which children would be involved in each group. In the present research, a natural grouping that includes people who know each other in a group, was adopted as it could enhance the quality of content generated (Kitzinger, 1995). Young children tend to talk more in a safe environment with friends, which helps to obtain deeper insights. Participants who do not know each other may result in nobody contributing (Holbrook & Jackson, 1996). Children who resided in the same area was considered a criterion for selecting members in individual groups. Despite the advantages, the main criticism about a natural grouping is data contamination, i.e., putting people who know each other in one group might result in discussing information relevant only to that specific, small population (Bryman, 2012). However, this influence was limited in the current research. The current focus is not on participants' views and preferences for preselected scenarios. Instead, this research explores where and which environments children play in and their use of those spaces. Therefore, the researcher considered that children who knew each other and lived nearby could provide more information about their local environment.

3.3.3. Play diary

This thesis research included a play diary prior the pilot study, due to the flexibility it offers to participants in controlling where, when and how it is completed (Tinson, 2009). As a non-verbal tool, it could help children who have difficulty expressing their thoughts about abstract things (Bartie et al., 2016) when providing insights into their experiences (Morgan, 2010). In this research, participants were asked to record their everyday play activities in writing or by drawing. To enhance the response rate, the completion of the diary was encouraged through daily communication. However, after testing in the pilot study (see section 3.4.1 p57), this method was not taken forward into the main study because little valid data was retrieved.

3.3.4. Child-led walks

Previous studies have shown that walking can elicit sensorial engagement and interaction with the landscape (Lund, 2012). Children can develop views and understandings towards outdoor environments; therefore, a participatory method can reveal the facts as seen through children's eyes (Wunderlich, 2008; Teixeira & Gardner, 2017). Child-led walks have been used in various children's studies (e.g., Loebach & Gilliland, 2010; Carroll et al., 2015; Arnott, 2018). In the current research, this method was adopted to help understand where do children usually play, which type of spaces they play in and the actual outdoor environment with the help of observation. Compared with an observation solely from a researcher's perspective as a bystander, participants can lead researchers to the places they play in and talk about the spaces, experiences and understanding of the world, which cannot be accurately filtered through an adult lens (Loebach & Gilliland, 2010).

In this study, observations made and photographs taken by the researcher were used to record children's play during led walks. Besides researchers' photographs, studies have highlighted the advantages of using photovoice (photographs taken by children) to decipher meanings through children's perspectives (Teixeira & Gardner, 2017). However, in the current research, photographs taken by children say little about their own play activities and may interfere with natural play and experience.

Walking with a group of children was preferred in this research as it facilitated the researcher's observation of the interactions between children's play and their use of places in groups. It is more practical than individual child-led walks in terms of time and travel, especially when children live in different villages, as in the current research. However, Catalani and Minkler (2010) found no relationship between group size in a led walk and participation quality. Therefore, due to the limited attendances in the actual fieldwork, child-led walks with only one participant were also accepted.

3.3.5. GPS tracking for child participants

To record the children's outdoor activities objectively, the current research included a GPS tracking method. This approach is being used increasingly in children's play and activity studies (Dennis, 2006). For example, Loebach and Gilliland (2016a, 2016b) used GPS tracking to understand neighbourhood activity spaces and travel distances, while Duncan, Badland and Schofield (2009) used GPS tracking with heart-rate monitors to gain a more in-depth quantitative understanding of children's activity levels with spatial patterns in a school environment. In another direction, Pawlowski et al. (2016) combined GPS tracking with go-along interviews as mixed methods to explain children's activity behaviours in school. GPS tracking provides robust measurements of child participants' patterns of mobility and activity spaces, particularly relating to the environments in which they spend time in (Chambers et al., 2017).

The current thesis adopted GPS to identify the places children visited along with the time and pattern to provide evidence to support the qualitative answers. Combining the GPS method with qualitative methods can strengthen a study by offering complementary understandings and insights (Pawlowski et al., 2016), which is the main advantage of this approach. In the present study, children came from the town and surrounding traditional villages, which were geographically apart. It was impractical for the researcher to identify play places using conventional methods, such as observing individual participants' daily activities. Therefore, GPS tracking was used to reveal the places most and least visited by children without the need for them to proxy recall or manually record this information (Quigg et al., 2010).

GPS devices can affect research, and the devices vary in shape, function, method of

wearing, positioning ability and battery life. The pilot study used box-shaped GPS devices that children wore around their waists. These devices have been used often in previous studies, as summarised by McCrorie, Fenton & Ellaway (2014). Such devices were initially used for tracking children's activities. The limitation is that the GPS data could not reveal children's actual play behaviour. Whether children were playing or involved in other activities could not be known. However, the objective data did partially illustrate children's patterns and their use of time for descriptive analysis and as evidence for qualitative research.

3.4. Evaluation of the pilot study and methods adopted

A pilot study was carried out in a village in Wuhan city, Hubei Province, China. Feedbacks and experiences from the pilot research were used for the review of proposed methods. A local school was reached and permission was given for the study. Children's information was provided by the principle as oral descriptions for recruiting. In total, 10 child participants were recruited for testing the proposed research methods. Among all methods, all ten participants agreed the GPS and daily diary research. Eight caregivers and nine children agreed to participate in the interview and five children agreed to participate in the child-led walks.

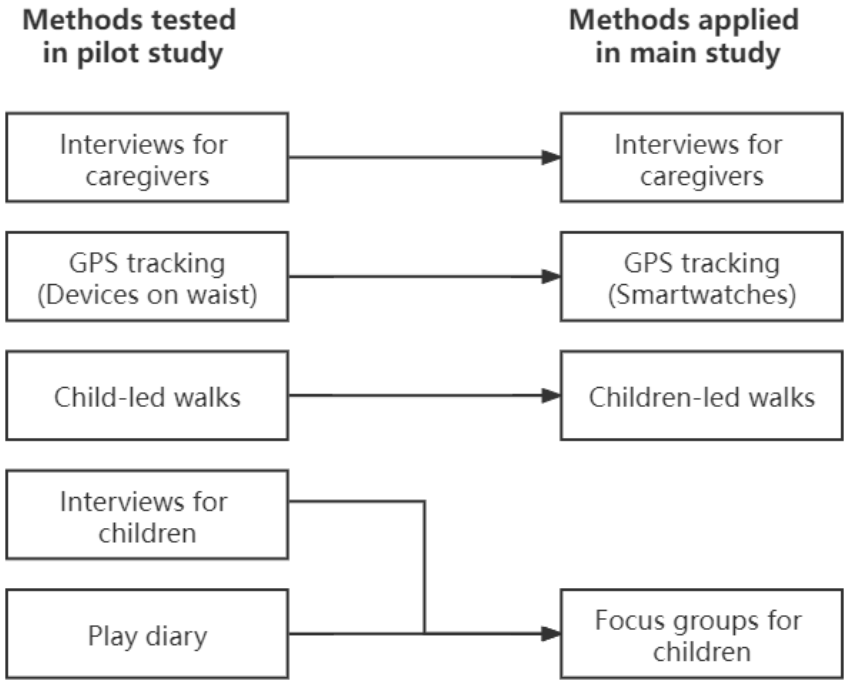

Figure 3.1 Methods applied in the pilot study and the main study.

For the actual attendance, two of five participants who had agreed to take part in the child-led walks failed to attend. The researcher tried to explain and rearrange times, but unsuccessfully. Interview with children and play diary entry were excluded due to the lack of valid responses.

3.4.1. Evaluation of the play diary

Initially, a play diary was used as one of the methods in this research. However, due to the incomplete content by most children, it was excluded from the main study. In the pilot research, all participants agreed to fill in the play diary. However, only one participant recorded their activities in every time slot in the diary. Four other participants provided reasonable content for the first day or two, but only minimal content for the following days. The others failed to create any content in the play diary. Some of the content was invalid, including events filled in the wrong timeslots (e.g., having classes at 1 am which was the lunch break), plagiarised content (content copied from other participants' diaries), duplicate content for every day, or unrecognisable handwriting. Stricter monitoring and mandatory completion might have increased the validity to some extent, but this would have affected the children's natural play and thus was considered unethical. It was also impractical for the author to supervise the children's completion of the diary, especially during the holidays when they did not attend school. Therefore, in the main study, the play diary was removed from the methodology.

3.4.2. Evaluation of the caregivers' interviews

During the pilot research, eight out of 10 caregivers participated in the interviews. They took 15–25 minutes, and all questions were answered with rich content. The caregivers' interviews seemed to be successful in the pilot research, although one of the limitations was the difficulty in understanding the local dialect. The researcher's local relative, who agreed to be the guide in the pilot research, was the translator. However, agreeing with the guide on time for the interview was sometimes difficult. In the main study, the author's next of kin was involved as a full-time assistant. In the main fieldwork, communication was no longer a challenge due to the participants

speaking with less of an accent.

3.4.3. Evaluation of the children's interviews

For the children's interviews, nine out of 10 children participated. Although the participation rate was high, little data was retrieved. Three of the nine children were kept silence during the interviews. Only one of the children completed most of the interview questions. The responses provided by the remaining children were insufficient in terms of quality and quantity. Some children participants simply nodded or replied with a simple 'yes' or 'no'. An example could be demonstrated in the researcher's interview with an eight-year-old girl:

…
Researcher: 'So where do you usually go to play?'
Participant: 'nowhere.'
Researcher: 'Anything you do for fun?'
Participant: 'nothing.'
Researcher: 'do you play shuttlecock?'
Participant: 'no.'
Researcher: 'Hide and seek?'
Participant: 'no.'
Researcher: 'Do you usually run around outside and play?'
Participant: 'yes.'
…

Researchers have identified a reactive effect that participants behaved less naturally when being observed and studied (Tinson, 2009; Bryman, 2012). Such behaviour was also found in some previous research. For example, Mauthner (1997) reported in her study that five- and six-year-old found individual interviews awkward and resorted to remaining silent, answering in monosyllables or saying 'I don't know'. Some children may give one-line answers which require the interviewer to use prompts and probing questions to keep the interview going. Nutbrown and Hannon (2003) reported that not all interviews were completed in full as the interviewers did not continue the interview against the children's wishes. Clark (2010) suggests using objects such as puppets, photographs and drawings to enter children's world or to act as starting

points for conversations. Other than puppets and dolls, there are other tools that can make the interview less formal to the child and assist the child in his or her responses(Greig, Taylor & MacKay, 2007).

In the current research, as the researcher had already engaged with the participants several times before the interviews. The researcher might not be a complete stranger to the children. The child participants were also allowed to be interviewed in a comfortable environment, such as their home gardens in the presence of their caregivers. It was unclear why many child participants in the pilot research remained silent. Some children are shy or quiet and do not like to respond to questions. The nature of the child might be also a factor that could affect the interview process. According to Westcott and Littleton (2005), it is a misconception that children will respond to us when we talk to them. This can be seen as a challenge to the idea that research can give children a voice and be empowering. However, it is possible that the children's choice of not answering questions is their way of exercising their agency. Their silence could be their way of 'voicing' their reluctance to share their perspectives and their ‘empowerment’ may be expressed in their resistance to the context. Another challenge in children’s interviews was that the child may deviate from the topic or choose to terminate the interview prematurely. It was advised that it was important for the interviewer to recognise the children’s right to their time and views (Hillman, 2006). Hence, the child should never be coerced to answer the interviewer’s questions.

However, it was found that this silence could be broken and the questions would be answered by others. During the interviews, there were often other children playing close by. These children tended to ‘help’ the interviewee by answering the questions for them. Their answers could be things about the interviewee, what they did together or where they usually played. Then, the interviewees started to talk in response and to correct their peers’ statements. During these interactions, more information could be gathered. Therefore, focus groups that facilitated interactions between participants were used in the main study instead of children’s interviews.

3.4.4. Evaluation of the child-led walks

The child-led walks attracted the least number of participants. Just five out of 10 children agreed, and only three participants attended (as a group). During the walks, children led the researcher to various places and talked about their experiences of the spaces. Although only a few children participated in the pilot research, this method was still considered meaningful as the researcher recorded rich data on physical outdoor play environments and children's use of those spaces for play.

One challenge identified during the walks was being watched by the local community. The researcher drew attention from local people; some passers-by asked who the researcher was and what the activity was about. As a result, the researcher's guide explained the research to these local residents. In the main study, except for the assistant from the author's family, the researcher was accompanied by a local relative as a guide. Additionally, a reference letter was provided by the school to identify the researcher and provide evidence of permission for the research activities.

3.4.5. Evaluation of GPS tracking

To use GPS tracking methods in rural areas, various aspects were tested in the pilot research, including battery life, network connectivity, children's acceptability and caregivers' permission to wear the GPS devices. Expectations were met in most of these aspects except for children's willingness to wear the devices. A total of 10 children agreed to participate and were asked to wear the device for a whole week. However, most participants wore it for only 2–3 days. They showed interest only in the first few days, and only two participants kept the device on for four days. The main reasons reported by the children were discomfort in wearing and lack of attractiveness in terms of appearance and function. Instead, smartwatches with GPS tracking functions were used in the main study. These could be worn for longer than the larger GPS devices, which were often removed by the children during intensive sports or while resting. Moreover, the researcher could access devices via the internet to check battery life, wear time and existing GPS tracking records. This real-time information enabled the researcher to be aware of the devices' wear status and contact the participants if a device was broken, lost or inactive.

The smartwatches were equipped with a camera function that enabled children to capture images of their daily activities. Originally, the photo function on the GPS watches in the present study served primarily as an attraction feature to enhance children's engagement and duration of use. However, children were told they were free to take pictures. Nonetheless, upon retrieval of the devices, only 28 images had been taken. Several of the pictures were out of focus while the others were blurry, most likely due to the poor quality of the cameras built into the smartwatches.

A majority of the photos are unusable. There is a section of photos (8 photos) that appear to have been captured at night or in a poorly lit room, resulting in almost black images and a number of photographs (11 photos) were obstructed by hands or close-ups of children.

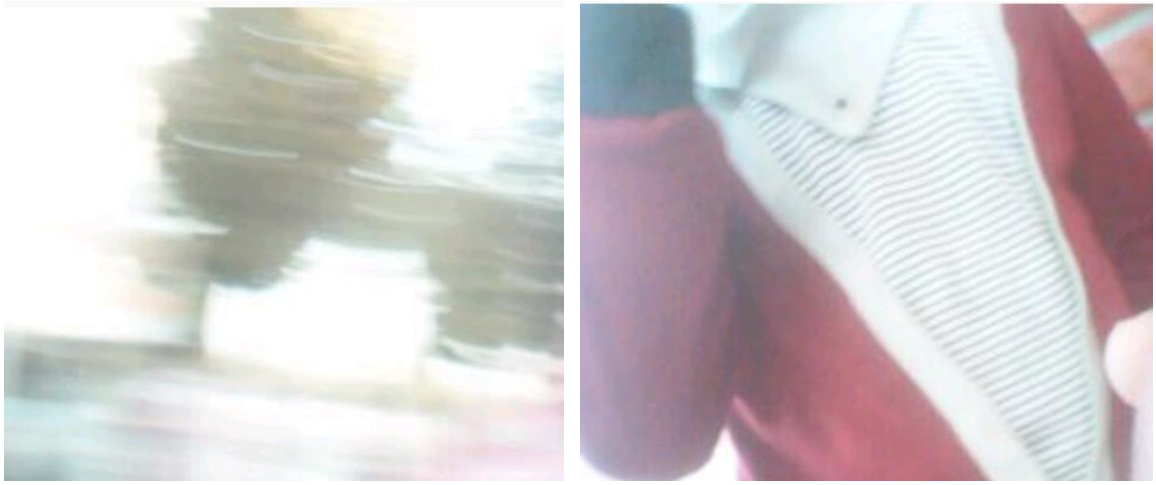

Figure 3.2 A blurry photo and close-up of children.

Figure 3.3 Some of the photographs that couldn't be used for research

There are some images couldn't be used for research as shown in the Figure 3.3. These photos revealed information of spaces, elements in the spaces, time and even transportation they use. However, the number is limited. The quality of these images is insufficient for accurate photo analysis. What's more, some children already had smartphones, which is why they seldom took pictures with the distributed smartwatches. Taking pictures with smart watch might not be attractive to them. Due to the lack of images in quality and quantity, photos collected from smart watch were not included in the main analysis. In future research using smart watches in higher quality and accordingly the is needed.

After evaluating the methods, the methodology was modified for the main study. Children's interviews and the play diary, which proved to be of low validity in the pilot study, were replaced with children's focus groups. Interviews with caregivers, child-led walks and GPS tracking were retained in the main research. However, the devices used for GPS tracking were replaced by smartwatches with GPS functions.

3.5. Main Site selection

Potential sites in this research are rural areas under transformation. In 2015 several land policies about rural land requisition and homestead regulation were implemented across the entire country in rural areas (Feng, 2017). As discussed in

the background section, urbanisation, shifts in rural land use, migration, and the issue of left-behind children have become more common phenomena in rural China in recent years. What's more, Henan, Hebei, Hubei and Sichuan provinces were facing migration with the largest number of children left behind (UNICEF, 2015). Therefore, conducting research in these areas were considered more representative and meaningful. The pilot research was carried out in Hubei province. However, the local school refused to participate in further research. Practicality played a crucial role in confirming the final choice. After dealing with several challenges (see section 3.10 page 78). A new research site for the main research needed to be found. The town of Minquan in Shangqiu city, Henan province was located as the main research site. The studied outdoor spaces included nine traditional villages and the outdoor spaces of the resettlement community. One resettlement community located in town of Minquan and nine surrounding villages were chosen as the main research site. Indoor spaces in both villages and the community were not investigated as the research focused on outdoor environment. The natural spaces and open spaces in the sites were the main focus therefore, school environment in the community setting was also not particularly focused.

Located in the central plains of China, Henan Province is a highly populous and agrarian province. It was one of the largest exporters of people in mainland China, with more than 26.7 million people exported to other regions. This has resulted in more than 6.55 million children being left behind in rural Henan (Duan et al., 2013). It accounted for over 10 per cent of the overall population (6.1 million) of rural left-behind children throughout China (Duan et al., 2013).

The town of Minquan is situated in the eastern region of Henan Province, south of the old Yellow River, and located in the North China Plain. With an area of 1,222 square kilometres, Minquan is primarily an agricultural county. Prior to 2020, this town was classified as a state-level poverty-stricken county (Wang, 2014). In 2019, the total number of registered residents was 937,000, including 569,000 registered rural residents, where the actual rural population residing there was 425,700 (Minquan government official site, 2019). This means there are nearly 140,000 of the registered rural population are not resident in the rural areas but live elsewhere. Between 26.7% and 28.7% of the population were aged 0-14 (The Seventh National

Census, 2021). In 2008, there were 50,000 children left behind in Minquan (ACWF, 2013).

In 2006, the establishment of a contemporary industrial park in Minquan marked the beginning of local industrial development (Wang, 2011). In 2018, the industrial output exceeded that of local traditional agriculture twofold (Minquan government official site, 2019). Local production underwent a transformation from an agrarian-based society to an industrial one.

The traditional villages in the town preserve a historic and traditional style. These villages are naturally formed clans based on bloodlines. Houses were self-built on land allocated by the government on the basis of Hukou (Pu, 2016). The villages exhibit low building density, featuring houses with courtyards and often a designated area for growing vegetables in the front yard. Like many other areas facing the outmigration of their rural workforce, residents of Minquan have migrated to major cities in South China in search of work, leaving behind children, the elderly and 'hollowed out' villages (Zhang, B., 2015).

Figure 3.4 A residential home in one traditional village.

The resettlement residential area serves as a community for villages resettled within the industrial park, and was originally intended to serve as homes for 10 surrounding administrative villages. It was established in 2011 and covers an area of 73,000 square metres (Minquan government official site, 2012). The total built-up residential area is 530,000 square metres (Henan government official site, 2013). In early 2013, the first 43 villagers moved into the community (Minquan government website, 2013). Since 2015, Minquan in Henan Province has been implementing the land polices as mentioned in the background section, and more neighbouring rural and industrial residents moved into the resettlement community at a later stage. The resettlement community is an open community with no walls or gates, and public services are located within the residential area, including community hospitals, administrative centres, primary and secondary schools, kindergartens and a range of other service facilities. The area's buildings are primarily densely populated, six-story flats lacking lifts and private yards in front or behind. Such a design is markedly distinct from traditional homes in the villages.

Figure 3.5 The resettlement community as research site in Minquan.

Therefore, this research site is representative as it faced significant challenges resulting from local development, urbanisation, resettlement, population movement and the problem of left-behind children, which were also found in many other places of rural China. By selecting this location as a research site, a comprehensive analysis of the potential effects of these changes on children's outdoor environments and children's outdoor play could be carried out.

Children in the resettlement community were local children and children from several surrounding villages who attended the school in the community, boarded at school and visited the community. The clustering of these children made it easier for the researcher to recruit and study children's outdoor play and play spaces in the local area.

3.6. Sampling strategy

In this research, the general populations were local children who were studying in

primary schools in the resettlement community in Minquan and their caregivers. These included both the residents of the traditional villages and the residents of the resettlement community. Caregivers included parents, grandparents and other people caring for children instead of their next of kin. As discussed in the literature, the LBC/NLBC group and the urbanised/rural area were considered the two unique factors to be explored in context of rural transformation. Stratified sampling was used to investigate these two groups of people. This sampling strategy allowed the researcher to select the population by a purposely defined criterion. Participants that met the criterion could be selected randomly (Bryman, 2012). In so doing, the researcher could generalise findings from the selected samples to the population (Bryman, 2012). The two stratifying criteria were defined as whether children were left behind and their place of residence.

To identify potential participants, a sampling frame was needed that contained basic information about the children. In the current study, this information included age, gender, place of residence and whether the child was a left-behind child. In China, such information can be obtained from local schools or education bureaux, which are obliged to archive local children's profiles. In the current research, one local school in Minquan next to the resettlement community was engaged by a relative of the researcher, and permission was granted by the principal after the research had been introduced. After obtaining permission from the local school, a student information form in a digital file was provided. This form contained children's basic information, including name, age, gender, class, grade, place of residence and left-behind status. The author used this form as the sampling frame to identify the targeted populations. After the recruitment process had ended, this form was deleted and erased from the author's computer.

3.7. Recruiting participants

In this research, it was preferable for the same participants to be included in each method to facilitate a comparison between the objective GPS data and the participants' reports. Therefore, the sample size was determined mainly by the number of GPS devices available. Generally, decisions about sample sizes are affected by considerations of time and cost (Bryman, 2012, p.197). Due to the limited

availability of funds in the present study, only 60 devices could be purchased. Although it was planned to recruit more participants by reusing the devices after one round of data collection, in reality, the number of children that could be recruited was affected by the challenges in the context.

In the research site, a schoolteacher was appointed by the school as the researcher's liaison with other staff and students. To pass the information to all the children in the school without disturbing their classes, the liaison contacted the teacher of every class; the researcher asked them to announce a brief message and invite children to an introduction meeting held by the researcher during break time. Claudio and Stingone (2008) found that asking children to recruit their parents/guardians resulted in a higher response rate than via schoolteachers or direct contact with parents/guardians. During the introductory meeting, the researcher handed out information sheets to the children to give to their caregivers for review.

The children were asked to invite their caregivers to the school for an induction meeting if they were interested, during which the researcher provided details of the research for recruitment purposes. This meeting also enabled adult participants to understand the research, especially those with writing and reading difficulties. The researcher held this induction meeting every afternoon after school in a spare meeting room provided by the school. Caregivers could attend the meetings when they collected their children. However, a limited number of children and caregivers attended meetings after the teachers had given the message to the school's students. At the time, 37 children and their caregivers were recruited. To recruit more participants, a second round of recruitment was conducted, after which, nine more children were still required to form a relative stratification for minor sampling errors: this included six left-behind and three non-left-behind children. The researcher talked to the teachers who believed the research needed to be given to children as mandatory tasks for more participation. However, the researchers objected to this as it went against the wishes of the children and against the research ethics. It was gratifying that, during the engagement with the children, the researcher's meeting room became some of the children's after-class play space. Children who were not recruited, but were from the same class of existing participants played together. Some expressed willingness to participate in the research. As a result, nine more

participants were recruited. However, it is not known whether these children were encouraged by their peers to attend, or whether they had intended to attend but were late, or a combination of both.

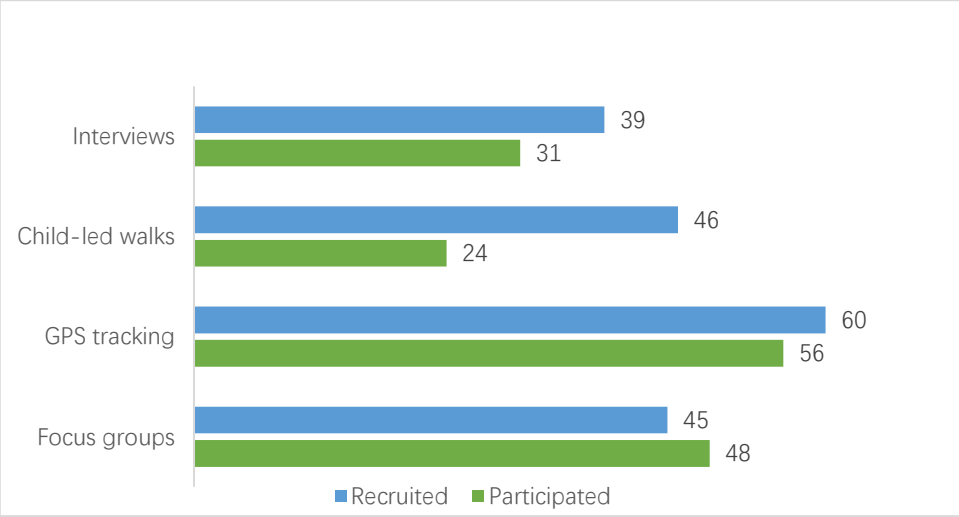

Figure 3.6 Number of participants who agreed and participated for each method

In total, 60 children in grades one to six aged between 6 and 13 years were recruited. Some of them lived in traditional rural villages, while others had moved to resettlement communities in the town of Minquan. After recruitment, not all children agreed to participate in every method. The highest participation was in GPS tracking where 60 children agreed. However, in the actual fieldwork, four of them withdrew. A total of 46 children agreed to participate in the child-led walks, and 24 attended. For the caregivers, both the parents and grandparent were recruited in the current research. Including the carers from different generation could also help the research compare the play experience of their childhood with their children's. Physical and social context as well as the potential changes in the play behaviour could be identified with such reports. For caregivers' interviews, 39 caregivers agreed, and 31 participated. For the focus groups, all 45 participants who agreed to participate attended. After the first focus group, three more children were introduced by existing participants. They were recruited after obtaining consent from their caregivers as well as providing it themselves.

3.8. Research flow

GPS tracking was the first method to be used in the fieldwork as it took the longest time and thus, it was started early. The children were asked to wear GPS watches for 19 days. This included seven days of national holidays, four weekend days and eight school days. The data collected the active time, place, distance, speed. All participants started the experiment at the same time, and 56 children completed this phase from beginning to end.

Interviews with caregivers were conducted during the time for collecting GPS data. Child-led walks were organised after the completion of GPS tracking. This was because children's walks with the researcher might not be representative of children's day-to-day behaviours which could contaminate GPS data when children were wearing of GPS devices.

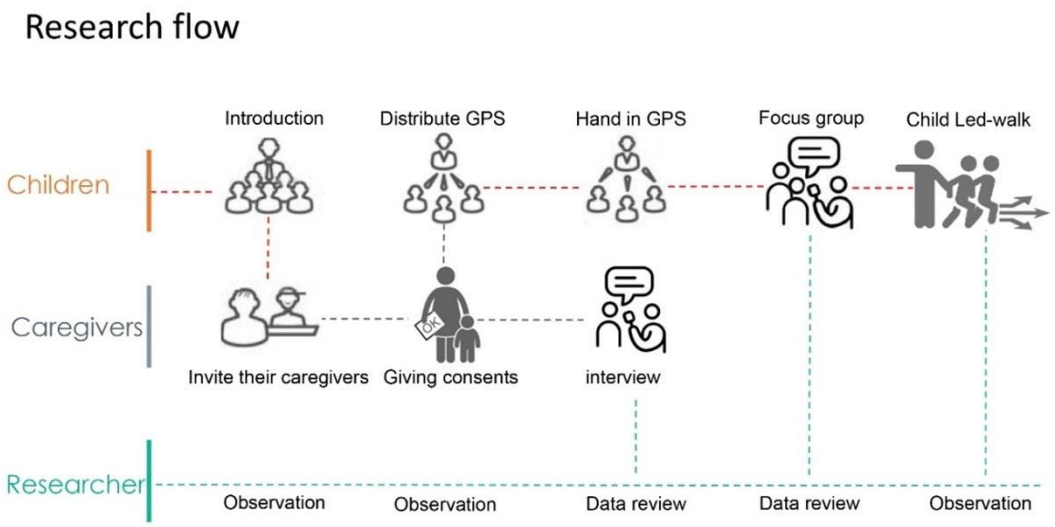

Figure 3.7 Main research flow.

Focus groups were organised and held during lunch breaks in the same meeting room used for the induction meeting. The room was decorated with colourful papers and toys prepared by the researcher to create a cosy and familiar atmosphere that promotes communication among children. In total, nine groups of children were enrolled in this phase. Although the design proposed a group of five children, due to

the children's actual availability on the day, each focus group included 3–6 students. During each focus group, participants had interactive discussions about their visited outdoor environments, activities and play experiences. The time for each session ranged from 40 to 80 minutes (depending on the curriculum). Voice recordings, photographs, seat position maps and notes were used during the meetings.

To familiarise the children with each other and the researcher, some interesting games were arranged as warm-up activities before the experiment. Alderson (2001) addressed these ice-breaking sessions as they have the potential to boost confidence and relaxation amongst participants, making them more receptive to listening and sharing ideas, whilst reducing the fear of being dismissed. In the current research, these activities included the building and decorating houses for dolls, ‘drop the handkerchiefs’ and other games initiated by children. These activities for children were proven to make them more active. Nonetheless, it is noteworthy that some children were still playing on the sidelines during the focus groups. Interestingly, when these children were preoccupied with the game, their playmates would actively and enthusiastically remind them to answer the questions.

Figure 3.8 Building and decorating homes for dolls.

Figure 3.9 Children building and decorating homes for dolls.

Figure 3.10 Children playing the 'drop the handkerchiefs'.

The child-led walks were conducted after the completion of GPS tracking. By that time, most children and their caregivers had become familiar with the researcher due to the presence of the researcher at school introducing the research and through the interview with their caregivers. Caregivers were more comfortable in letting the researcher take their children out to play. Children were asked to lead the researcher

to the places they usually played in and the places they liked to play in. However, general areas to be visited were agreed upon between the children, caregivers and researchers. Places that were dangerous, such as roads with heavy traffic or deep water, were not included. This decide-together approach could interfere with the result by not reflecting children's actual use of the environment in their daily lives. However, a completely free child-led walk was not able to carried out due to safety considerations and research ethics. In total, 24 children attended the child-led walks along nine routes. Among these participants, 18 children explored the entire outdoor routes from start to finish. Four children were collected by caregivers before the walks, and two children played in the school environment. Their play routes, spaces, activities and opinions were recorded during the walks via photographs and voice recordings.

The caregivers' interviews were conducted throughout the entire fieldwork process and started at the same time as the GPS tracking. The same semi-structured questions were delivered in both the caregivers' interview and the focus group discussion with child participants, allowing for comparison of answers. In total, 31 caregivers completed one-to-one interviews. These interviews were conducted in a meeting room at school or at the areas near school such as school gate when the caregivers were waiting to collect their children. The interview time ranged from 15 to 40 minutes.

Some observations were conducted in the resettlement community. These observations, carried out after the collection of quantitative data, mainly focussed on the daily life of new resident, the landscape environment and the social interactions between neighbours come from different villages. The data collected through observations was triangulated with the interview and focus group data to increase the validity of the qualitative phase of the project (Bryman, 2012).

3.9. Research ethics

This project was ethically approved by the University of Sheffield's Research Ethics Committee. Ethical considerations were incorporated carefully in the different stages of the research. Before approaching potential participants, the author

introduced the research to the school principals, and permissions were given by the schools in both the pilot and main studies.

In the main study, the schools provided a student information form in a digital format, which recorded children's basic information, including name, age, gender, class, grade, place of residents and left-behind status. This file was stored on the researcher's computer, which was protected by an encrypted password. After recruitment, this file was deleted and erased from the computer.

In the pilot research, no written forms of student records were provided, and the teacher orally described the information. All the information gathered in the pilot research and the main study was coded to ensure that the participants could not be identified, and the names of the participants were pseudonymised. Any specific location names were replaced by codes.

Before recruitment, all participants were given a detailed introduction to this research. They were told they had the right to refuse to participate and the freedom to choose the methods they wanted to be involved with. They could also withdraw from the study at any time. Participants who signed the consent forms were considered to have agreed to participate and gave their permission for data collection, voice recording and photograph-taking. Participants with difficulties in reading and writing could give permission orally under the witness of a third person, who, in this research, was the author's relatives (local guide and assistant). The child participants were recruited only when their caregivers and themselves had signed the consent forms. They were informed that they could contact the researcher in the first instance if they had any complaints about the project. If they felt that their complaint had not been handled to their satisfaction, they could contact the researcher's supervisor, as detailed in the information sheet.

After the fieldwork, information collected from the participants was kept strictly confidential. These materials included GPS tracking data, voice recordings, transcripts from the interviews and focus groups, notes and images from the child-led walks and observations. Digital files were stored on the researcher's computer, which was protected by an encrypted password. Paper-based files were kept in a

locked cabinet that could be accessed only by the author. The participants were not identifiable in any reports or publications.

3.9.1. Potential risks for the researcher

In addition to the ethical issues for the participants, the researcher's safety was essential, mainly because the fieldwork was conducted in a rural area that was unfamiliar to the researcher. In the main study, participants' recruitment, children's focus groups and caregivers' interviews were conducted in the school environment, mostly indoors. The risks of these activities were considered to be minimal. GPS data could be retrieved remotely online in the researcher's living spaces provided by local relatives. The potential risks could lie in travelling from the home to school, the child-led walks and interviews in the pilot research in participants' home yards. All activities were conducted during the daytime. To keep the author safe, in the pilot research, the author's relative acted as a local guide, and in the main fieldwork, a local relative and a next of kin were involved. The guide and assistant were responsible for driving, contacting and accompanying the researcher throughout the entire fieldwork. When the guide could not accompany the researcher, the fieldwork activities outside the home and the school were rescheduled.

3.9.2. Potential risk for participants

The potential risks to participants were associated with the child-led walks, as other methods were conducted either indoors or in the school environment. Therefore, considerations of and mitigations for potential risks were made before and during the child-led walks.

When deciding on routes with caregivers, it was clarified that the researcher would not let children visit certain places, such as deep ponds, motorways or places too far away from the villages and the resettlement community. The contact numbers of caregivers and teachers were retained by the researcher as well as the assistants. Before the child-led walk, a rule was agreed by the children that they could not stray too far from the researcher for their own safety. If they needed to use the toilet or

leave, they had to ask the researcher. The assistant helped to monitor if any children broke the rules and gave constant reminders to them during their play. If they broke the rules, their caregivers were contacted to collect them.

During the walks, when caregivers wanted their children to withdraw, the researcher and other participants waited until the caregivers had collected their children. Similarly, if a child participant wanted to withdraw, they could call their caregiver to pick them up. First aid kits were prepared for potential minor injuries. If a child was hurt during play, their caregivers were called. When the child-led walk ended, participants were collected by their caregivers. In the actual fieldwork, four children were brought back by their caregivers at the beginning of a walk. The children followed the rules strictly as they treated the researcher as a schoolteacher. After the walks, a few caregivers called the researcher to send the children back. No dangers were encountered during any of the child-led walks.

3.10. Flexibility of the research

Accessing these rural sites was found very challenging. This is not only because of the difficulty of physical accessibility but also difficulties in reaching, approaching and recruiting child participants. Getting the permission to do research with children particularly rural left-behind children was found very challenging. The researcher attempted various ways of making contact with different organisations and local schools.

Challenges in finding research site

Initially, it was expected that access to the research setting and respondents would be a minor problem. This was because, while studying for a postgraduate degree, the researcher gained knowledge from researching with children from schools, and the contacts made in this way were thought to be useful in gaining access to potential schools in the current study. The author also worked at the Confucius Institute for a period, during which more knowledge about China's education system were gained. Contacts with children NGOs located in China from my supervisor's network were also considered helpful for the current research.

In the current study, establishing contact with those who managed children's programmes at specific sites proved to be more challenging than anticipated. For the initial weeks, all efforts to make contact with potential projects run by UNICEF Beijing and the local welfare department in Hebei province proved fruitless as no responses were received to the emails, messages, and phone calls. To deal with this challenge of locating research site and children, various attempts were made to reach potential participants. This included contacting UNICEF (United Nations International Children's Emergency Fund) through IPA (The International Pediatric Association) to enquire about relevant projects with the help of the researcher's supervisor, contacting local government and local education bureau to get access to schools, reaching out to the researcher's acquaintances who were employed at a local school.

Finally, the pilot study place was found and contacted by a very rare friends of a family member. Villages in Xishui town, Wuhan city, Hubei province was chosen as the site for the pilot research. The researcher's contacts communicated with the headmaster. With the permission of local school, targeted participants including rural children and their caregivers were approached.

However, the school refused to be involved further in the main fieldwork after the pilot research. The exact reason for the refusal was not given by the school. This could be due to the fact that the researcher's contact was not the gatekeeper to the participants who have the power to grant or withhold access to people or situations for the purposes of research' (Burgess, 1991). A new research location had to be identified and the researcher planned to engage more directly and deeply with gatekeepers.

Negotiation with gatekeepers

In Henan province which was one of the provinces facing urbanisation and migration as discussed above (see section 3.5), a research site was located in the town of Minquan, Shangqiu City. It was argued using the proper lines of authority and communication, identifying the gatekeepers of the data and persuading them to become involved are some of the main challenges when recruiting children in schools (Rice et al., 2007). When locating the new research site in Minquan, the researcher

conducted negotiations directly with the relevant gatekeepers. A relative introduced the researcher to the director of education department in the community. The officials were quick to reply and showed interest towards the research. With the researcher's introduction of the research aim, they were drawn to the potential usefulness of the research findings for their educational work.

After the successful contacts with the officials of the community, the researcher was redirected to the local school to make practical arrangements of the data collection. The researcher presented the study's objectives and requirements to the school principal, detailing the age range and child group to be recruited, basic information about the children required, the space for research activities to be provided and the teachers to be involved to assist the research.

After getting permission from the school, in practice, local teachers, turned out to be the 'second-level gatekeepers' who still had considerable power to influence the progress and the direction of the research. This power was exercised in two ways, first by limiting the options for data collection in the school time and then by exercising a degree of control about the survey location. Therefore, negotiations were conducted with the teachers to recruit participants, determine the optimal duration, room allocation, and schedule for children's research activities.

Methodological Flexibility

The access to the participants was the greatest constraint in the current research, and a lot of time was spent in gaining access. The choice of a mixed-methods approach helped minimize the consequences of this limitation. The choice of a mixed-methods approach revealed itself as a powerful resource for not only in answering different aspects of the research problem, but also provides a higher degree of flexibility when compared to relying on a singular method. Not only could the methods be cross-validated, but also in situations of restricted data collection in one method, alternative methods can still yield useful information. For example, focus groups and led walks were both able be used to collect qualitative data on children's outdoor play. Observation and GPS tracking provided direct information on the places at which children play outside. This approach provided greater flexibility for research that could be at risk of being terminated for uncontrollable and

unexpected reasons in the current research.

3.11. Analysis methods

To interpret the data gathered from the fieldwork, qualitative analysis and quantitative methods were adopted, including analysing the GPS data with the help of a geographic information system (GIS), a quantitative content analysis and a thematic analysis, as discussed below.

3.11.1. Analysing GPS data with a geographic information system

In this research, GIS was used to help analyse the GPS data retrieved. Several researchers have integrated this method for GPS data analysis. For example, Mccrorie et al. (2014) analysed GPS data using GIS to understand the relationship between children's physical activities and the environment. Alarasi, Martinez and Amer (2016) studied children's perceptions of an urban environment using a GIS-dominated approach that represented their opinions in clusters and hotspot maps. Jones et al. (2009) studied 100 children to understand their activities in a different type of environment by analysing GPS data using GIS, which enabled the researcher to make queries in areas of interest.

To analyse the information, the GPS data was downloaded as Excel files. The original data contained the following: 1. location: longitude and latitude of registered positions, 2. time: time and date when the points were recorded and 3. device code: pseudonymised name of the child participant. To understand the children in subgroups, related properties were added to the original data aligned by the pseudonymised names of the child participants. This information included age, gender, place of residence and LBC/NLBC. With this information, a GPS information sheet was created for each participant.

Before further processing, the data was checked for errors. After inspection, invalid coordinates were identified in the dataset. These invalid points vastly deviated from the original routes in a short timescale (around 1 second), which was apparent in the

visualised routes. Therefore, these points were removed from the dataset. Inaccurate points might have remained due to the nature of the devices or weak signals. However, this could not be identified by human perception, and its influence was limited. The current accuracy was sufficient to understand the places children visited and the related patterns.

The completed datasets were converted into CSV files and imported into the GIS and Google Maps was used as base map layers to match the recorded points to spaces. To understand the data, heatmaps were mainly used to illustrate the children's activity density in an area. The children's travel ranges as buffers were used to understand the children's travel distance.

To distinguish between children's travelling and play as possible, travel speed was used as an indicator. The speed was calculated by the distance between every two points divided by the time intervals between these two points. The GPS data was categorised in 6 groups: 1. The 0-4 km/h group which represents no movement or walking. 2. The 5-9 km/h group which might present children's running or walking which was similarly classified in Carlson et al.'s (2015) research. They also categorised activities that faster than 9 km/h and slower than 25 km/h as wheeled travelling. In this research, the group of 10-14 km/h might represent bike riding. The group 15-19 km/h could be e-scooter riding (the most popular transportation tool by adults as well as children in the site) which the speed is regulated below 20km/h by law in China. The group above 20 km/h could represent faster motor vehicle traveling or by other transportation like trains. Although it is unknown the exact activities children were having when the points were registered. Low speed activities such as the points with a speed from 0km/h – 20km/h could help to exclude pure travelling and chaffering that were usually in faster speed and offering limited opportunity for play. On the contrary, the distribution of other points recorded in lower speed, even without recording of children's actual activities, could reflects waking, running, bike riding and being still in which, children were more likely to play, in terms of time and space, therefore are meaningful to understand children's play.

In addition, a series of spatial queries were made to understand the activities that

occurred in the chosen area, including school spaces, community areas and specific green spaces within communities. Other than the analysis based on the spatial distribution of GPS records, children's activity patterns were understood by the time recorded in the data. This was discussed by different subgroups, including age, gender, place of residence and LBC/NLBC. This revealed children's activity patterns and was used as evidence for the stated reports in the qualitative research.

3.11.2. Quantitative content analysis

In the interviews and the focus groups, part of the questions was related to ‘what’ and ‘where’ rather than ‘how’ and ‘why’. These included where children played, what types of places they usually played in, play activities, playtimes and playmates. The answers were analysed quantitatively and were used to compare the activities revealed as GPS records and observations during the child-led walks. To extract this information from the transcripts, a quantitative content analysis was used. Quantitative content analysis is an analytical method for quantifying content into categories systematically and quantitatively. It addresses the two qualities of quantitative content analysis: transparency and systematicness (Bryman, 2012). Classic quantitative content analysis has been criticised for containing researchers’ subjective interpretations (Bryman, 2012). However, the current research gave little consideration to this criticism. First, as mentioned at the beginning of this section, the questions used for the quantitative content analysis were designed to ask specific questions. These were relatively structured, and the answers were straightforward. Therefore, the possibility of objective interpretation was considered to be limited. Moreover, the answers to these specific questions were not used for in-depth statistical analysis and hypothesis testing, which were not the aims of the current research. The limited sample size was also considered unsuitable for valid in-depth quantitative analysis, such as correlation and regression.

To assign the answers to the right questions, the transcripts were read question by question to locate the specific answers. Valid answers were recorded with the help of NVivo software. After the initial reading, all the material was read again, and any missing information was recorded. This process continued until all the related information was extracted and assigned to the correct categories to answer the

questions about children's play and their outdoor play environments.

Participants could give more than one answer about where, which, what, when and who to each question. Therefore, these questions were analysed quantitatively as multiple response questions, and the answers were treated as the multiple response sets. For example, if a certain answer, such as 'playing in woods' (as one of the responses to the questions), was mentioned by one participant, the value of this variable was increased by 1. If, in total, three participants mentioned 'playing in woods', the value of the variable was 3. The same procedure applied to all variables. The results are presented in graphs for general analysis and discussions of subgroups, including age, gender, place of residence and LBC/NLBC groups.

3.11.3. Thematic analysis

Although critics challenge the validity of qualitative data due to evidence being largely in non-numeric form, its flexible, and inductive nature (Braun & Clarke, 2006) makes it suitable for working with children. A thematic analysis was conducted in this research to understand the qualitative data retrieved from focus groups and interviews, especially the 'how' and 'why' answers about children's play and their play environments. This allowed the researcher to identify the themes that could indicate something important in the data in relation to the research question and reveal patterned responses or meanings within the material (Braun & Clarke, 2006). Some researchers believe that rather than being an analysis method, it is often treated as an approach for searching for themes that could occur in many qualitative analysis approaches, such as grounded theory (Bryman, 2012). Conversely, Clarke and Braun (2013) consider thematic analysis as a method in its own right. They claim that researchers cannot be free from their own theoretical and epistemological commitments, therefore, data is not coded in an epistemological vacuum.

To search for relevant themes in the data, principles must be created. As Bryman (2012) argued, the simple repetition of words does not necessarily lead to themes. However, the nature of qualitative analysis methods embraces the interpretation of the richness of data content. A fixed rule could hinder this richness. Therefore,

rather than fragment the data by a fixed rule, principles need to be created to search for meaningful themes while preserving the advantages of qualitative data. Consequently, two rules proposed by Bryman (2012) were adopted: 1. the codes should be relevant to the research questions and focus and 2. the codes should provide a sense of continuity and linkage between codes.

With these principles in mind, the researcher read two to three transcripts to identify the initial codes. As well as reading the rest of the material, the codes were modified repetitively by combining similar concepts and deleting redundant categories. This was achieved with the help of NVivo software. After the first readthrough of all the material, the initial categories were identified. The researcher started the second reading to identify new categories as they read, checking for missed content that could belong to existing categories and checking existing codes to make sure they belonged in the right categories. After the second reading, the categories were modified. Then, the same process started again and continued until no new concepts were found and all were assigned to the right categories. The final categories were included as the main themes from the data to answer the related research questions.

3.11.4. Guidance and framework for analysing data

To better comprehend and present the results of the analysis, a research framework was considered essential. The ecology system by Bronfenbrenner (1979) offered a systematic way of understanding children's relationship with the environment. It discusses the influence of children's most immediate surroundings such as family, schools, neighbourhood, peers (the microsystem or mesosystem) and larger relationships such as links and interactions without the direct involvement of children in a wider cultural context (the exosystem or macrosystem).

Holt et al. (2016) adopted the ecological approach to study active free play. They investigated play from different levels from the child level (e.g., the child's age, competence and gender) to parental influence (safety concerns and supervision), then to the neighbourhood and physical environment, social changes, changing roles of parents, privatisation of play time and play and policy issues. For the current

research, this research framework enabled a clearer way of understanding of the physical and social factors that could influence children's play by offering an organised structure to comprehend outdoor play (Lee et al., 2021). In the current research, with the guidance of the ecological approach, it allowed the researcher to give considerations on interaction between individual and social factors, alongside the characteristics of the built and natural environment, as contexts are dynamic and interactive (Han et al., 2018). However, even acknowledging such frameworks, the studies on influential factors and the relationship among them remain inadequate (Arnett, 2008; Jia et al., 2009). To discuss the impacts brought by rapid transforming context on children's outdoor play and play spaces, the SPIT model (Space, People, Interventions and Time) by Woolley and Kinoshita (2015) was adopted. The model was first introduced by Woolley and Kinoshita (2015) in the post-disaster context of north east Japan to understand children’s play in the environment. It offers a unique view to help understand spaces by highlighting the social connectedness of children addressing that space is as a notion underpinning those of people, interventions and time (Woolley & Kinoshita, 2015). The current research additionally explored the children’s playmate and play activities. These two elements were incorporated into the initial SPIT model.

Chapter 4

Findings

Children’s perspective

4. Findings from children’s perspective

This chapter shows children's outdoor play and the spaces children played in through data from focus groups, children led-walks and data by GPS tracking. The GPS tracking depicted where and when the participants were physically active, however, lacking the ability to unveil children's actual behaviours in the recorded locations (e.g., whether playing or not). Therefore, the GPS data was used as supportive evidence for findings from children’s focus groups reports and led-walks. Together these findings from children’s perspective could reveal where children play, whom they play with, what the play activities are and when the children play which are all organised with the help of SPIT model for a clear presentation.

4.1. Places for children’s outdoor play (children’ s responses)

From tracking of all children’s activities, they were mainly found in 3 types of places in general: 1 Inside the resettlement community, 2. The residential areas inside the traditional villages and 3 The roads linking the villages and the resettlement community, roads within the resettlement community and those leading to other parts of the town and nearby cities. A heatmap is presented below (Figure 4.1), showing the cluster of points registered by GPS. The red areas illustrate the places with the highest number of registered points, and the green shows places with the least registered points.

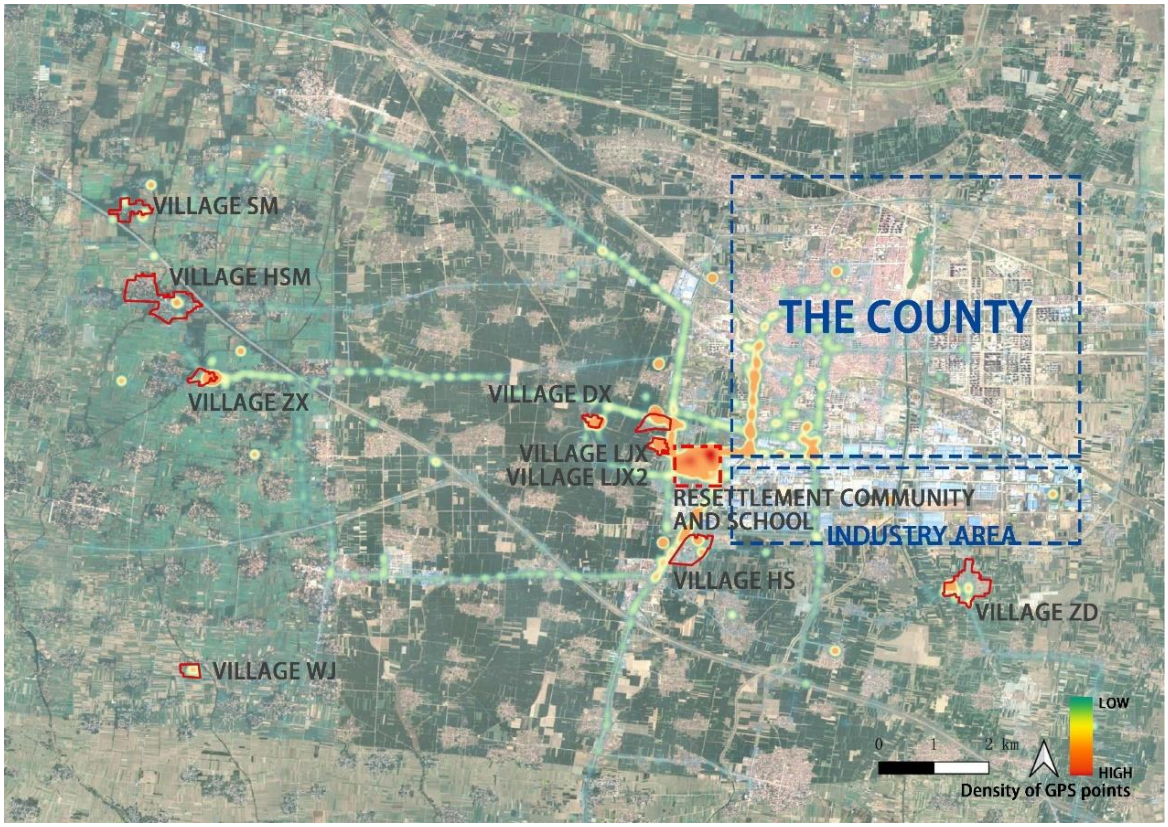

Figure 4.1 Heatmap by number of children activity GPS registered points.

4.1.1. Travel range in the research site in general

Most GPS records in the town were registered at the resettlement community in the south-west and at the school in that community. Other highlighted areas were scattered across multiple villages, mainly around the homes of participants from these villages. In terms of the general travel buffer range, after measurement in the GIS software, most activities were recorded within a radius of about 15 kilometres from the school in the resettlement community, which all children in surrounding villages need to travel to. On weekdays, the travel range was shorter. The longest trips were between the school and the participants' homes in nearby villages which is 10 km. In contrast, at weekends, the longest travel range could reach 100 km.

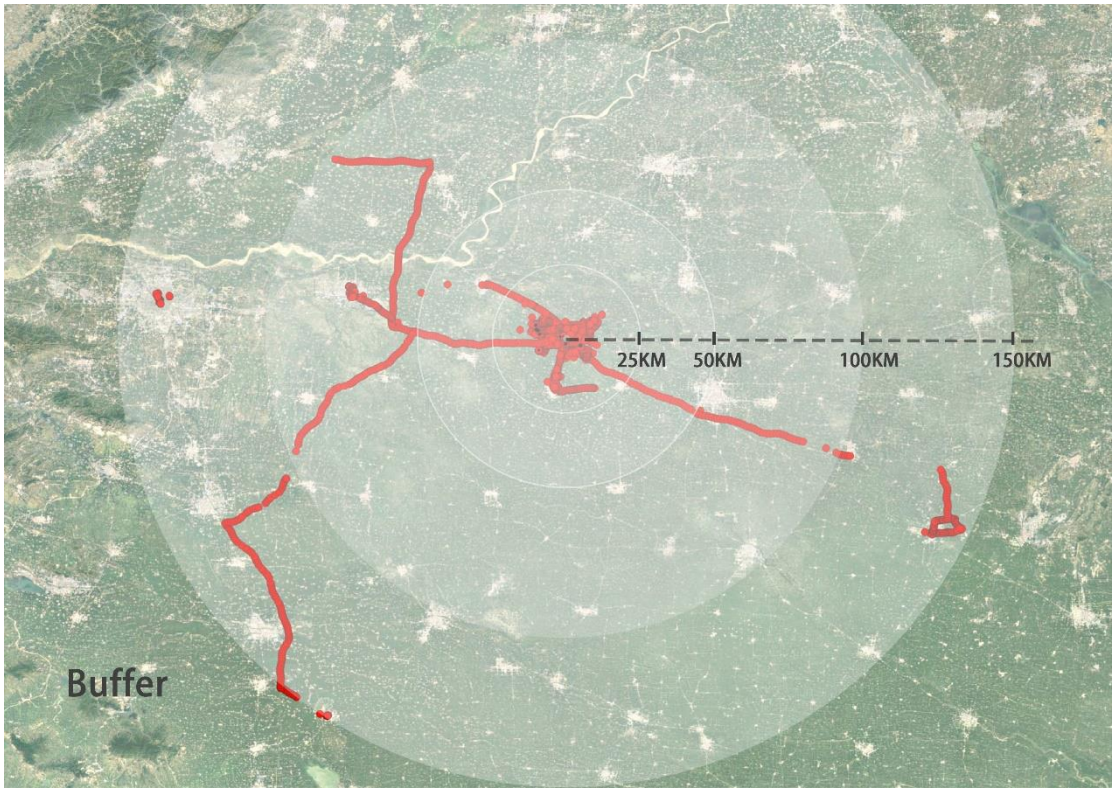

Figure 4.2 Children's travel distance buffer range by GIS in total.

From the children's answers in the focus groups in this research, it was learnt travelling at weekends included two purposes: 1. visiting homes or relatives' homes in other towns and cities; 2. going to nearby attractions such as lakes to the south or a wetland park in the north of the county. Although GPS cannot distinguish between travel and play, and cannot reveal children's activities at the destinations after arrival especially for such long-distance trips, children's qualitative responses can offer more insights. Children's answers show, some trips did provide children with play opportunities. For example, some children (child N6 and N15) visited nearby tourist sites, some (child N13, N15 and N16) went to parks out of the town, and amusement park (child N5) in other cities with or without caregivers. For example, participant N14, a 12-year-boy reported:

'I was visiting another home of mine in rare city and throwing (paper) planes there. We are close to Cherry Valley (A tourist area), so we go to visit the valley by bike.'

A girl aged 10 (N10) also mentioned:

'I've been there (A wetland park) once, and then I just walked in. There were two

fishes. After entering, it was very beautiful. There were boats, and there were people taking pictures.

During holidays, the travel distance was the longest: participants made trips to cities away from their homes, and the longest journey could reach about 150 km. These results suggested that the children's travel distance changes according to the kind of day it was, with the shortest journeys being on weekdays and the longest ones on holidays.

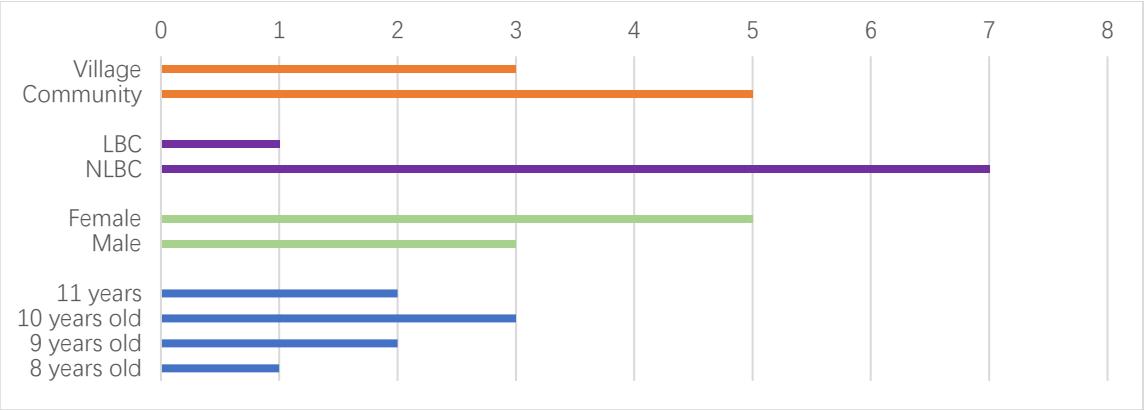

Figure 4.3 The eight children who made long-range travel by place of residence, LBC/NLBC, gender and age.

Of all (56 valid data) participants, only eight travelled farther than 15 km. When looking in detail at these children, as shown in it was noticed that more of them were female and came from the resettlement community. In terms of age, most of these children were from the middle age range of the research population (8–11 years old). The younger children (6–7 years old) and the 12-year-olds did not make such long journeys. Also, what is worth noticing, however, is that most of these children were NLBC. Only one child was from the LBC group. This might suggest being left behind, or not, could affect the distance that children travel. However, as only eight children have travelled this far, it is insufficient to determine whether there is a significant difference in mobility in subgroups. Data requires detailed analysis as in specific settings as shown in following sections.

4.1.2. General locations of children's activities

Focus groups data shows that 'the vicinity of home' including the participants' own home environments and the surroundings was the most frequently reported places by both village children and community children. Only three other places were mentioned and only by a small percentage of children. These locations were 'the vicinity of friends' homes', 'villages', and 'caregivers' work places. It is interesting that children answered the "where" questions by associating the place with 'people' rather than the orientation or characters of the environment.

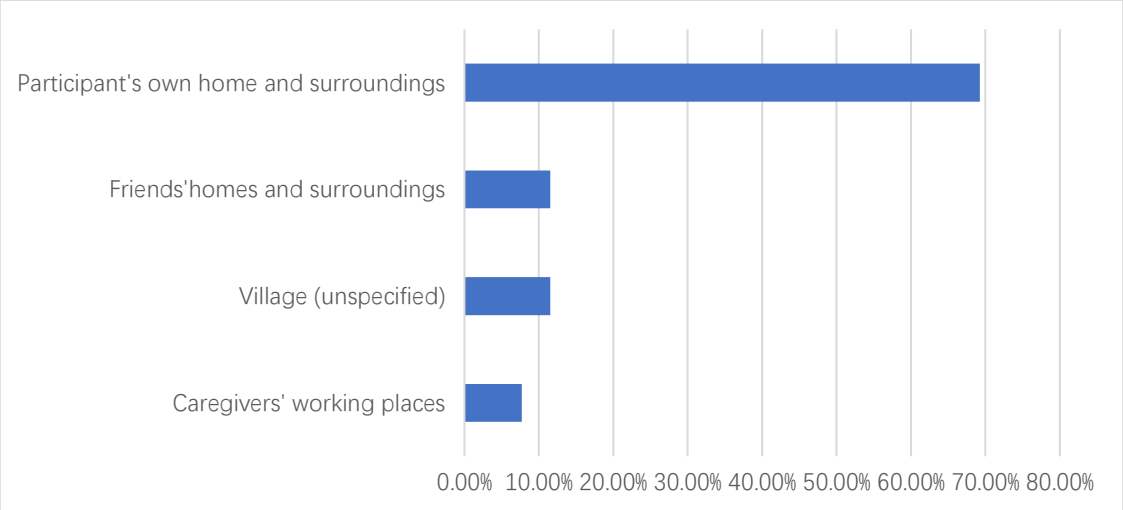

Figure 4.4 Places for play in percentage (children's reports in the focus group).

Differences in subgroups in terms of play location

Data from the focus groups indicates that there are no significant variations in play locations among subgroups differentiated by gender and whether children have been left behind. One slight difference is that playing in the vicinity of homes was relatively more frequently shown in LBC's responses by about 20%.

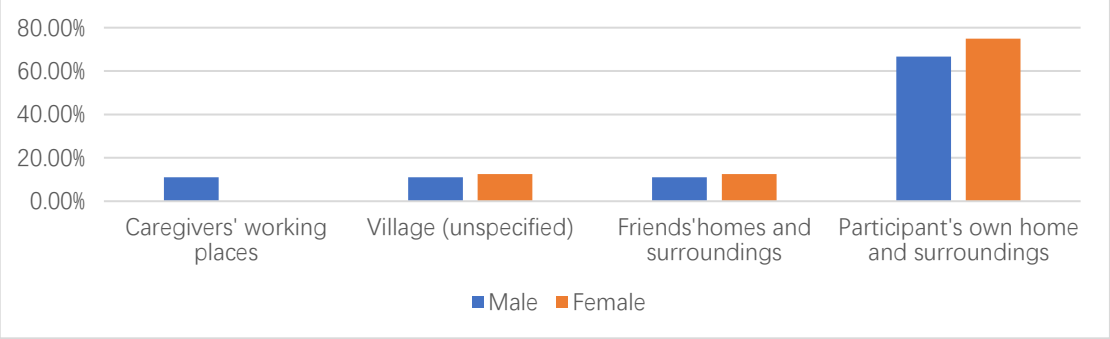

Figure 4.5 Places for play in percentage by gender (children's reports in the focus group)

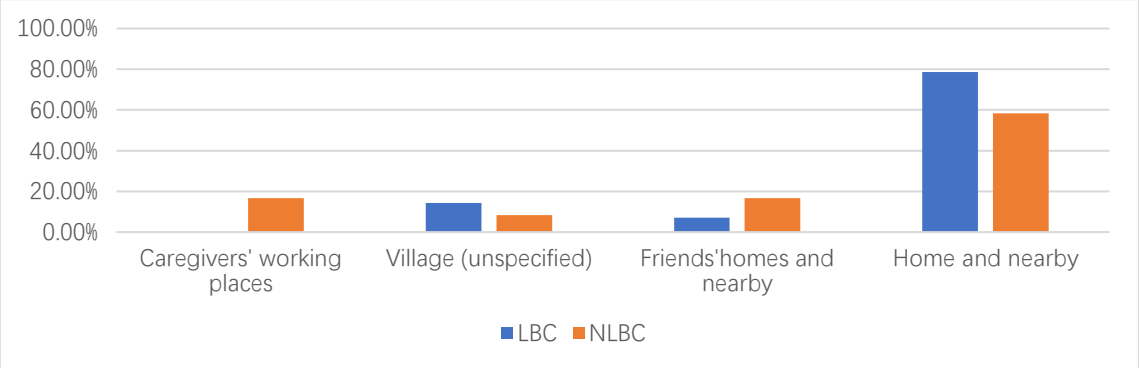

Figure 4.6 Places for play in percentage by LBC/NLBC (children's reports in the focus group)

The locations where children play also varied depending on their age. According to children's answers, the difference in age in terms of outdoor play locations was not obvious. This might be because there were only four categories of answers reported by child participants. However, children who play at their own home vicinity were mainly either younger or older children (6 years, 11 years, 12 years).

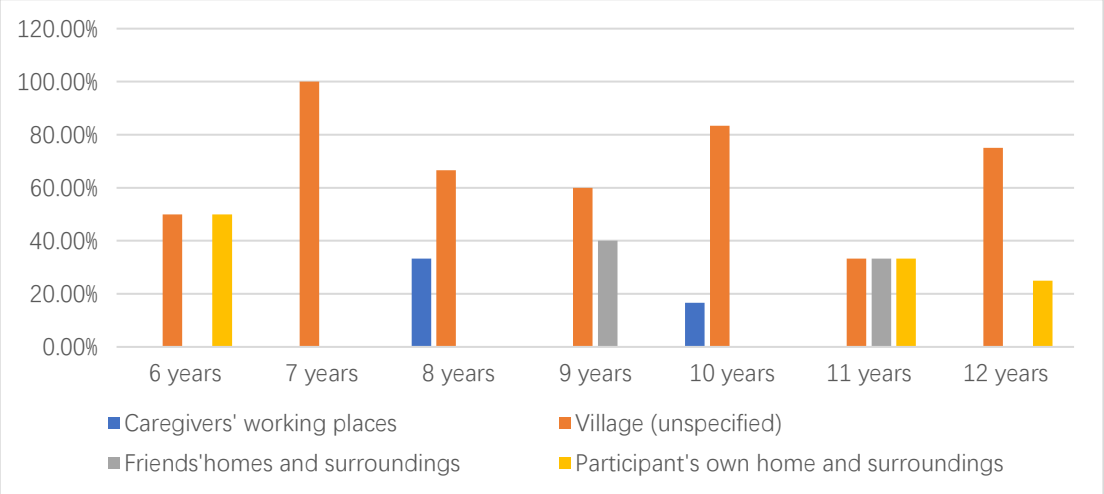

Figure 4.7 Places for play in percentage by age group (children's reports in the focus group).

This finding suggests that older children and younger children play in the least diverse places (their own homes environment) compared to other children. However, these are general findings on where children play in the research site. To acquire a comprehensive understanding of the activity patterns of children, the locations of children's outdoor play in the villages and the resettlement community are presented below.

4.1.3. Places for outdoor activities in the traditional villages

Eight detailed figures showing children's GPS records in nine villages were created (Figure 4.8-Figure 4.15). Due to the villages being surrounded by roads, to distinguish children's potential play activities from simple travelling between places, the GPS data was illustrated in different colours by the speeds recorded Higher travel speed was flagged as red points (speed above 40km/h) which indicated travelling in vehicles and lower speed was shown as green (below 4km/h) which might indicate play activities or walking.

From these recorded activities (travelling slower than 20km/h), children could visit farther and more diverse natural spaces such as woods and farmlands that were outside their villages particularly in those with a lower degree of urbanisation. These villages were usually farther from the town and had rich natural resources in and around the village (Village SMH is shown in Figure 4.10, Village SM is shown in Figure 4.11 and Village ZX is shown in Figure 4.13.) In more urbanised villages, such as village ZD shown in Figure 4.8 and village HS shown in Figure 4.12, children's activities mainly took place inside the village. These patterns suggest the natural environment could attract children as the affordance the natural environment could provide for the children's diverse activities

Some long-range travels were found among children living in the villages. In participants' yards at home, children from the other villages were found playing together. This indicates that children in villages travelled to other residents' homes. Such behaviour was also found in focus groups responses that village children often played in neighbours' homes yard and surroundings than community children.

Figure 4.8 Children's activity distribution of GPS records by the speed in village ZD.

Figure 4.9 Children's activity distribution of GPS records by the speed in village WJ.

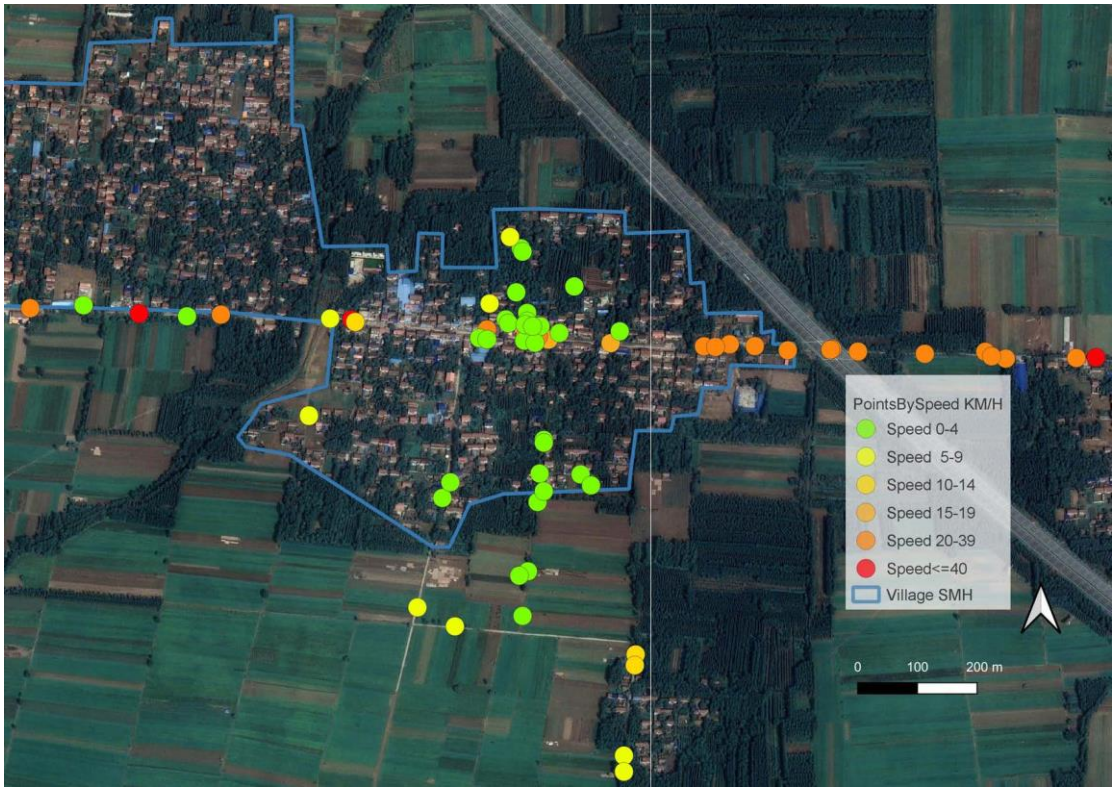

Figure 4.10 Children's activity distribution of GPS records by the speed in village SMH.

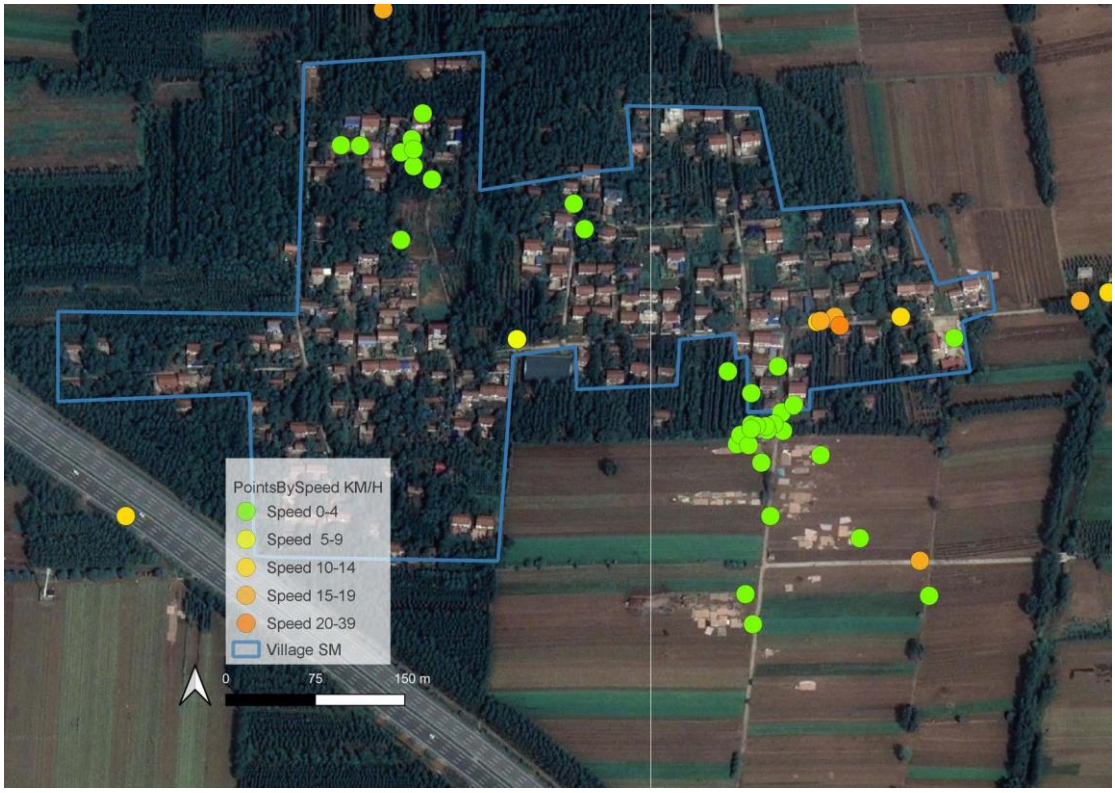

Figure 4.11 Children activity distribution of GPS records by the speed in village SM.

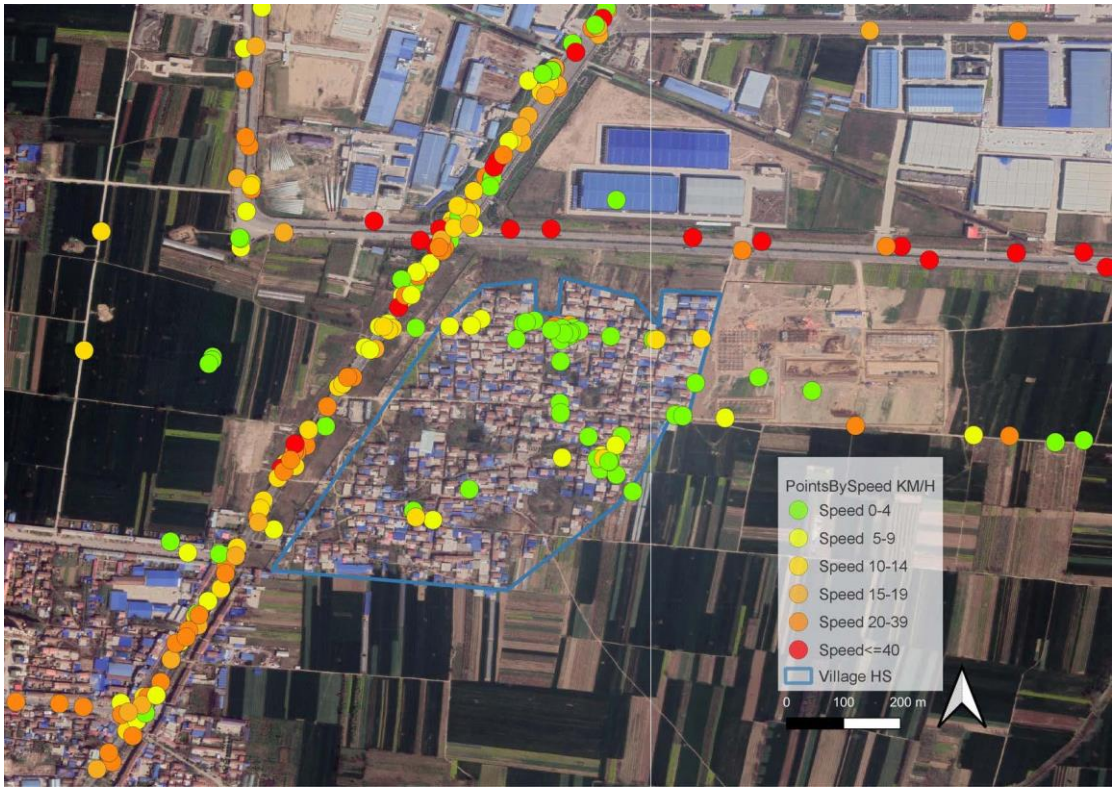

Figure 4.12 Children's activity distribution of GPS records by the speed in village HS.

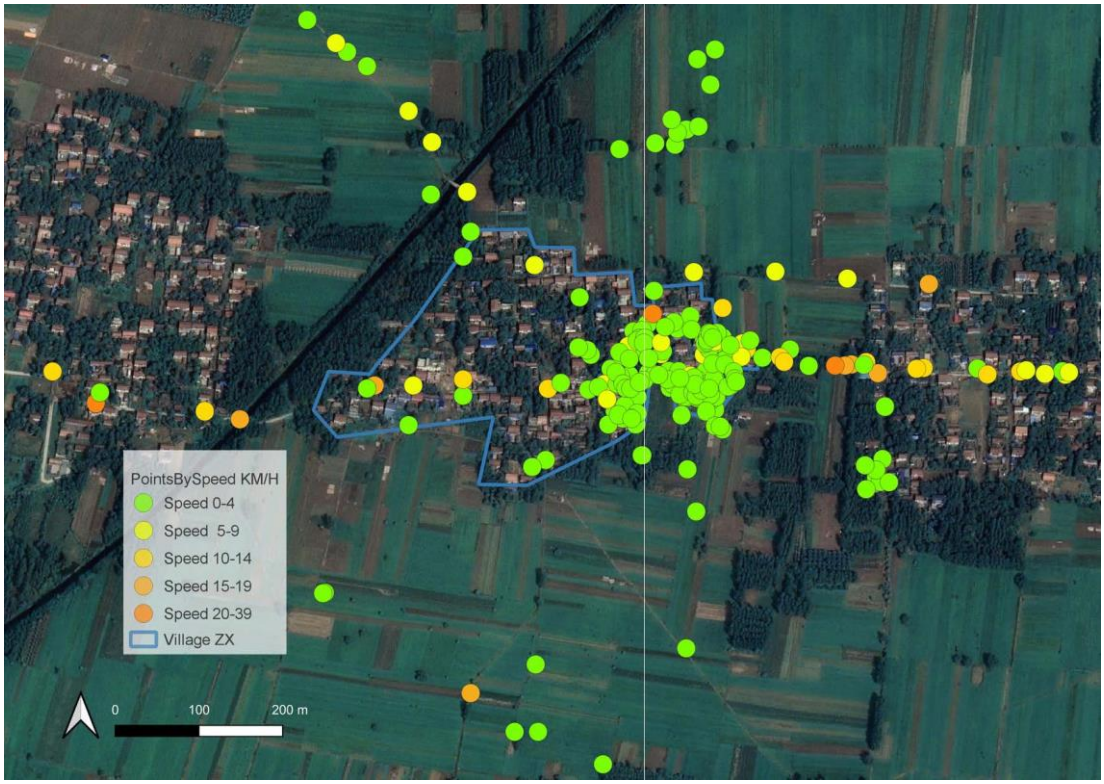

Figure 4.13 Children's activity distribution of GPS records by the speed in village ZX.

Figure 4.14 Children's activity distribution of GPS records by the speed in village DX and way to LJX.

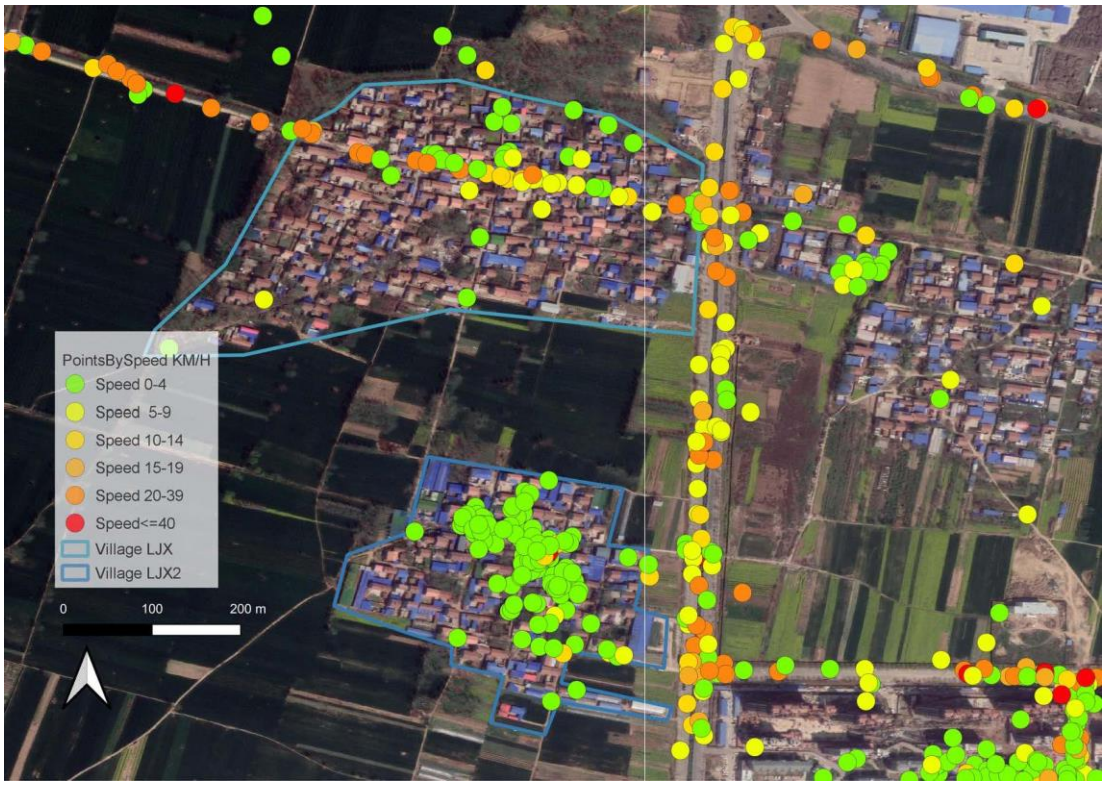

Figure 4.15 Children's activity distribution of GPS records by speed in village LJX and village LJX2.

The finding here shows that children were able to travel between villages (walking or running as registered in low speed). However, the number of these trips made between villages were still limited according to the GPS data. Distance between destinations might be one barrier for children to travel and meet peers from other villages as learnt from the focus group:

Researcher:
'Is the place you two went to play together far from here?'

S2 an 11-year-old boy:
'Yes, far from here.'

Researcher:
'How far is it? If on foot, how long does it take?'

S2:
'One hour.'

Some children travelled to other villages by motorbike due to the distance. However, this could potentially expose them to road hazards:

L7 a 9-year-old girl:
'One time a few of us, four kids in all, just went out to play and rode our motorbikes to who knows where.'

Researcher:
'Out of the village?'

L7:
'Dangerous. Out of the village.'

L3 a 9-year-old boy:
'Not dangerous.'

Researcher:
‘Have you told Mum and Dad?’

L7:
‘I didn't dare tell them.’

L3:
‘Didn't have to talk to my dad, just ran right out.’

The GPS data also reveals that hardly any children moved between the community and the surrounding villages, even though the resettlement community is located on the outskirts of the town, next to the villages. The primary highway separating the villages and the community could pose a challenge for children's travel. Children were found mainly active either in their villages or in the community. What’s more, among the children who travelled between the villages and the community, only two participants were children from the community. Villages spaces with richer natural affordance for play were mainly accessible to village residents.

4.1.4. Places for outdoor activities in the community

In comparison, in the community, because children from surrounding villages needed to travel to schools located in the community, it brought together children from the local community as well as those from outside. In the community (excluding the school area), children’s activities were mainly recorded on the west side. This is because most of the participants were living in this area. These were school boarding accommodation (usually for children from the surrounding villages) and apartment buildings where the community children's homes were located. It could be found in the Figure 4.16 that children were mainly active in areas in the very close distance to these residential buildings. Other major clusters of GPS records were found on the main route (South-North axis) of the community to the outside.

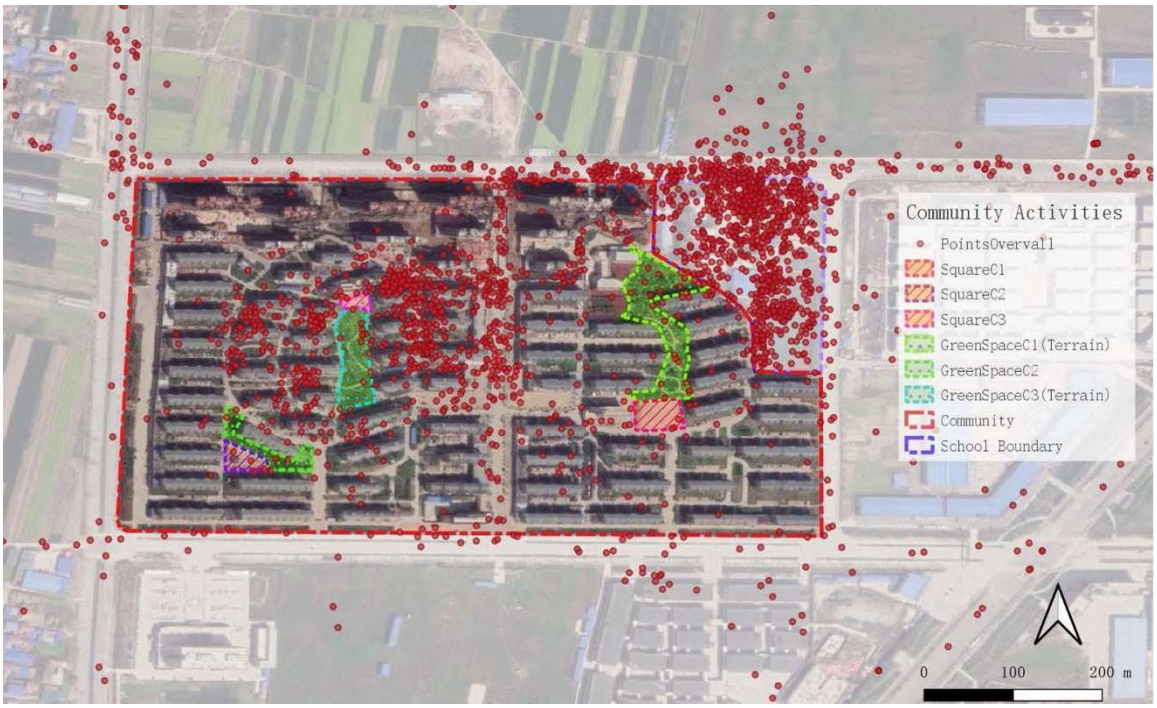

Figure 4.16 Children's activity distribution of GPS records in the community area.

The community contains 3 public green spaces and 3 public squares which were owned by the community and were accessible to all people. Among all 3 green spaces, 2 were with terrains (shown as green spaces G01 and green spaces Green space G03 in Figure 4.16, for actual site images, check the Figure 4.17, Figure 4.18 and Figure 4.21). In addition, there were three public squares equipped with outdoor fitness facilities and hard pavements. All of these public squares and green spaces were next to each other but with clear boundaries.

Figure 4.17 Green space G01 in new resettlement community.

Figure 4.18 Green space G03 in new resettlement community.

Figure 4.19 Public square S01 in new resettlement community.

Figure 4.20 Public square S03 in new resettlement community.

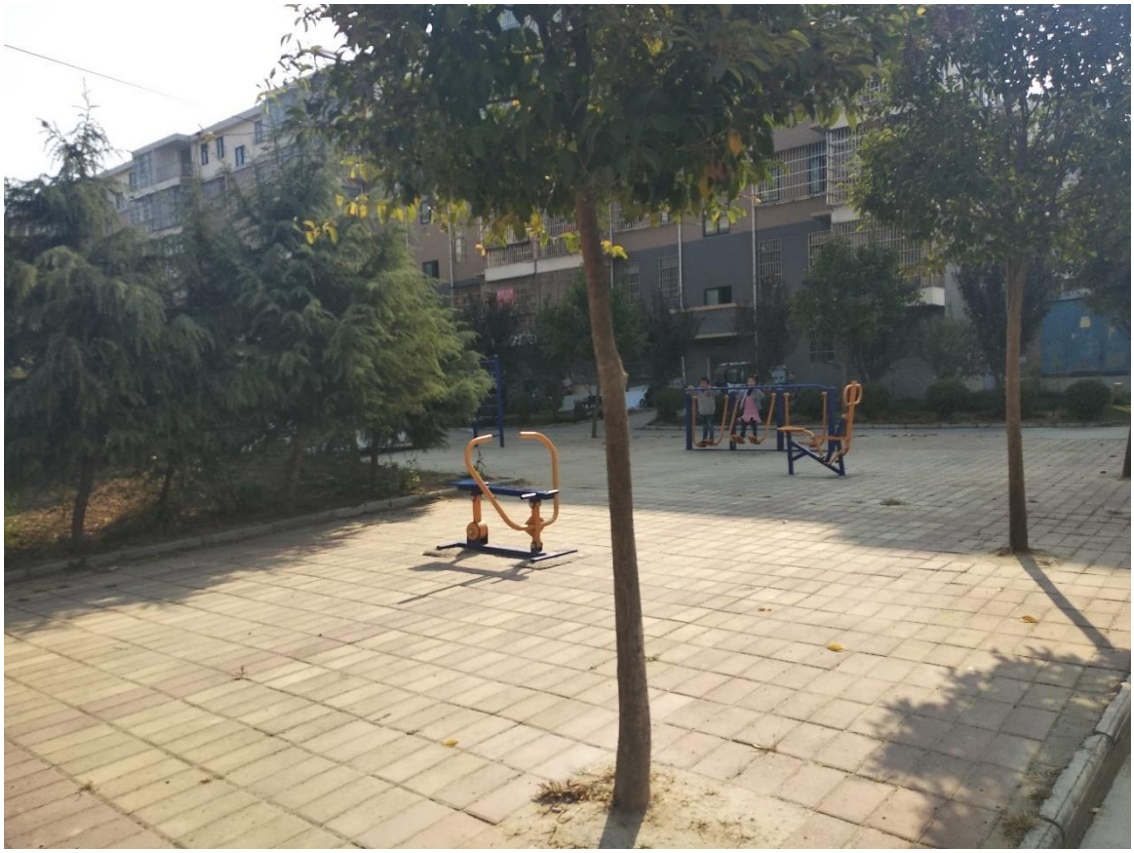

Figure 4.21 Green space 02 and public square 02 in new resettlement community.

Generally, the distance between the buildings, the green spaces and public spaces was less than 100 metres. However, the public green spaces and squares received much fewer visits. Children played near apartment buildings which were their homes and the school accommodation. Children limited mobility in the resettlement community was largely due to the control by caregivers and school teachers learnt from their responses in the focus groups. During the children led walks, a girl (Child CG4-1 in CG4) indicated that her grandma did not allow her to play in the community and kept her at home. At the beginning of the walks, some children were picked up by their caregivers and taken away. This issue did not happen in the walks in villages. This may indicate caregivers' control in the new community was stricter than that in the village.

It is clear from the children's responses in the focus groups that their outdoor activities were largely restricted by their caregivers and teachers in the community. When caregivers were not at home, children could not go out if they did not get the permission to do so.

Researcher:
'Why do you like to play outside but spent more time in room?'

N2:
'I can't go out until my mum gets back.'

When parents were at home, children were again restricted by their caregivers as L3 told the researcher：
'My dad's home. I was not allowed to go out. I have toys at home, If I try to go out, my dad scolds me.'

Caregiver's license therefore appeared to be an important factor in determining whether a child was able to go outside from the evidences.

4.1.4.1. Places for village children and community children in the community setting

In the community area, there was a difference in the activity pattern between community children and village children. Community children's activities (shown as pink dots in Figure 4.22) were recorded in more diverse places in the community than those of the village children (shown as green dots), who mainly congregated around the apartment buildings.

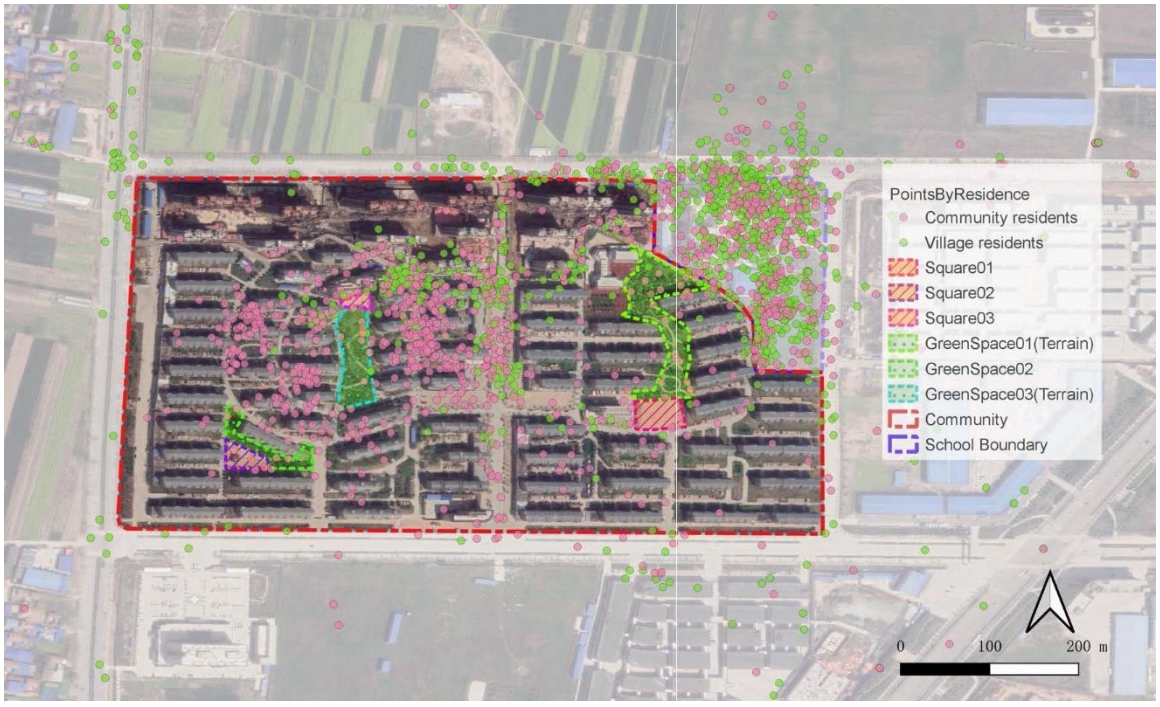

Figure 4.22 Children's activity distribution of GPS records by place of residence in the community area.

The GPS data revealed that the majority of visits (although very limited overall) to the squares and green spaces were primarily made by community children. In comparison, almost no activity of village children was recorded in green spaces and public squares. Considering the rather balanced participants in village children (27 participants) and community children (29 participants) whose activities were recorded by GPS, it indicates the green spaces and public spaces in the community were less visited by the village children. Children from the villages were temporary users of the community spaces during their studying and boarding at school in the community. Their restricted mobility might be because of the restrictions posed by school teacher. This could be learnt from the following conversation:

Researcher:
'Why do you think it's more fun back home than over here?'

S1:
'Well, I play with my sister (here).'

Researcher:
'Don't you have a lot of classmates here?'

S1:
'We don't play together.'

Researcher:
'So do you usually go downstairs (school accommodation located in apartments of the community which was outside the school) to play?'

S1:
'My teacher won't let me go downstairs (accommodation).'

Researcher:
'What about you?'

S2:
'You can't run around.'

Researcher:
'Do you guys come down to play?'

S2:
'The teacher won't let me down.'

Researcher:
'What were you doing upstairs?'

S2:

'Well, finishing the homework.'

These village children in the resettlement community were confined to the dormitory area due to school rules and the school teachers, unlike the relative freedom they had in the villages. This explains why, GPS data revealed that the vast majority of these children played close to the apartment buildings in the community.

4.1.4.2. Places for LBC and NLBC in the community setting

For the LBC-NLBC comparison (shown in Figure 4.23 NLBC as green dots and LBC as pink dots) the activities follow a similar pattern as the community–village children comparison above (Figure 4.22). This might be due to most NLBC being community residents.

Figure 4.23 Children's activity distribution of GPS records of LBC and NLBC.

To find out if this pattern is influenced by the place of residence or LBC status, two sets of comparisons were conducted. One was between LBC and NLBC from the

community. The other compared LBC and NLBC from the village. With these two sets of comparisons, if the LBC–NLBC factor influenced children's behaviour, a difference should emerge within these two groups. However, after analysis, the village LBC exhibited the same activity patterns as their counterparts (the village NLBC). Both of them seldom visited green spaces and public squares, as was discovered among general village children. (see above section 4.1.4.1). The places that they visited for activities were not divergent and were mainly near the accommodation areas. Regarding the activities of the LBC and NLBC from the community, there was a difference. In this group, the activities of the community NLBC were found in various places in the community. Compared to this, the activities of the community LBC were much more centred on the accommodation area. However, as only seven participants were community residents who were left behind, the distinction between LBC and NLBC could not be strongly supported due to the small sample size of these groups of children. Nevertheless, the similar pattern among NLBC and LBC from villages suggests that children from the villages use the community less, regardless of whether they are NLBC or LBC.

4.2. Type of Spaces for outdoor play (children' s responses)

After knowing where children play, what kind of spaces they played in were explored. The research question in focus group: "in which kinds of places do children usually play?" was asked, and nine child-led walks were conducted. In the children's reports, supermarkets and public squares were reported by most children. The children led-walks were conducted in both village and community environments. It was found that village children had more opportunities to play in rich environments, especially loose spaces. However, their play could be affected by poor environmental quality. The inability to find friends was the main issue affecting their outdoor play. Community children had difficulties finding friends as well. However, this might not be associated with the availability of friends but with their shorter play range from where they live in the community restricted by caregivers or school teachers.

4.2.1. Spaces for children in general

From children's answers (Figure 4.24), supermarkets and public squares were most frequently reported as play spaces among community children who answered these questions, accounting for 90% of their answers. In comparison, although village children did play in such places, they also play in farmland and streets, where the community children did not play.

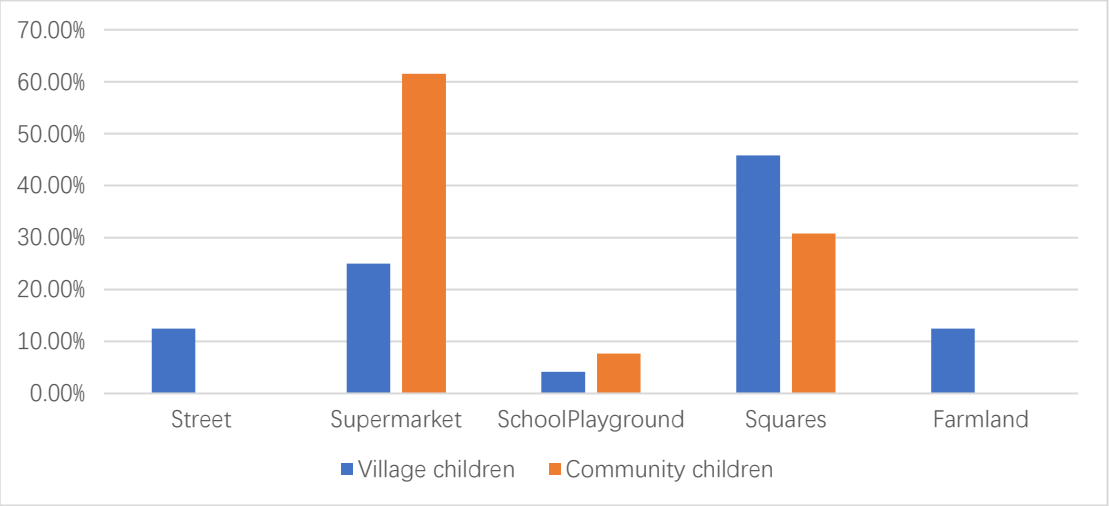

Figure 4.24 Outdoor spaces for village children and community children reported in focus groups.

In the children's report (Figure 4.25) farmland and squares were more frequently (37.93% and 31.03%) reported by boys, compared in girls' answers (31.58% and 26.32%).

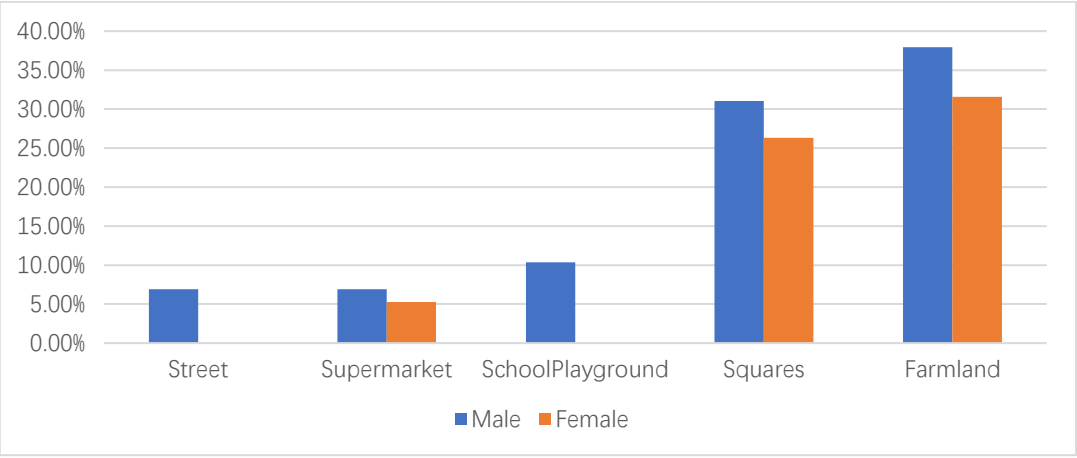

Figure 4.25 Outdoor spaces for children by gender reported in focus groups.

Farmland, squares and supermarket were less frequently reported by girls however, took up similar proportion in their answers. Only streets and the school square were not reported by girls. To understand children's play spaces further, detailed findings in the community setting and the village settings are shown as below.

4.2.2. Outdoor spaces for children in the community

In the resettlement community, children led-walk data shows some of the participants were interested in exploring various types of spaces relatively far from home. For example, on led-walk route CG3 (as shown in Figure 4.26), those who lived on one side of the community would like to play in the square on the side that they usually could not access. Moreover, group CG4 (as shown in Figure 4.27) explored an undeveloped area together, which they had wanted to visit for a while. This could suggest that, within the resettlement community, children sought new areas for outdoor play despite having access to public play spaces provided, indicating that current provisions did not fulfil their needs adequately.

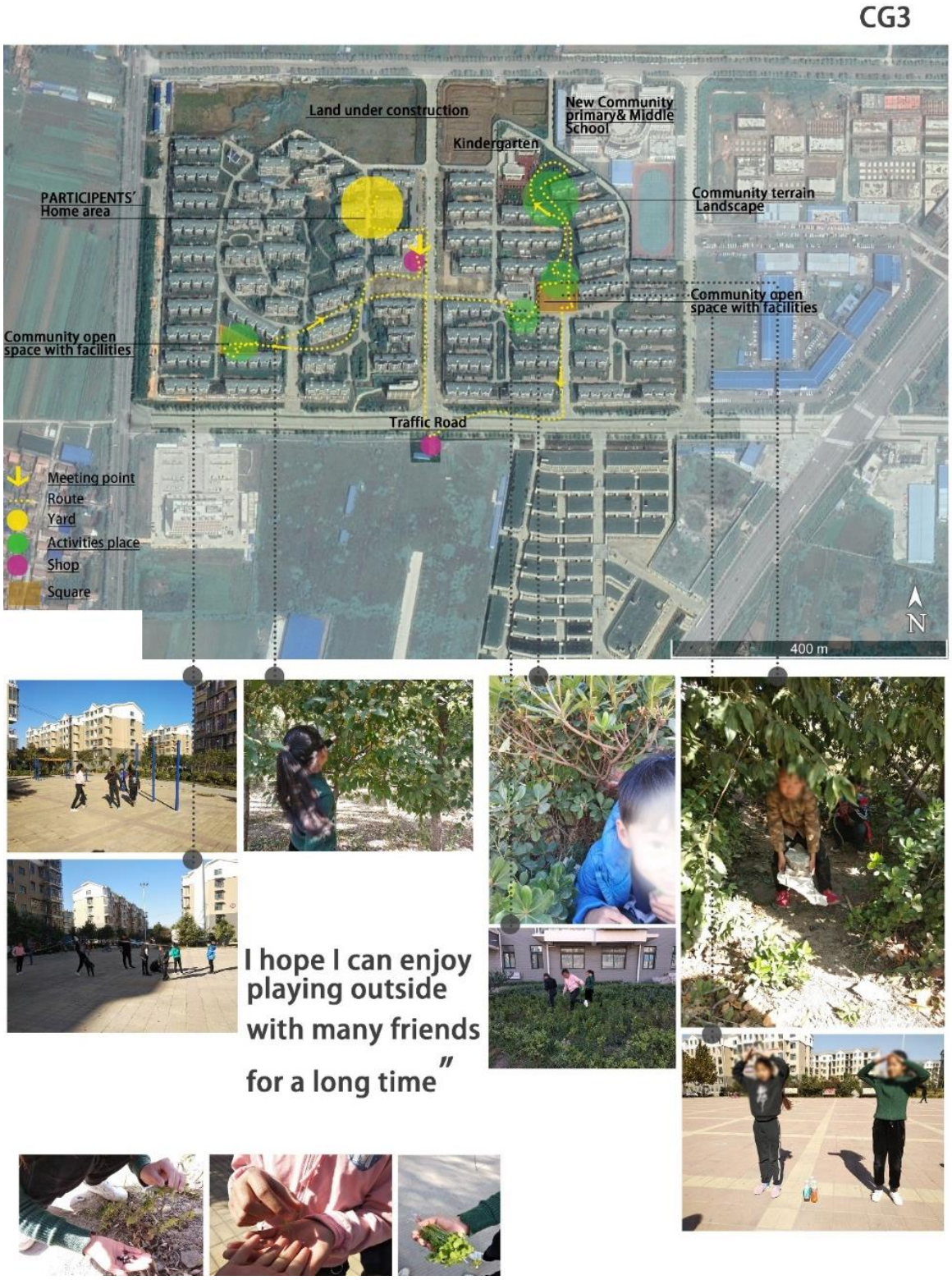

Figure 4.26 Led-walk route CG3 by children in the resettlement community.

Figure 4.27 Led-walk route CG4 by children in the resettlement community.

4.2.2.1. Lack of facility for outdoor play

The children's responses revealed a lack of appropriate play facilities. Existing outdoor facilities were designed for adult fitness. Children also used these facilities, but generally reported that they did not enjoy them. Evidences from children are shown below:

Researcher:

'Do you guys think these facilities are fun?'

H2 a boy, aged 11:

'I think it's fun to play once in a while, but not fun to play too often.'

Researcher:

'Do you two think these are fun?'

D2 a boy, aged 12:

'Not fun.'

Researcher:

'Why play with them if not fun?'

D2:

'That's because there's nothing to do.'

A number of children living in the resettlement community had reported in the squares there had nothing provided to play with. Despite the outdoor facilities being used by children, it is evident from the feedback of children that the facilities were not designed for children.

Researcher:

'What do you play with your brother?'

H1 an 8-year-old girl:

'The one that you can swing legs on (outdoor fitness equipment for the elders).'

H2:

'And there are 4 discs and you can turn them with two hands (outdoor fitness equipment for the elders).'

…

Researcher:

'Can you reach it, it's quite high?'

H2:

'There is a low one and a high one.'

Researcher:

'So, you play with that low one.'

H1:

'I play with the high ones too. I can jump on them.'

Researcher:

'Do you have any in your village?'

D2:

'My village doesn't have one yet. There are some in another village.'

D1 a 9-year-old girl:

'It's already ruined.'

This also suggests that the traditional villages also lack appropriate facilities and was even more poorly maintained. In contrast, many children said they preferred well facilitated squares in other places. For example, as N10 responded:

'I also like Little Sheep Square, where I performed.'

…

Researcher:

'Is there anything to do there?'

N10:
'Nothing, but there's woods. I also like the square in the East district, it is huge.'

Researcher:
'What's so much fun in there?'

N10:
'There are trampolines and slides.'

N8:
'There's no slide. There's a lake. I've been to this place.'

N10:
'There's a fountain.'

N5 an 8-year-old boy:
'There's fishing.'

4.2.2.2. Commercialisation of play

The commercialisation of children's play was also found from children's answers. Malls, playgrounds, shopping etc. in nearby cities have become their favourite playgrounds. For example, as N7 an 8-year-old girl and her peers told the researcher about her play with excitement:
N7:
'It's just a big square with a cinema around and food on the third floor.'

Researcher:
'Did you guys play in the square (the commercial square outside the community)?'

N2:
'Yes, I have played there.'

Researcher:
'What do you think of that place?'

N2:

'There's a game room on the third floor, and there's a place to eat over here. We had a competition there earlier.'

In another focus group, children also reported they were shopping in a mall.

N16:

'It's an underground square for shopping.'

Researcher:

'What do you think of that place?'

N16:

'There are places to play and places to read. There's a playground underground.'

N15:

'I wandered the entire underground plaza and ended up coming out with two-yuan (about 30 pence) worth of candy.'

N9:

'I've been playing in the children's pool, and there's a pool for older kids there. My favourite place is the square in Luanchuan (another city). I like the square too where you can buy everything and dance. And there are slides.'

4.2.2.3. Children's resilience in the resettlement community

In the resettlement community, children lost the home yard spaces, so that the entrances of the unit building became their most active field as shown in the Figure 4.28, the designed green space in front of the building entrance has been transformed into what children liked. Children were also found playing on the large farm machinery placed in the public space.

Figure 4.28 Children modifying the environment for play in the community

Despite children's resilience, the right for children in the community to engage in outdoor play has been impacted by the new social context. In some of the children's responses, it was found that in their new community they were unable to carry out activities that they had once taken for granted in their previous homes in the villages:
Researcher:
'So, what can't you play in your new community?'

N6 an 11-year-old girl:
'Raising sheep.'

N10:
'I can't play with mud in the new community. If clothes get dirty, they have to be washed. It was different in the old home, there was only one floor and now you have to climb stairs.'

Researcher:
'When you used to be in the village, did your parents give you a scolding for making mud, going to the puddle, and getting your clothes and hands dirty?'

N11 an11 year-old girl:
'No.'

Researcher:
'What about now in the community?'

N10:
'I'll be scolded. My mum won't even let me play with mud now.'

It's evident from the feedback of children, that their activities in the resettlement community had been affected.

4.2.3. Outdoor spaces for children in the villages

In contrast, children in villages had more varied play spaces. During the led walks, it showed that children in the villages preferred loose spaces to play. As the boy on route VS2 (shown in Figure 4.29) said, 'I like to play here, you know, the cave used to be a brick factory'. He used the elements in the environment for play, such as the soil, the cave, and the broken bricks.

Figure 4.29 Led-walk route VS2 by children in the villages.

Figure 4.30 Led-walk route VG1 by children in the villages.

For example, one girl (on route VG1-1 in Figure 4.30) happily led the researcher to her friend's home, grandmother's home, or her own home. These places she visited were at a close distance to participants' and their relative's homes. This could clarify the reason why on the GPS map of activities, children in the village tended to congregate in residential areas, which was also indicated in children's responses during the focus groups, where they reported playing mostly in proximity to their relatives' homes.

During the walks, children had the ability to find their own way to places and avoid dangers. One of the girls (VG1-1) led the researcher through an informal pathway to her home area instead of the regular road her mother usually took. She told to the researcher that route was more interesting than the route usually taken by her mom when she had only been carried in the back seat of the car or on an electric scooter. In addition, she could see more crops, grass, soil ground and bricks and had a multi-view of landscape. To follow the informal path, they needed to pass farming land, stranger's open yard and open space which she thought was a lot of fun.

The environment in the villages contained more natural elements and loose spaces for children to play in than the community environment. It seemed that children's perceived affordance in the environment for play activities was more important than the type of environments, except for polluted areas. However, this did not mean they could aways play in these environments. Children expressed during the led walks that it would have been difficult for them to have the opportunity to play outside if not for this study due to caregiver's restrictions and the difficulties of finding peers. So, children expressed during the experiment that they wished they could play a little longer and not end it so early.

4.2.3.1. Popular spaces in the villages

The child-led walk participants from villages had close opportunities to access the rural environment, which offered diverse natural elements. These included deep ditches with shallow water, seasonal river beds, terrains, farmlands, and woodland environments.

'In the villages, there are many small fishes and shrimp in this river in summer.'

This was said by one boy on route VS-5 (Figure 4.31) who enjoyed the summer playing with animals and plants. In the village area, farmland was an important place offering opportunities for children's outdoor activities. For example, on route VS4 (Figure 4.31) in the village, one 10-year-old-boy visited the farmland and said while playing, 'This is a very big space and so much dirt that I can throw, it's so cool.' The boy and his siblings enjoyed playing on farmland when their caregiver worked there. For a detailed illustration of the routes.

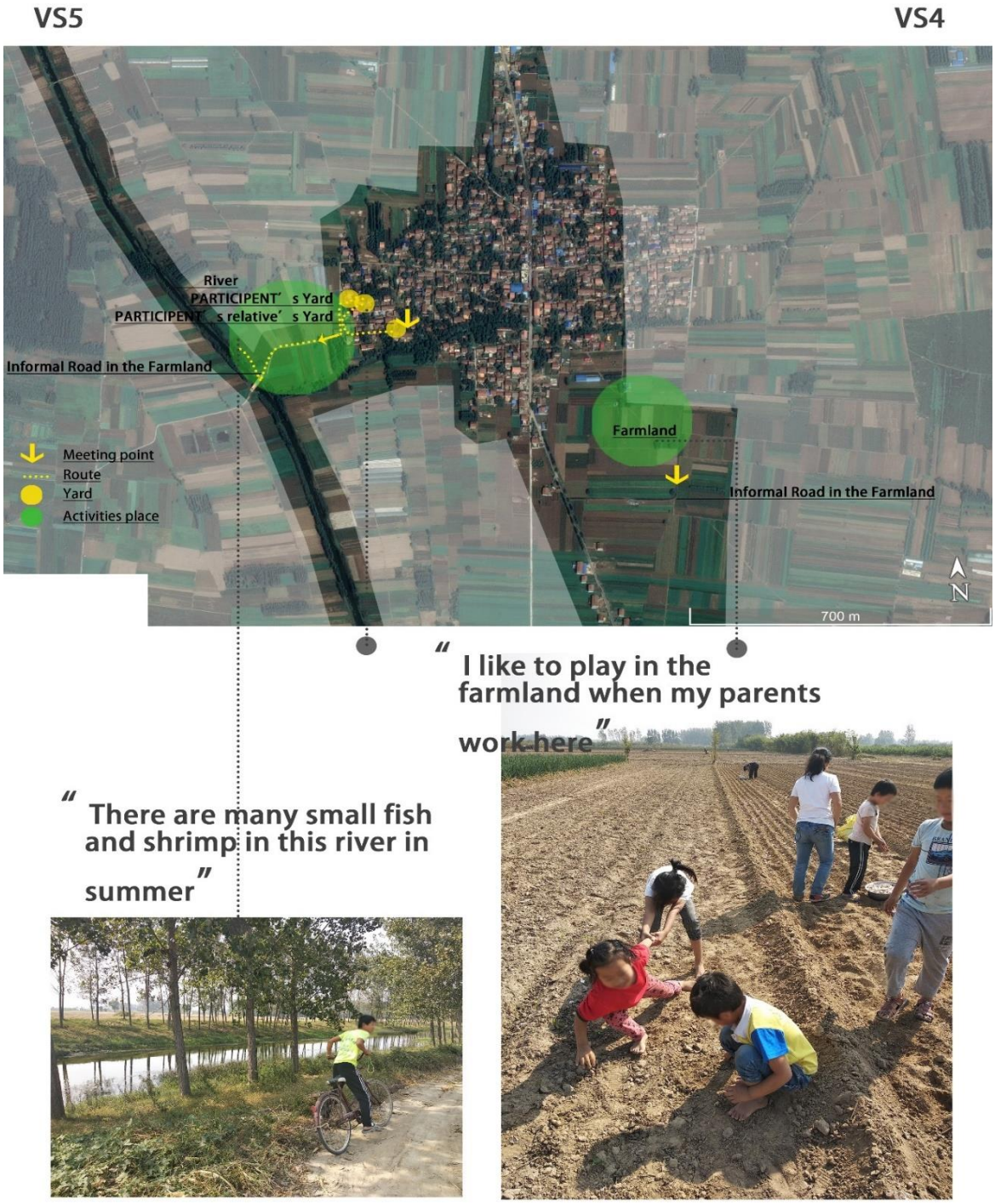

Figure 4.31 Led-walk route VS5, VS4 by children in the villages.

4.2.3.2. Unpopular spaces in the villages

Pollution was one of the issues reported in villages. There was dirty water and land covered with garbage. During a walk in a woodland, the author smelled chemical gas nearby, and one of the child participants confirmed the smell was from a factory nearby. The heavy traffic on the main roads next to villages also produced traffic pollution. From the walks, it was learnt this pollution reduced children's play

opportunities. As one of the children (VS3) stated, ‘I used to play in the ditch when there was water running at that time. Now there was too much rubbish there and I no longer play there’.

From children’s answers in focus groups, play spaces in villages were found to be affected by environmental degradation, pollution and local construction, with water pollution being the most reported problem. A few specific examples are given below.

Researcher:
‘And where are the two other puddles they mentioned?’

Z2 a boy:
‘That's a fish pond. There's nothing in it now, and the water is especially low.’

Some other children also mentioned the polluted water:
Researcher:
‘Is the water clean? There's a river back there. Is that river clean?’

J1 a 9-year-old boy:
‘Head shaking (body language).’

Researcher:
‘So, do you go to the river to play?’

J1:
‘Head shaking (body language).’

In another group:
Researcher:
‘So, when you were in your previous home in the village, do you go and play in the river behind your village?’

Y1 a 9-year-old boy:
‘Yes.’

…
Researcher:
'And do you think that river is clean now?'

Y1:
'It's not clean.'

Researcher:
'Anyone got in the water to play?'

Y1:
'Sometimes people went down there and sometimes no one.'

The researcher obtained a similar answer when asking another child about the river near his village.
Researcher:
'So, have you guys been to the river yet?'

N2 a 10-year-old boy:
'It stinks in there.'

Researcher:
'Is the river clean in village Z?'

Z4 a 12-year-old boy:
'It's not clean.'

In addition to the pollution of the environment, the construction in villages also affected children's outdoor space. As some children discussed:
Researcher:
'Is there any water in the village, a river, a pond?'

S1 a 10-year-old girl:
'No.'

Researcher:
'Is there a small forest?'

S1:
'No.'

X2 an 11-year-old girl:
'It has already turned into a street there in their village.'
…
Researcher:
'So do you guys play under the trees?'

S1:
'No…The bricks in the doorway blocked it up...there is a house being built there…It's been sitting there all along.'

Figure 4.32 Led-walk route VS3 by child in the villages.

It is evident that rural children have greater opportunities to play due to the abundant natural environment, whereas in community settings, children from the community have relatively more but also limited chances to play than rural children. Nonetheless, parental or teacher restrictions limited the mobility of both rural and community children.

4.3. People: Whom they play with (children’ s responses)

It was found children mainly play with relatives, children stating that they mainly play with relatives, neighbours, and classmates (Figure 4.33). However, the children also reported playing with strangers, friends' friends, and children in the same community. Children also reported that they play with children from their caregivers' friends' families. It is also known through the children's responses that children did not just play with their relatives, but in the places of their homes. Nevertheless, based on both answers, the ‘people’ factor was found important for the places for children's outdoor play.

In the children's reports, the "schoolmates" was divided into two groups: "previous classmates" and "current classmates". This suggests that even after moving to a new home and school, children travel in order to play together. To understand whether this was reported by community children, the difference of playmates by place of residence is discussed.

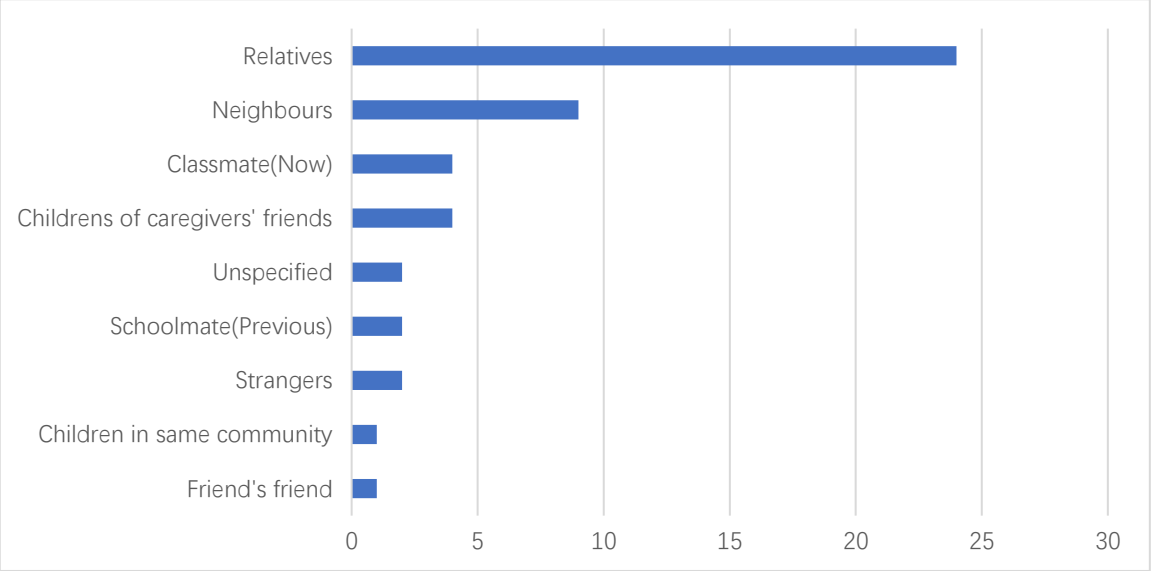

Figure 4.33 Reported playmates in number of responses (children's reports).

4.3.1. Playmates by place of residence

Based on the children's answers (Figure 4.34), playing with relatives was more frequently (20% more) reported among villages.

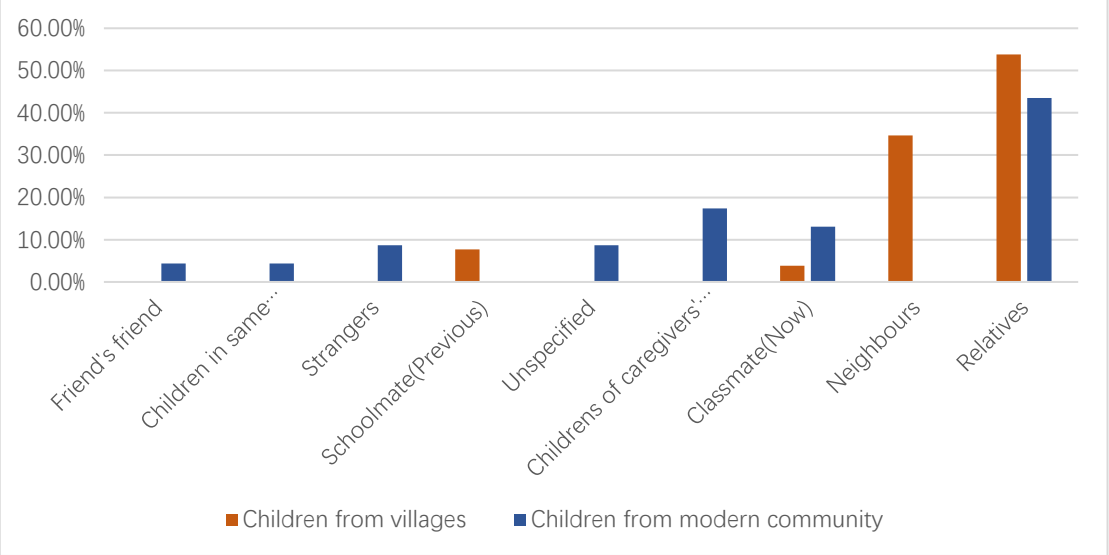

Figure 4.34 Reported playmates in number of responses by place of residence (children's reports).

Interestingly, in villages, children were not discouraged from playing at their relatives' homes by their caregivers. Perhaps this is partly due to the fact that these places were usually close to the children's own homes. For example:

4.3.1.1. Lack of playmates in the villages.

Researcher:

'Do you all love going to his aunt's house?'

X1 a 9-year-old girl:

'Because they were in close proximity to our house and then it was to play at their places.'

However, in the village, children still felt difficult to find friends to play with. One girl during in led walk said, 'I used to have a lot of friends to play outdoor within the village, but lots of them migrated'. She told the researcher that her little brother had just migrated to another city with both her parents. In villages, it seems the lack of children to play with is closely related to the outflow of the population. One boy also confirmed this during the play. (VS2) He said,

'I could meet my friends during the holiday when they came back from other cities and other schools, so I felt happy when they all came back to the villages.'

Some children expressed the opposite view. For example, during the play, one of the boys (VG2-1) gathered many children for play along the route of the walk and confidently said,

'As soon as I call, all the children in our village will come out to play together. I could even call more before.'
However, the author noticed the word 'before' in his statement. This might indicate it had become more difficult to find a friend. The decrease in the number of children in the village had certainly limited children's play opportunity.

4.3.1.2. Lack of friends in the community

'I hope I can enjoy playing outside with many friends for a long time. However, I cannot find anyone normally.'

This was said by a girl (CG3-1) who lived in the resettlement community while sharing her experience about the difficulty of finding play companions. She also said to the author that if not for the child-led walks, she could not play with these many children.

Although the merger of the schools meant that the children were able to meet more children in their community, the obstacle for children's outdoor play opportunity here was still a lack of playmates. In the focus group, no children from the new community reported playing with neighbours or previous schoolmates after their relocation from previous villages to this community in town. Instead of playing with neighbours, these new young residents made new friends through other channels, such as friends' friends, strangers, and even through caregivers' social networks by playing with kids from caregivers' friends' families. As the children who relocated to the resettlement community came from different villages and did not move into new neighbourhoods simultaneously, some children were unable to play with their peers from their hometown village. Up until the time of the study, there were many villagers who had not moved out of their traditional villages. This has resulted in a situation where children were unable to find playmates, both in traditional villages

and in the community. This phenomenon could be evident by children's responses in the focus groups particularly by village children studying in the community.
Researcher:
'Those who say it's fun to be used to living in a village, why is that?'

S3 a 12-year-old girl:
'There are too few friends here?'

Researcher:
'How many friends did you have when you were living previous home in the village?'

S3:
'More than 20.'

Another child participant also talked about they felt they had less friends in the community

Researcher:
'So did you have fun behind the mountains at your old house or on the new community (new home)?'

J1:
'Behind the Mountain.'

During the led walk, he explained why: it was also because he didn't have any friends to hang out with in the new community.

4.3.2. Playmates by gender

Relatives were the most frequently reported playmate, First, both genders mostly played with relatives, the difference between boys and girls was not obvious.

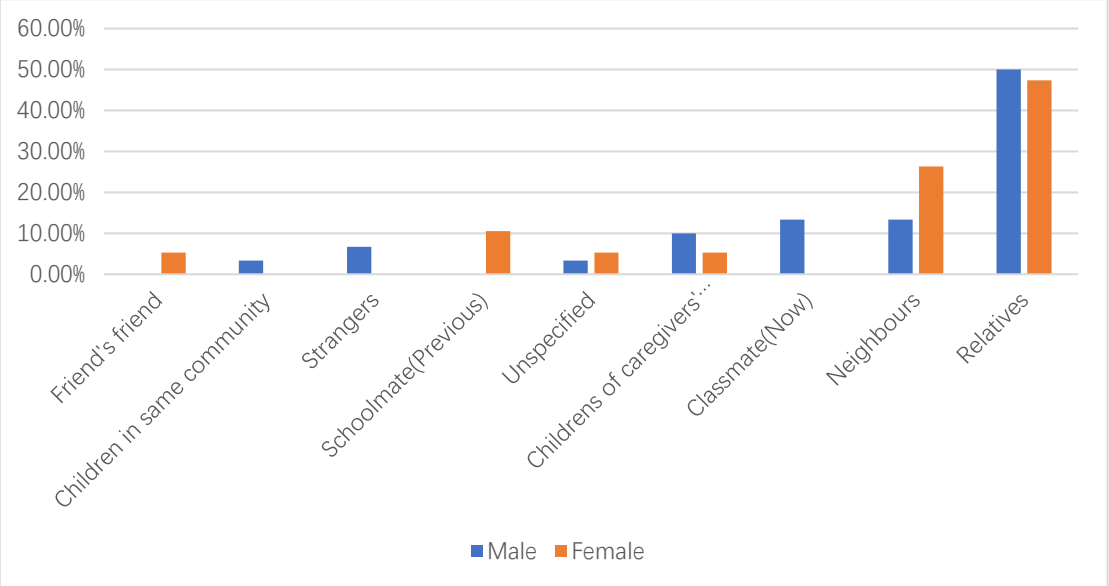

Figure 4.35 Reported playmates in number of responses by gender (children's reports).

Second, children's reports, far more girls than boys reported playing with neighbours. Interestingly, previous schoolmates were only reported by girls as playmates, and boys only reported current schoolmates as playmates. Boys also tend to play with strangers and other people in the community that girls do not.

4.3.3. Gender preference for playmates

Three of the children reported to have only same-gender friends are girls, while two of them are boys. Both boys and girls may only play with friends of the same gender. This was consistent with the children's report, which showed they mainly play with children of the same gender. Of 15 participants who answered this question, "only play with children of same-gender" was most reported (8 participants) and three other participants reported playing with the same gender more often. Only four participants reported playing with both boys and girls. Interestingly, among these 11 participants who prefer to play with same-gender friends, eight of them were male. In addition, children who only played with same-gender friends all come from the community. Most of them were also LBC. With the limited number of answers, it is difficult to know which factor is influencing. However, gender did indeed influence children's play. This could also be seen from the GPS records.

Boys and girls did not interact in terms of the places they visited. As Figure 4.36 shows, overall, there is a separation in visited spaces in the community. Girls'

activities were mainly recorded in the centre of the community, whereas boys were mainly active on both sides but more in the west.

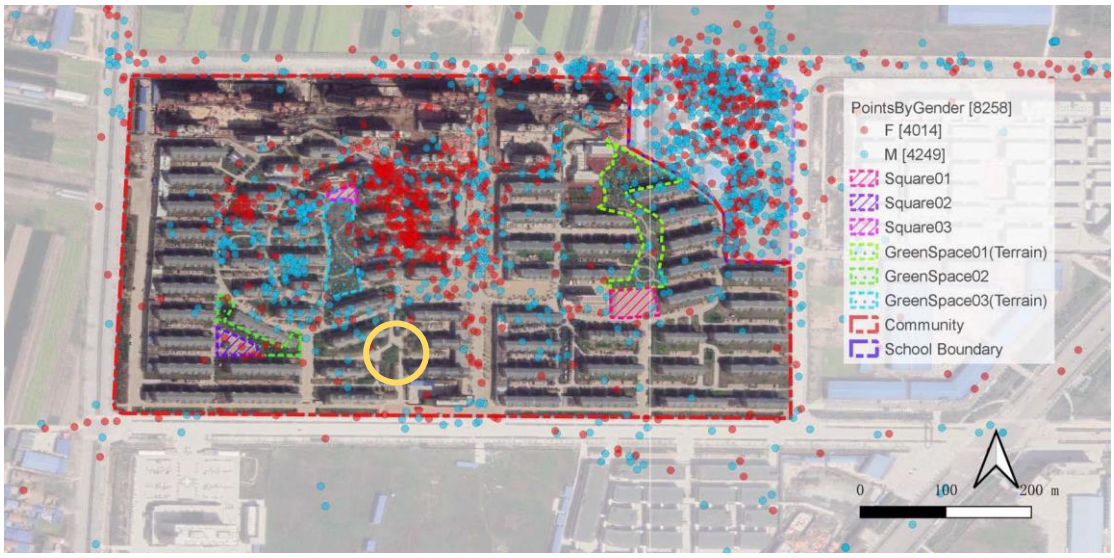

Figure 4.36 Children activity distribution of GPS records in the community area by gender.

One overlapping area (excluding the main road in the centre of the community) is shown as a yellow circle in Figure 4.36. These overlapping areas are the accommodation for the village children in the community. This might explain why this was the only area that was visited equally by boys and girls.

4.3.4. Age preference for playmates

According to children's answers, many of them (9 participants) in the focus groups reported that they played with children of different ages, and only four participants reported they mainly play with children of the same age. In their answers, children were more sensitive about school grades than age. they mentioned that they did not play with higher grades or lower grades.

4.3.5. Number of playmates

From children's answers, it could be learnt, a group of four or five (with three or four other friends) was the most common group for play, children were specific about the number of playmates. Although they still gave ranged numbers. Only three participants answered they often played with a lot of friends. The choice of type of

game also determined the number of players who often played together
A girl aged 7, participant N13 reported:

'It's about six, at least three. You can play one, two, three freeze! and hide and seek. There are also watermelon explosions (the game is the same as one, two, three freeze!).'

4.4. Interventions (children' s responses)

Intervention for children's play found in Woolley and Kinoshita's (2015) research, such as spaces that reclaimed, new or temporary that were supported by play workers were not found in this research. Supports for play from community, landscapers, school and other members of the public seem missing in the research site. However, in the children's responses, several children did mentioned intervention from their caregivers mainly taking them to parks as one girl aged 7, N13 reported:
'I saw animals and fish (at the zoo), I had lots of fun. There is a lot of water and there are many boats. My second brother and I are sitting on the boat.' (Playing in a zoo in other city on holiday with parents).

One girl aged 11, Z3 stated:
'At that time，my two uncles and my brother took me down to the pond. They catch loaches and stuff..'

However, these were caregivers' influence on children's play overall opportunity than specifically to the play environment.

4.5. Time: when they play (children' s responses)

4.5.1. The places children visit vary according to the type of day

After analysing the GPS data for weekdays, weekends and holidays, it was found that the places children visited changed by the kind of day it was. On weekdays, school

is where most activities happen. Non-school areas in the community were the second most visited place, and the villages were the places with the least points. At weekends, many fewer points were registered in the school area, while non-school areas in the community became the most visited places. There were a few activities in villages on both weekdays and weekends. On holidays, almost no one was active in the school areas, and more data was registered from the village areas. Although the community area was still popular, it was less visited than on weekdays and weekends. This data shows that children's activities tend to be strongly affected by school schedules. The increased number of registered points might reflect that the village areas and the nearby natural environment were visited more on holidays than on weekdays or at weekends. In contrast, the community areas were more frequently visited on weekdays and weekends. This might be due to village children needing to study at school and live in the accommodation located in the community. The movement of the village children caused the change in the level of visiting in village areas and community areas.

4.5.2. Activity time of GPS records from children

In addition to the analysis of GIS, the time recorded on GPS could be used to understand children's activity patterns on different kinds of days, as well as at different times of the day. The GPS records were categorised using different data and times of the day according to the timestamps of the GPS records. The activity level, therefore, could be represented by the number of recorded points in that time. Therefore, the data could be analysed separately for weekdays, weekends, and holidays, as follows.

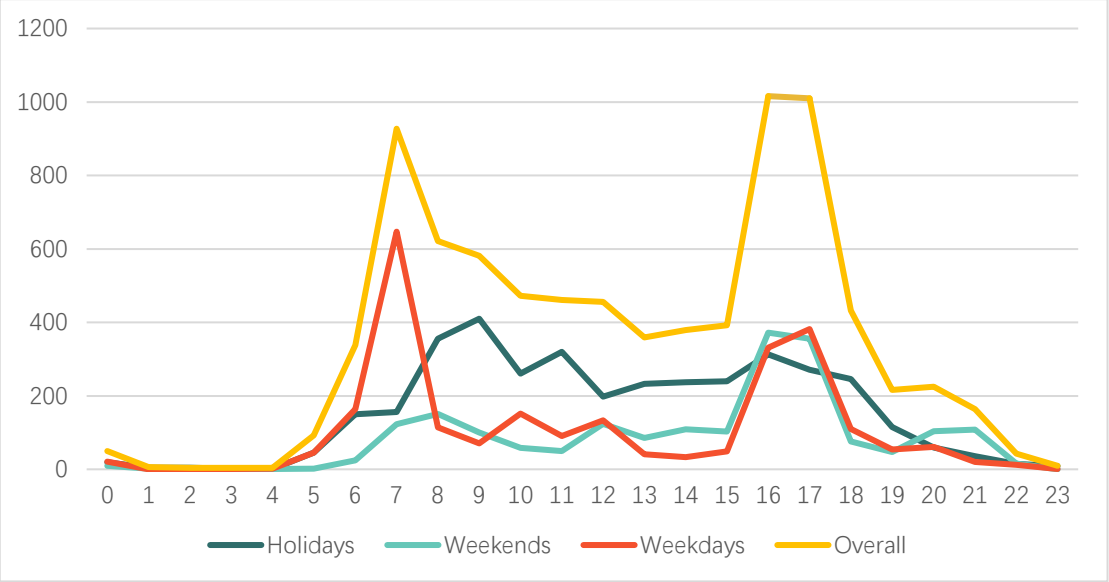

Figure 4.37 GPS records in holidays, weekends and weekday.

4.5.3. Overall active time in holidays

Most GPS data was registered for holidays (seven days of national holidays), shown in Figure 4.37 as the dark blue line. The horizontal axis represents the time in a day in hours and the vertical axis shows the number of GPS records. The level of activity is represented as the number of registered points maintained at a relatively high level without major fluctuations throughout the day. Children started being active from 04:00, and this increased. Most activities took place from 07:30 to 18:00 and peaked at 09:00. After 18:00, the number of recorded activities dropped, and they ended at about 22:00. This pattern indicates that, during holidays, children are active during the entire day, with slightly more activities in the morning at around 09:00.

4.5.4. Overall active time on weekdays.

On weekdays, the total points registered was the lowest among the three groups. Most activities recorded were in the morning at around 07:00 and in the evening from 15:00 to 18:00. In comparison, at other times of the day, activities were at a much lower level. This pattern might be affected by school events. According to the schedule provided by the school, classes start at 07:00 and end at 15:00 (16:00 for higher grades). The sudden rise of activity around these times might be caused by

travelling between school and home. Similar to holidays, the activity ended at about 22:00. However, on holidays the decrease in the afternoon activity was gradual, while on weekdays, there was a sudden drop from 17:00 to 18:00, after which registered activity remained low and gradually fell to none. This can be compared to holidays when children have more time in the afternoon for activities. As the school finishes at 15:00 or 16:00, older children were only busy for about one hour after school, and children in the lower grades could be active for about two hours. However, how much time was used for play in this limited time after school could not be known from the data. Some children could play for longer if they were living in the community or accommodation, whereas others might have no time to play due to travelling back home to villages, especially those chauffeured by their caregivers. Nevertheless, this pattern showed that during weekdays, the activity level was very low with only a limited time for activities in the afternoon after school, especially for non-boarding students living in the villages, those in the higher grades and children that fall into both these categories. What is worth noting is that the weekdays account for most of the time for the GPS methods (8 days). The total amount of registered data was the lowest compared with holidays (7 days) and even weekends (4 days). This further indicated the children's time for activities on weekdays was limited.

4.5.5. Overall active time at weekends

On weekends, most activities happened between 15:00 and 18:00. This was similar to weekdays. This might be partially influenced by the journeys made by village children that were living in the accommodation. They have to come back to school on Sunday afternoon rather than Monday morning. This also explains that no sudden rise was found in the morning compared with weekdays during which children have to travel to school. For the rest of the day, the pattern was similar to that of holidays. The number of registered points gradually rose to its first peak in the morning at 08:00 and kept relatively stable until 15:00. One major difference noticed was that, after 19:00, the registered number of points rose rather than fell or stopped as on holidays and weekdays. These children started being active again from 19:00 to 22:00. The total number of records during this period was even higher than the number of records at the same time period in the holidays. Accounting for the difference in the use of time as mentioned above when discussing activity in holidays in this section, children's activity at weekends in the evening during this period of time was even

higher. This pattern might suggest that, in general, children are relatively more active at weekends than on weekdays. They could become more active again after supper time in the evening than on other days.

In summary, the most active days are holidays, followed by weekends and weekdays. In terms of time during the day, in holidays, the activities were evenly spread over each period. This might suggest that in holidays children have more freedom in terms of time for playing. During days that were not holidays, children were most active in the afternoon, typically 15:00–18:00. However, at weekends, after supper time, children could be active again. It was also interesting to understand how this data differs in the subgroups; this is discussed in the following section.

4.5.6. Active time by gender

When looking into gender differences, both genders generally follow the overall time pattern described earlier in section 4.6.2. For the GPS research, 36 boys and 20 girls were recruited as the participants in this subgroup, which is, to some extent, imbalanced. The comparison of absolute value (number of points registered in a specific time for boys or girls) between the boys and girls should not be overemphasised. Patterns and trends might offer more insights.

A shown in the Figure 4.38, both boys' and girls' activities started at 04:00 in the morning. They shared a similar pattern in the afternoon and early evening from 15:00 to 18:00. However, for the rest of the day, major differences were found in the times when they were active. In the morning, the amount of registered data for girls peaked at 09:00, which was the lowest level of activity registered for boys. This mismatch was also found from 10:00 to 14:00 and in the late evening, from 20:00 to 02:00. It seemed that when the boys were active, the girls tended to be inactive and the other way around. To understand this in detail, their data were analysed by weekdays, weekends and holidays.

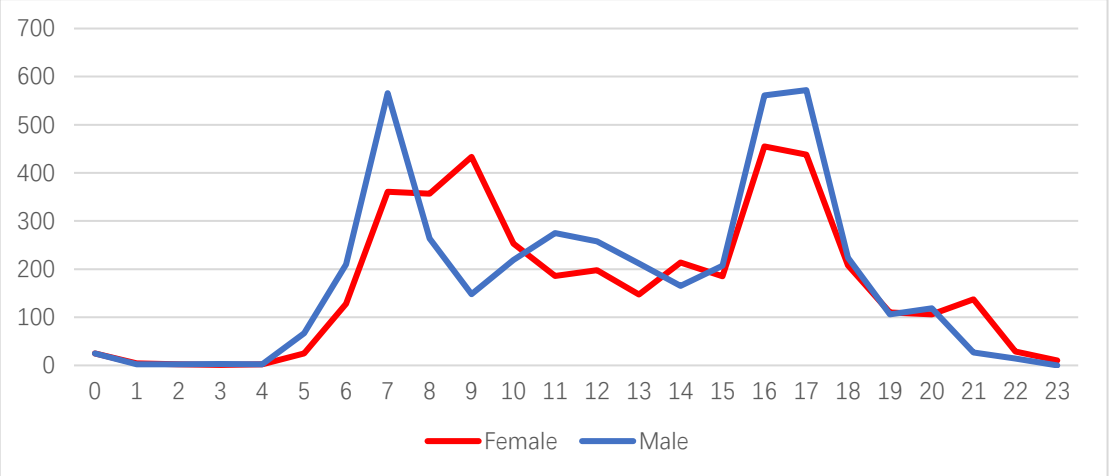

Figure 4.38 The number of GPS records by gender.

On weekdays both females and males showed almost the same pattern. However, at weekends (Figure 4.39), the mismatch of their active time starts to show. In the morning and early afternoon, girls' overall active time was later than boys. For example, boys were most active at 07:00, and girls were most active slightly later, at 08:00. Boys tended to play before 13:00 and peaked at 12:00, while girls were more active after 13:00 and peaked at 14:00. The difference in the evening is more obvious, as girls were active from 19:00 to 22:00, during which time boys were mostly inactive.

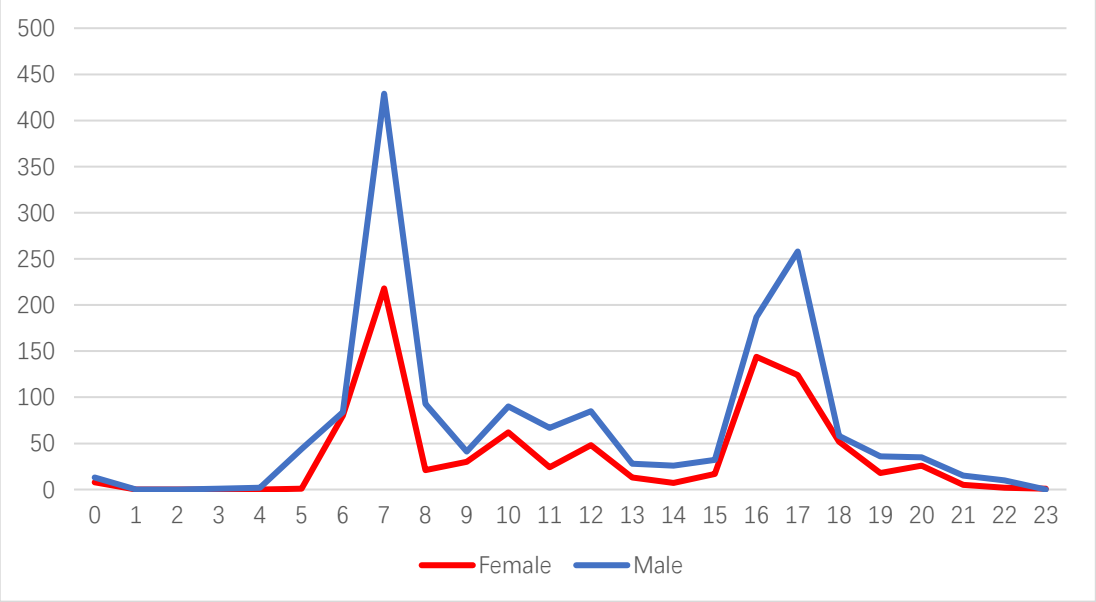

Figure 4.39 The number of GPS records in weekdays by gender.

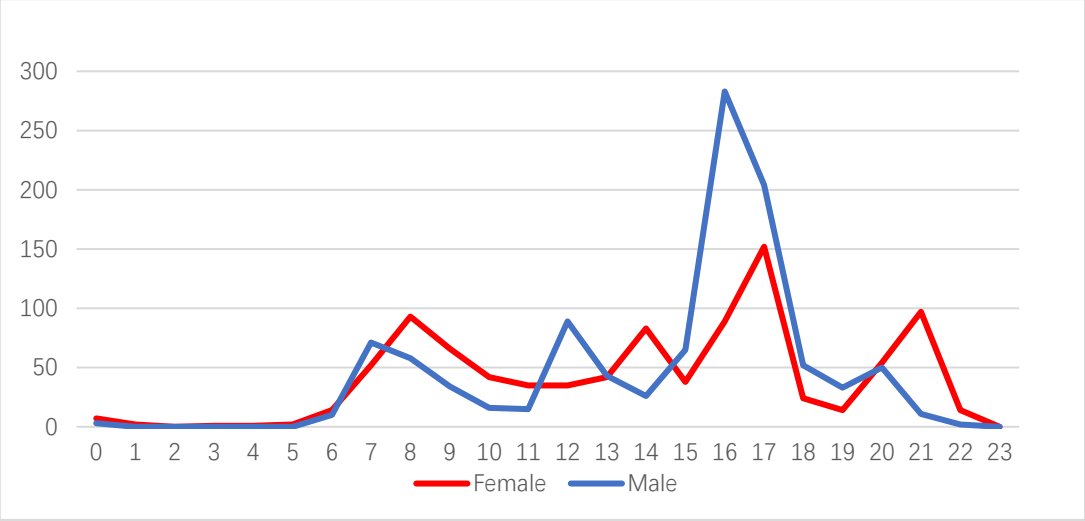

Figure 4.40 The number of GPS records in weekends by gender.

In the holidays, as shown in the Figure 4.41, girls' activities were registered from 07:00 to 10:00; this was much higher than boys and they are even small in number in the subgroup (20 girls and 36 boys).

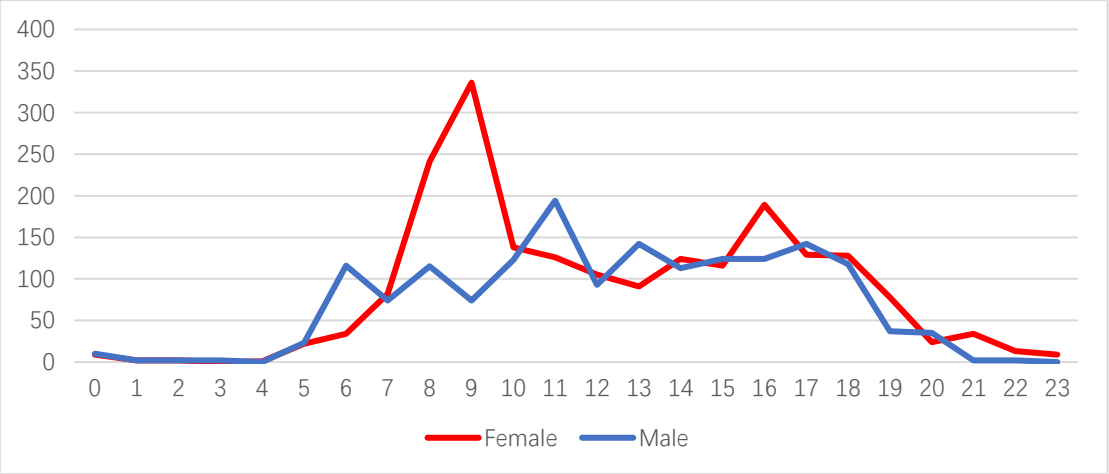

Figure 4.41 The number of GPS records in holidays by gender.

However, by checking data in the GIS, this spike could be due to travel to other cities, as most of this was done by females. During movement, data were continuously recorded by the GPS devices. To compare data without including travel in vehicles, the data was filtered by including points with speeds lower than 20 km, which is standard for categorising motor vehicles in China (Zeng, 2012). A new figure was created as below.

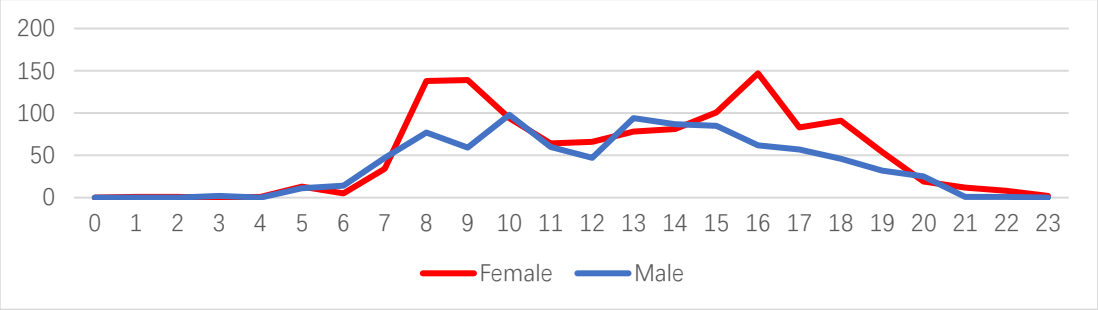

Figure 4.42 The number of GPS records in holidays by gender (speed below 20km/h).

With the new comparison, it can be seen Figure 4.42 that for both genders, the shapes of the curves were relatively flatter than the ones without filtering out the high-speed travel. Moreover, fewer points were registered for girls from 08:00 to 09:00, but this was still relatively higher than boys. The exact activities during this period of time could not be determined by the data – whether playing or simply travelling to destinations at a lower speed. However, regardless of the travel purposes, the above results suggest boys and girls have different activity patterns in terms of time in holidays, as well as at weekends, especially during weekend evenings.

4.5.7. Active time by LBC and NLBC

For LBC and NLBC groups were the most balanced number in this subgroup, with 27 LBC and 29 NLBC children. This means that the comparison between the level of activity might be more meaningful than that between groups with imbalanced samples. On weekdays, their general trend was to some extent similar as were the number of activities registered. As shown in Figure 4.43 LBC's activities started slightly earlier than those of NLBC, and this might be because most village children belong to the LBC group. They need to get up earlier and travel to school. One major difference found in the weekdays was that more activities of NLBC were registered in the evening from 18:00 to 21:00 during which the LBC were mostly inactive.

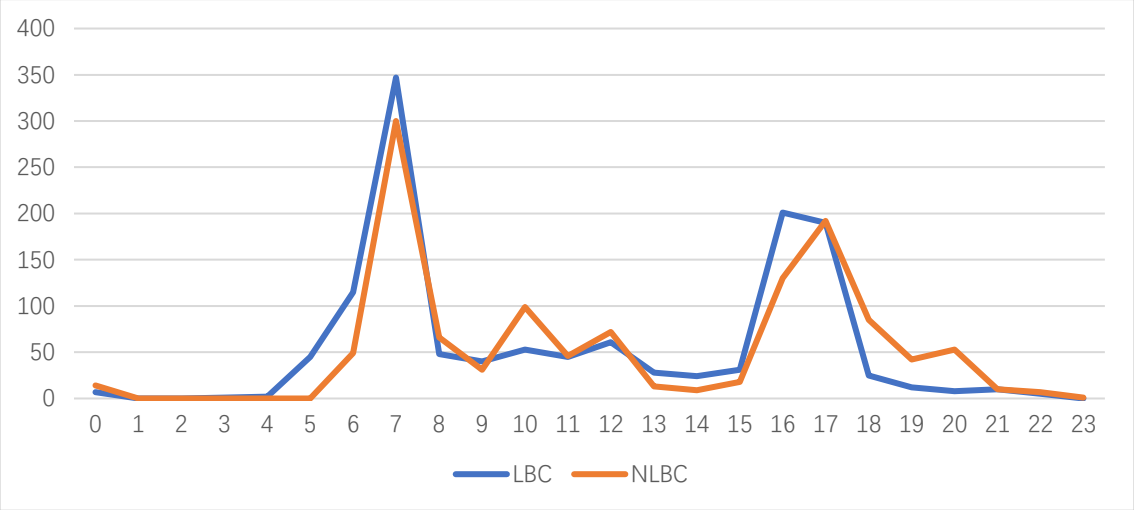

Figure 4.43 The number of GPS records in weekdays by LBC/NLBC.

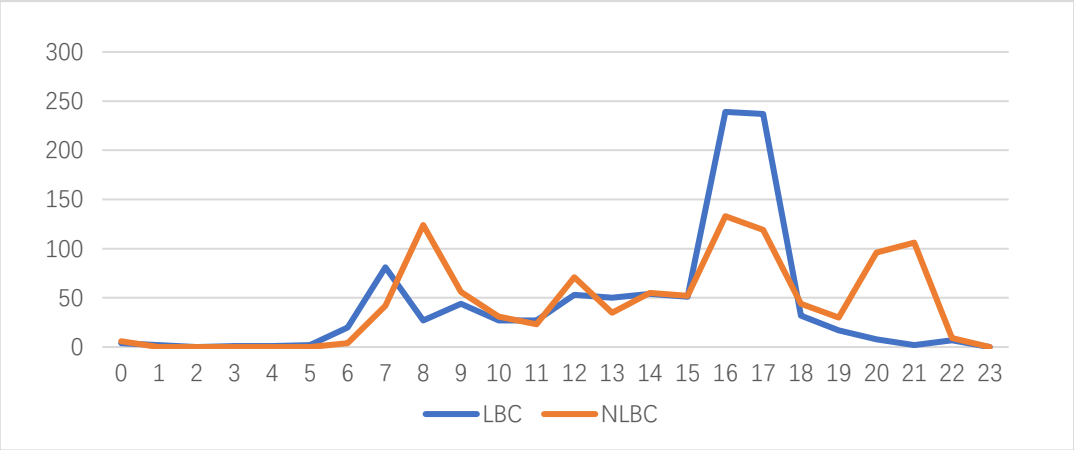

Figure 4.44 The number of GPS records at weekends by LBC/NLBC.

This difference in the evening was also found on weekends in Figure 4.44, with significantly more NLBC being active from 19:00 to 22:00 than LBC, who were inactive during the time. Moreover, while NLBC were more active from 07:00 to 9:00, LBC tended to be less active. Another difference found is LBC tends to be much more active than NLBC from 15:00 to 18:00, although NLBC were also most active during this period of time. This large registration of data in the afternoon from LBC might be due to LBC (mostly village children) having to travel back to school on Sunday afternoon. This could be supported by looking into related data from Saturday and Sunday, as shown below.

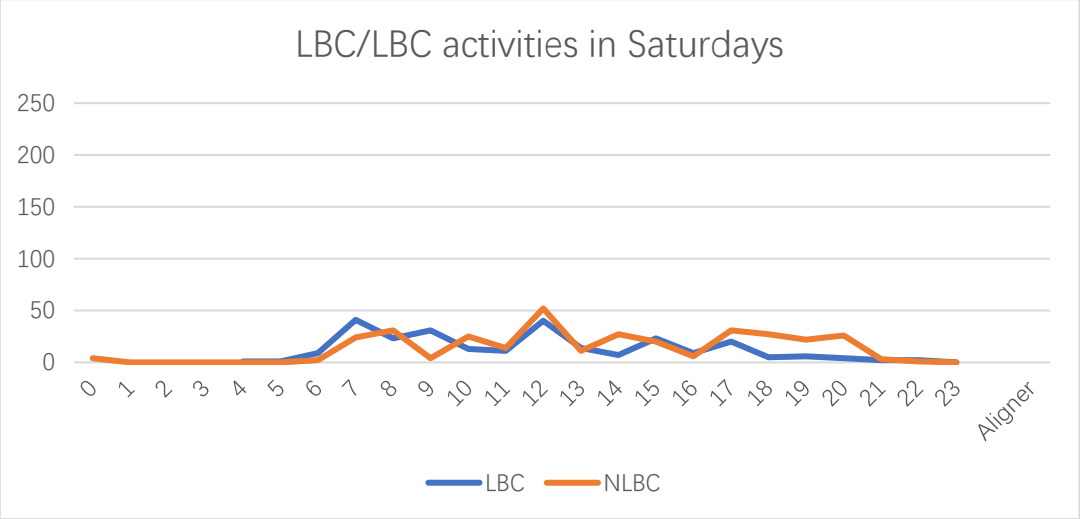

Figure 4.45 The number of GPS records on Saturdays by LBC/NLBC.

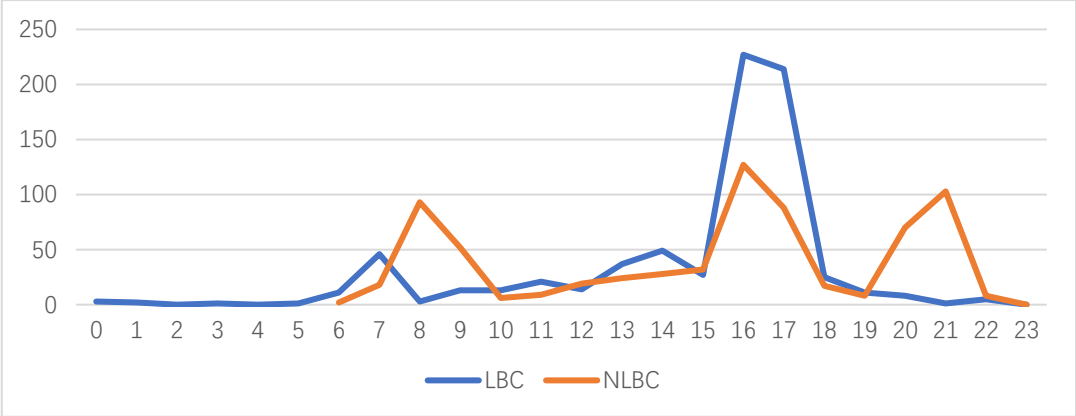

Figure 4.46 The number of GPS records on Sundays by LBC/NLBC.

Most of the large number of activities registered from 15:00 to 18:00 was indeed found on Sundays rather than Saturdays. In comparison, NLBC were more active in the evening than LBC on both Saturdays and Sundays. This might indicate that NLBC had more time for potential play in the evening during weekends, especially on Sundays.

In the holidays, it can be seen Figure 4.47 that NLBC's active time started later than that of LBC. For example, in the morning, the number of registered points of LBC children peaked at 09:00, while for NLBC it peaked at 11:00, which is 2 hours later. Similar to the pattern found in gender subgroups (section 4.5.6 page 138), a mismatch of their active time was found between LBC and NLBC (Figure 4.47) as most of the GPS records show that NLBC were being most active, while the LBC had the lowest activity level. This is especially significant after 10:00, and such a pattern

continues throughout the entire day.

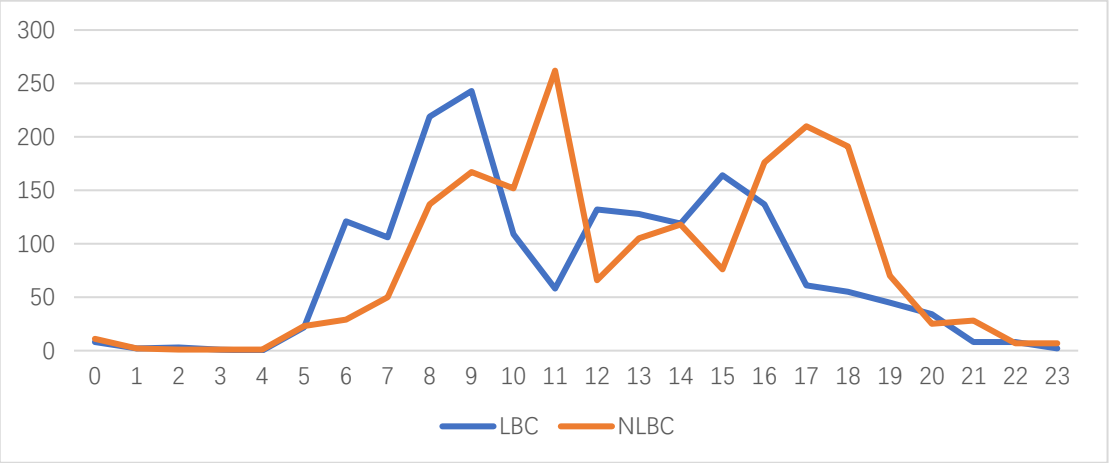

Figure 4.47 The number of GPS records in holidays by LBC/NLBC.

These analyses between LBC and NLBC by time suggest that NLBC children tend to have more time for playing in the evening on all the different days, and they also have more time on Sunday morning for playing than the LBC. Even though they were more active than NLBC on Sunday afternoon, it might be because they had to travel back to school.

4.5.8. Active time by place of residence

In this research, 25 participants that resided in the resettlement community, and 31 children that lived in the villages participated in the GPS tracking method. Similar to the above discussion in section 4.5.6, the patterns and trends were emphasised more than a comparison of absolute value due to the imbalanced samples. On weekdays and weekends, as shown in Figure 4.48 and Figure 4.49, resettlement community children and village children share a similar pattern. One difference is that the number of registered data from community children is higher in the evening than village children. The other difference during these days is that children from the village tend to be significantly more active in the morning from 06:00 to 09:00 and 16:00 to 19:00 on the weekdays and significantly more active from 15:00 to 18:00 on Sunday. However, this might be due to the need to travel from and back to school.

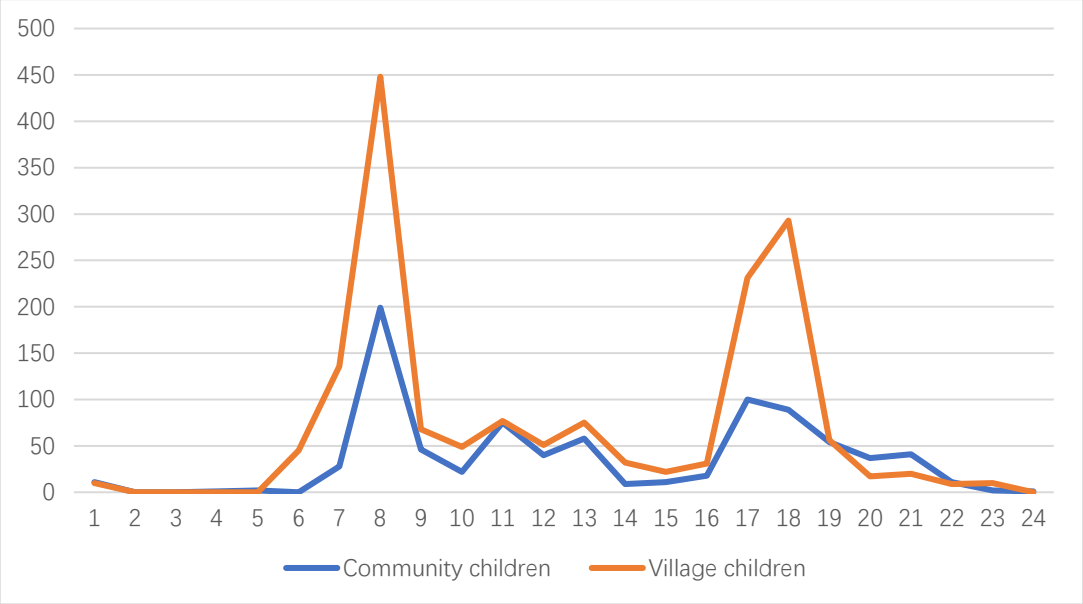

Figure 4.48 The number of GPS records on weekdays by place of residence.

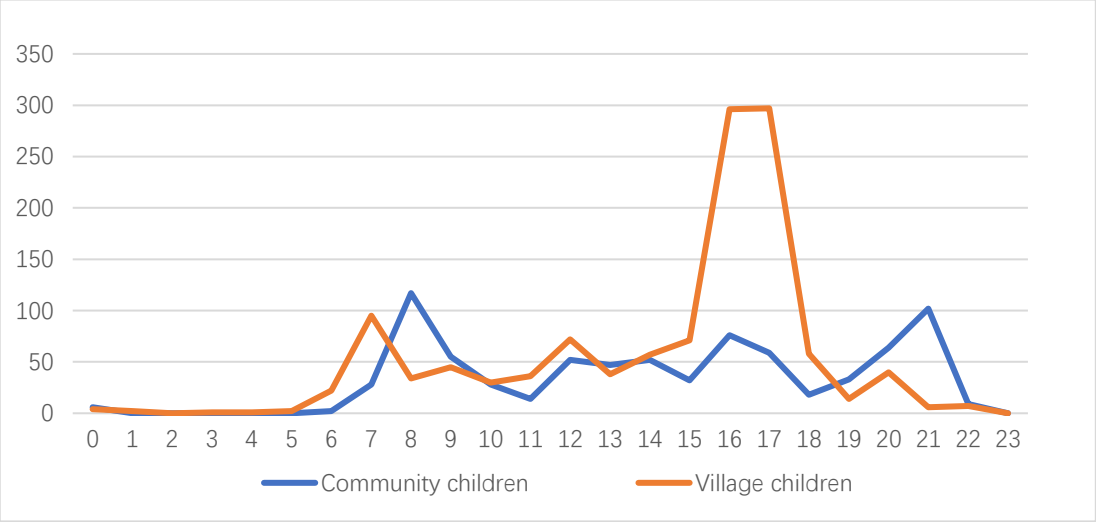

Figure 4.49 The number of GPS records on weekends by place of residence.

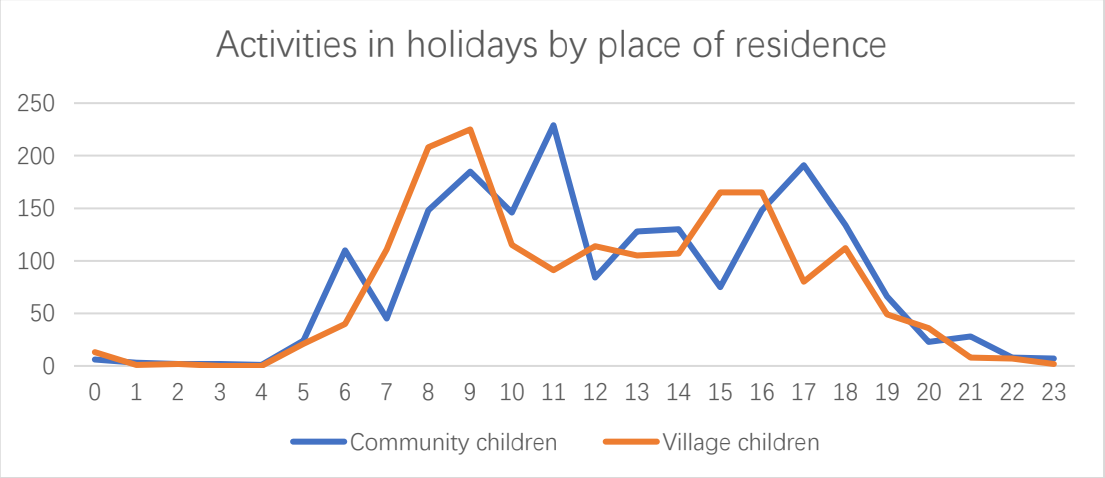

Figure 4.50 The number of GPS records in holidays by place of residence.

During the holidays, as shown in Figure 4.50, the findings is similar to the one found between LBC and NLBC groups that there is a mismatch of active time between children residing in the resettlement community and children resided in the surrounding villages. This might be because most of the village children were LBC. Due to the overlap between NLBC and village children, further comparison between community LBC and community NLBC was conducted the influence. If a difference was found, it means being LBC and NLBC as a factor was influential. If no difference was found between the patterns of community LBC and community NLBC, then it indicates, being LBC or NLBC is less influential. However, LBC and NLBC living in the villages were not compared. This is because most of the village children were LBC. The imbalanced number in each side of these groups could generate a less meaningful result.

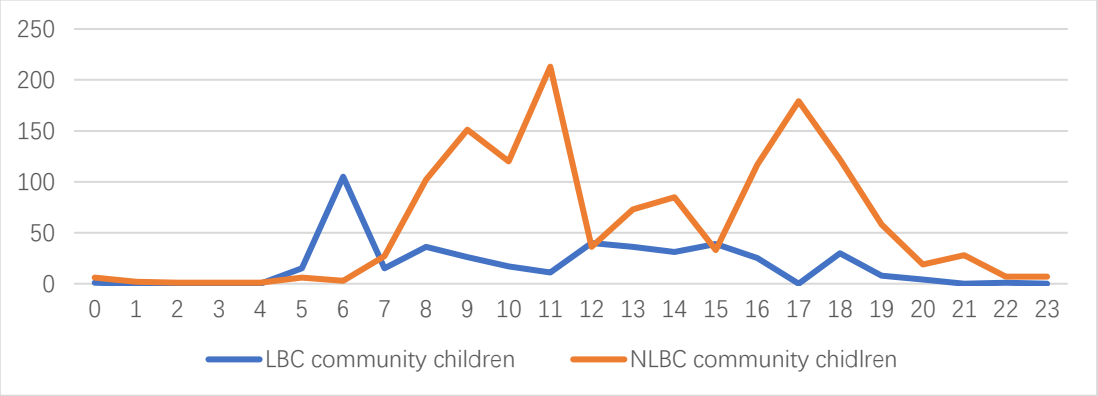

Figure 4.51 The number of GPS records in holidays by LBC community children and NLBC community children.

After comparing the LBC and NLBC living in the community, a noticeable difference was found (Figure 4.51) Similar to the pattern found in the general community and the village group, there was a lack of interaction. During the day, 06:00, 11:00, 17:00 and 21:00 are the times when NLBC were most active but the LBC in the community were least active. This difference indicated that LBC and NLBC in the community are influencing factors in community children's play activity. However, this does not indicate that LBC and NLBC are influencing factors for village children's activity time.

4.5.9. Active time by age group

To understand the influence of age on children's active time, the data were analysed by age group. The below shows all the data by time of day that was collected during 20 days of GPS device monitoring. There are seven age groups, and the number of children recruited for each group is different. Most of the participants were 9 to 11 years old. Therefore, in order to make a comparison between these groups, the data (number of registered points by GPS) in each group was weighted by the number of participants in each group.

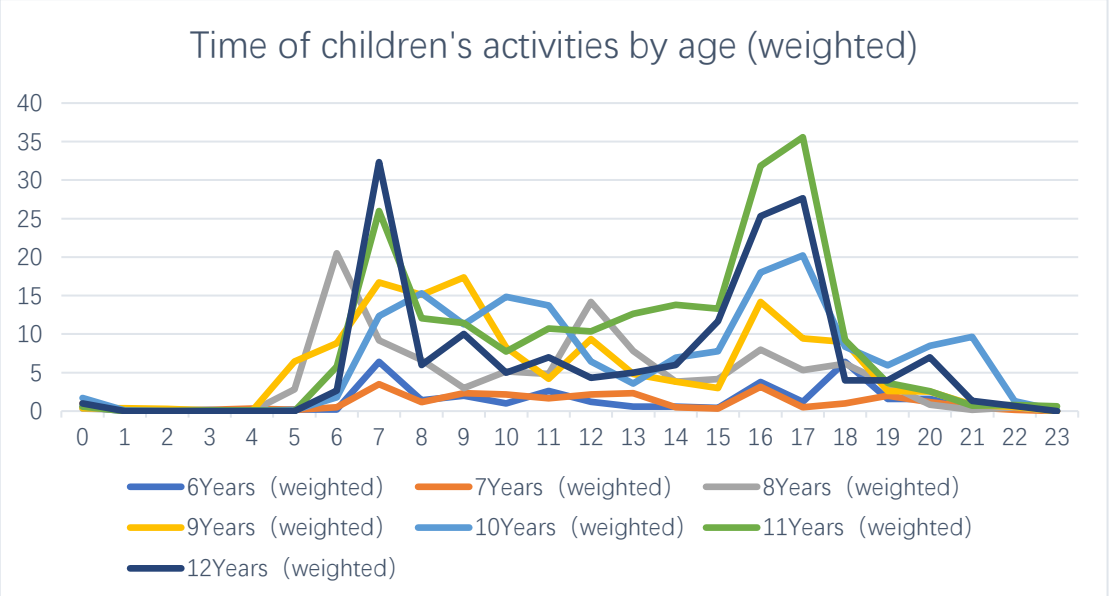

Figure 4.52 The number of GPS records in a day by age group (weighted by the number of participants in the age group).

From Figure 4.52, it can be seen that the time periods 06:00–8:00 and 15:00–18:00 were when a relatively large number of activities were recorded from all age groups. This might be due to the children's travel between home and school. The youngest children in this research (6–7 years old) have the lowest activity level on average during the day, although at six years old, children might have slightly more time to play in the evening from 17:00 to 19:00. Compared to them, children aged 11 and 12 had the largest number of activities registered; however, these were mainly during the time before school started and after school ended. Children from all age groups shared a similar pattern. However, a trend could be identified: along with the increase of age, the activity curves created by the registered number of activities shift from a relatively averaged shape to a u-shape, which represents a decrease in activities registered in the middle (08:00–15:00) and an increase of activities registered during periods before and after (06:00–08:00 and 15:00–18:00). With the increase in age, this pattern means more activities were undertaken either in the morning or in the afternoon and evening time rather than evenly throughout the day. This trend might be shaped by the school schedule or other study events discussed in later chapters.

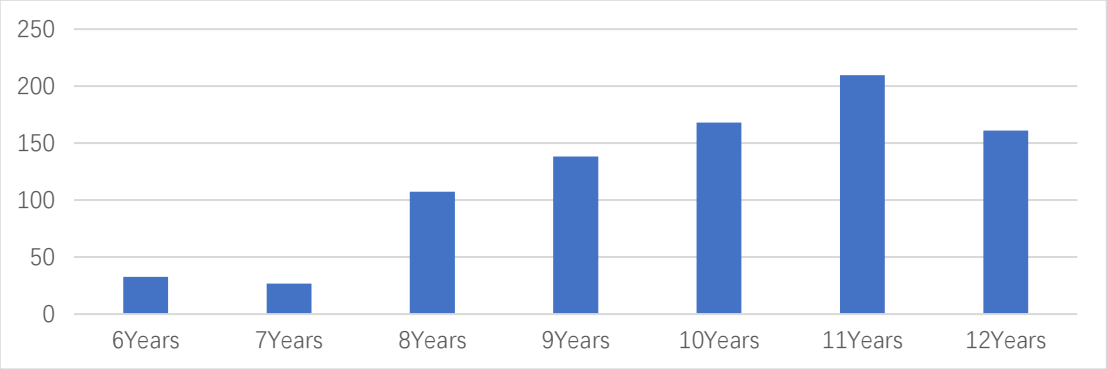

Figure 4.53 The number of GPS records of each age group (weighted by the number of participants in the age group).

The above Figure 4.53 showed the number of GPS records for each age group. Most activities registered were from 11-year-old children. Except for children 6 and 12 years old, the registered activities (weighted) increase with children's age. Children of 11 and 12 years old were the ones that were found to be most active, especially 6:00-8:00 and 15:00-18:00, while least active during the time between morning and evening. Other than individual patterns, these results altogether might indicate that

activity level might increase with the increase of age, but affected by school schedule and heavier pressure of schoolwork especially for children of 12 old years (normally 6 grade). Due to the already limited number of samples in each age group, further analysis by date, place of residence, gender and LBC or NLBC were not included.

4.5.10. Playtime reported from children perspective

From the children's report, out of 16 children who answered the question about school days, most of them (10 participants) stated they usually "play after finishing homework". It is followed by the answer "when caregivers have time" (3 participants). The other two often mentioned answers were "after school" and "in the evening". Only one participant reported playing after school. Aside from the completion of homework, the time of dinner also influenced their play. Playtime was also related to the school burden, as a male participant N14 aged 12 reported:

'I used to play a lot, but now I don't have time to play.'

For playtime duration, most of the children reported they could play half a day (15) or until caregivers call them back (10). Some children (6) reported they usually play for 1-2 hours. Some children even reported they did not have any playtime due to heavy homework.

Participant N1 male 10 responded:
'I finished the test paper, and there were still study materials. After I finished writing, I couldn't write anymore, but I still need to stay up late to write (other homework from my mother).'

The time of play for children was difficult to be quantified in this research because other factors, such as completion of homework, attending extracurricular classes, and caregivers' company, were found more influential than a specific time of the day.

4.6. Children play activity: what the children actually do (children' s responses)

More than 100 games and activities were reported by the children (see Figure 4.54). The play activities were categorised into different groups. Previous researchers such as Frost (1992) developed classification methods for children's play activities. These mainly included cognitive play, social play, other play, and non-play. However, these classifications might be more useful for indoor play, which was not the focus of the present research. In this research, understanding the relationship between play activities and the outdoor environment was one of the objectives. Therefore, the typology introduced by Loebach and Cox (2020) was adopted for categorising children's activity. With this method, children's play activities in the outdoor environment, especially with natural elements, could be more effectively described.

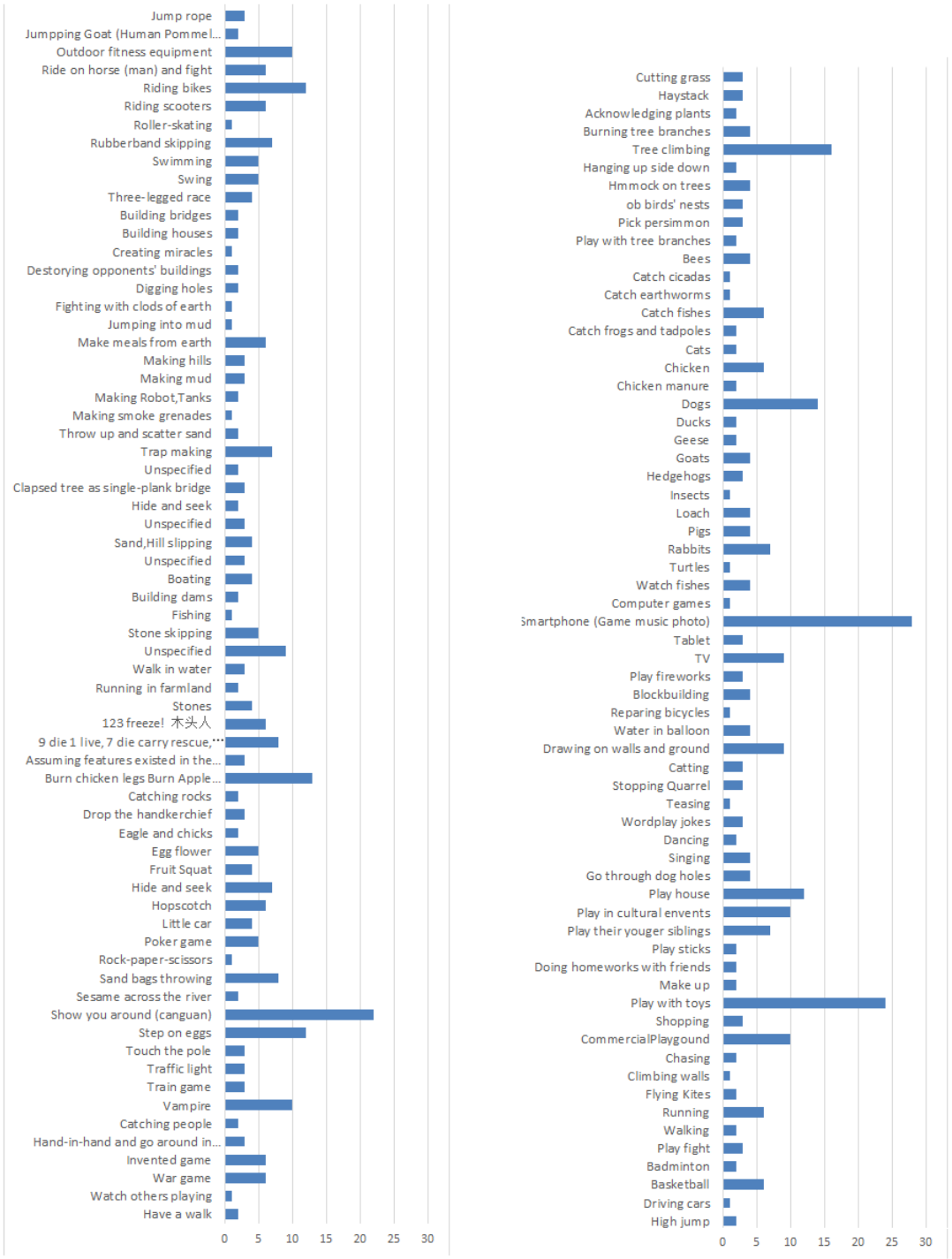

Figure 4.54 Play activities by children' s report in number of cases.

Nine different types of play were introduced to categorise children's specific activities. They were:

Physical: gross motor activities, fine motor activities, vestibular activities, and rough and tumble activities such as play fighting, tumbling, kicking, etc.

Explorative play: passive and active exploring and the manipulation of objects or

environments for play.

Imaginative play: symbolic play, like using sticks as swords; sociodramatic play, like playing house; and fantasy play.

Play with rules: organic play with flexible rules and conventional games with strict rules.

Bio play: play with plants and wild animals, such as branches and leaves picked up or picked at will, e.g. playing with shrimps in the water, tadpoles or turtles, crickets and hedgehogs.

Expressive play: performing activities, such as dancing; artistic activities, such as drawing; and language games and conversations.

Restorative play: activities like resting, reading or writing for pleasure, and onlooking activities such as watching others play.

Digital play: playing with digital devices

Non-play: behaviour that could not be considered as play.

However, as this method was mainly developed for observational use, some of the activities in this research did not fit into the framework due to the researcher being unable to know the exact content without actual observation. Such activities include travelling, shopping, and doing homework with friends. In addition, general feelings or activities with fuzzy descriptions such as “play in hills” were difficult to include in the framework. Therefore, to have a clear view of all activities and also for the purpose of relating play activities to the play environment, two extra categories were added. “Play in the natural environment” was added to include play and general activities that happen in natural environments. Other activities, such as doing homework and shopping, were classified as “other”.

After classification, the result in Figure 4.55 shows that bio play, physical play, and play with rules were the three types of play activity most reported by children, followed by digital play and play in natural environments.

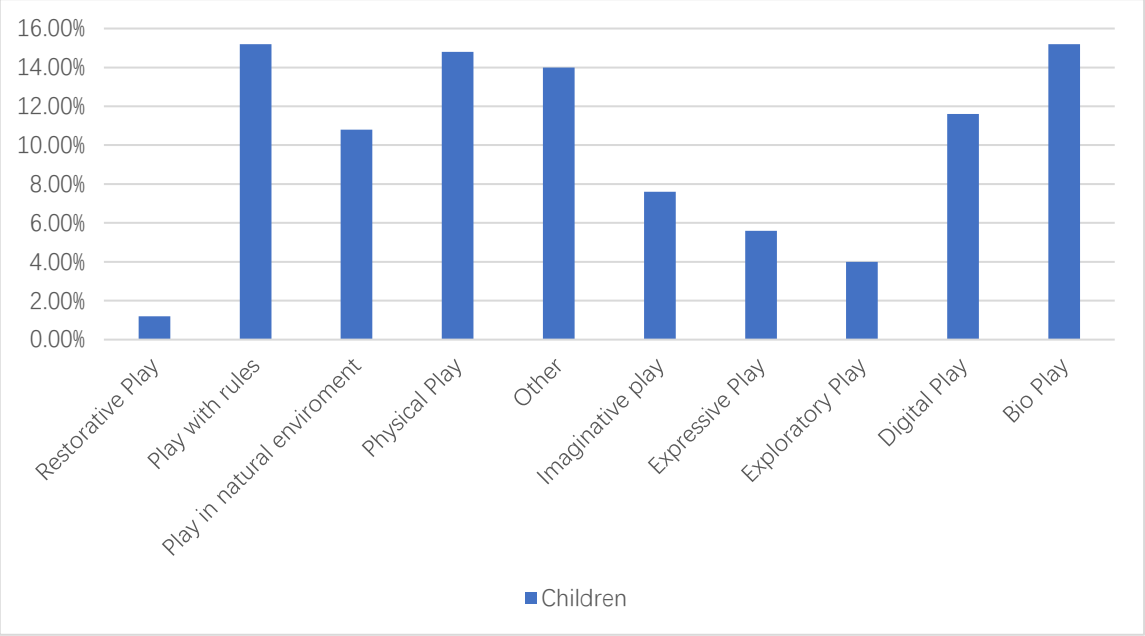

Figure 4.55 Categories of play activities by children.

4.6.1. Digital play and outdoor play

Among all children participant answers, digital play accounted for 11.6% of the answers. From the report of focus group, 27 of all 49 children participant mentioned digital play. Twenty-five children mentioned they played with smartphones, 7 mentioned watching TV, 2 children mentioned playing with iPad and 2 children mentioned playing with computers. Digital devices might attract children as they provide functions such as media player, photo taking, games, displaying digital content created by others (Tick Tok). It has become part of the lives of even the youngest children.

As A boy N8, aged 8 stated:

'My little brother started watching cartoons when he was one year old, and (now) he is one and a half years old.'

Girl participant N6, aged 11 reported:

'My little brother started playing with his phone when he just started in the kindergarten.'

4.6.1.1. Digital play for socialisation

Because of the functions digital devices offered, especially games, content creating, and sharing children were found using them to meet their needs of socialisation as a girl aged 11, Z3 stated:

'I can play with my phone for taking selfie and photography with friends'

Child N10 a girl also responded:

'I've been there once...there were boats, and people. Another kid and I took selfies there, there were so...many cherry trees, peach trees, plum trees, so many.'

4.6.1.2. Digital play in outdoor environment

Digital play in the current research was not only found indoor but also as outdoor play. Children might meet somewhere outside of their own home for phone play. Boy11 aged 11, H2 stated:

'I usually play there (the square of village committee office) with my older sister. There is Wi-Fi in our village committee.'

Participant N13, A boy aged 7, mentioned:

'I used to go to my aunt's house to play with my old brother's phone.'

In another focus group for children from the community one boy shared, he met up with friends and played games with them outdoor:

The researcher asked children:

' Your mom said you took your phone and played with it with a group of kids outside?'

Child N8, an eight-year-old boy, and some other children together:

' Gang up.'

Researcher:

' What is gang up?'

Other children in the background:

'Game! You know.'

Child N8:

'We play outside together, with our friends.'

Researcher:

' You play your own games and why do you gather together?'

Child N8:

'We could talk to each other (for cooperation in the games).'

Researcher:

'But you can use the voice call in the game.'

Child N8:

'Yes, but it is not as direct as face to face talking.'

Figure 4.56 The place where children often play phone games together.

Children also used phone on other play activities outdoor.

Child N13:

'That was a hornet's nest. There's a hornet's nest in the playground.'

Child N1:

'There are two!'

…

Child N15:

'I took the picture with my mobile phone.'

It appears that digital play had instead become a motivation for these children to go outdoors.

4.6.1.3. Sharing and learning games from digital play

What digital play offered to children was a simpler way of getting information, so that children could quickly learn new games (non-digital) and introduce them to friends and play together.

Participant Z2 a ten-year-old boy:

'My brother likes to play this game, and so do I. We both saw people playing on our phone'.

An 11-year-old girl, N11 said:

'My sister play Tick Tok before she begins studying in the (kindergarten) school.'

They then all started to show me the *'duck squat'* (a popular game in Tick Tok).

Figure 4.57 Children in the resettlement community taking videos on mobile phones.

This trend of digital play could be easily passed over to others. Children could share and learn games on social media even traditional activities:
Researcher:
'Where did you hear the Chinese traditional opera?'

Child N9 a six-year-old girl said:
'On my grandfather's mobile phone.'

Numerous children also stated that digital games would not discourage their engagement in outdoor activities.

Researcher:

'Does your sister think it's fun on the phone or outside?'

Child N13 and Child N14:
'It's fun outside (together).'

Child N14:
'Unless the game is more fun on a mobile phone.'

Regardless, a considerable number of children reported that they tended to play indoors more frequently with digital devices than outdoors. Some children reported playing with their mobile phones indoors because they are unable to play outdoors.

Researcher:

'They all said it's more fun playing outside than playing with mobile phones. What about you?'

Child L3:

'I do.'

Researcher:

'I thought you said you weren't going out.'

Child L3:

'I (want to) go out, my granddad won't let me play outside, (So) I don't play. I'm not going out.'

A boy aged 10, Z2 also responded:
'Sometimes I played with mobile phone games, as multiplayer online games and watch TV when I have nothing to do at home.'

This presents a marked difference from another child who was more enthusiastic about other play activities than mobile phones. N15 a 14-year-old boy responded:
'Mobile phones don't do much for me.'

N16 a 12 year-old boy responded:
'He's got a lot of blocks in his desk drawer in class.'

…

N15:

'I won first place in the block competition in the Zhengzhou (in a) community.'

This suggests that children play with mobile phones indoor when they lack opportunities to play and parental control.

4.6.1.4. The allowing and forbidding of digital play

It is interesting that caregivers were found to be offering children phone to play and meanwhile forbidding children's digital play for various reasons. Several children participants in the focus group gave similar answers. A boy aged 10, Z2 he mentioned that his first exposure to mobile phones as a gaming medium came from his mother's offered opportunity.

'When I was six years old, I was still in kindergarten, and I didn't know how to play with my mobile phone, my mother downloaded it (mini game) for me. I was very new and just started to play.'

Meanwhile, from children's experience their caregiver also controlled their use of devices.

A girl aged 11, Z3 said:

'My phone was confiscated by my mother. Because my grades have dropped a little bit. It's because there is no one listening to the teacher in English class in the fifth grade. It is interesting now. I would listen.'

A girl aged 7, L2 said:

'I don't play them all (phones and computers), my parents have taken the computer apart in our home.'

4.6.2. Play activities and place of residence

Several differences were found between children who were living in the villages and those living in communities. Generally, most types of activities were less reported by community children, except for digital play and exploratory play.

Although the digital play was more frequently reported among village children, they

played significantly more with natural elements (70%) than children in the new community (30%). This echoes findings in the GPS analysis as well as the findings on the outdoor environment that found village children played more in the natural environment. It is worth noting that children's reported activities here did not equal activities they actually liked. Especially during rural development, most community children originally lived in villages and had moved to the new community during the last six years. The reason for less reported play activities by community children might be because children had lost the opportunities to play these activities in the natural environment during the transformation as found in previous section 4.1.4..

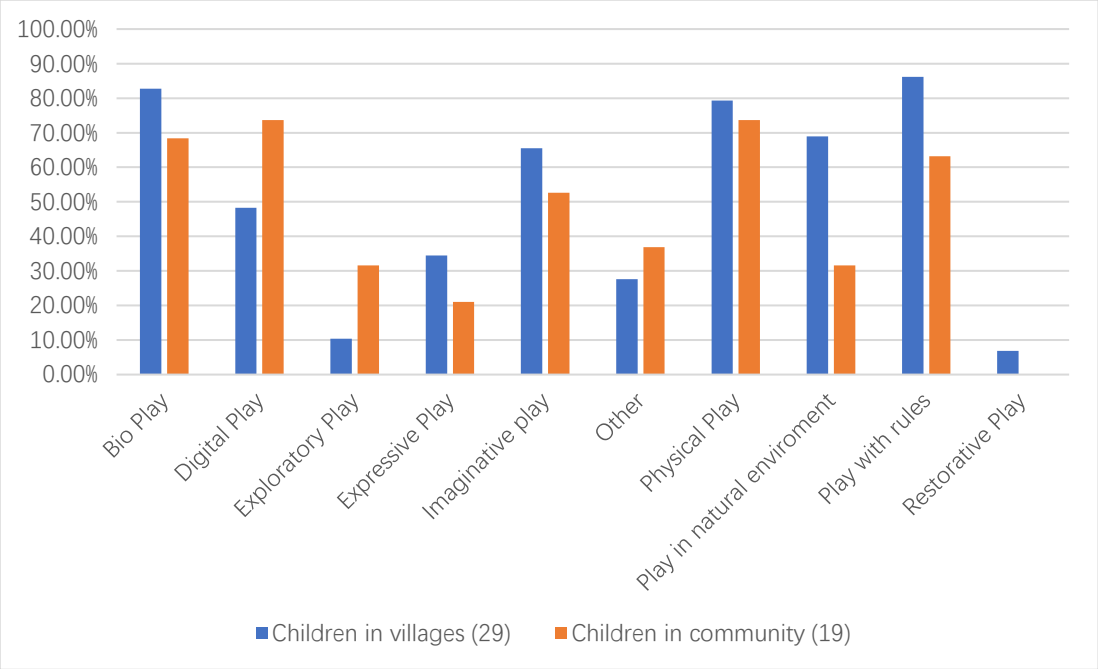

Figure 4.58 Comparison of play activities between village children and community children (in children's reports)

4.6.3. Play activities by genders

For different genders, the main difference found was that more exploratory play was reported by male participants (27.59% of all male participants) compared to female participants (5.26%). Other differences found were that girls tended to play more in the natural environment (63.16% of all female participants) than did the boys (48.28%), while boys played more with animals and plants (82.76% of all male participants) than did girls (68.42%).

4.6.4. Play activities by LBC/NLBC

For the groups of LBC and NLBC (Figure 4.59), the most noticeable difference was that the NLBC group played more with digital devices than LBC. More children in the NLBC group reported exploratory play than the LBC group. Slightly more NLBC participated in physical play and played more with animals, while LBC played more in the natural environment.

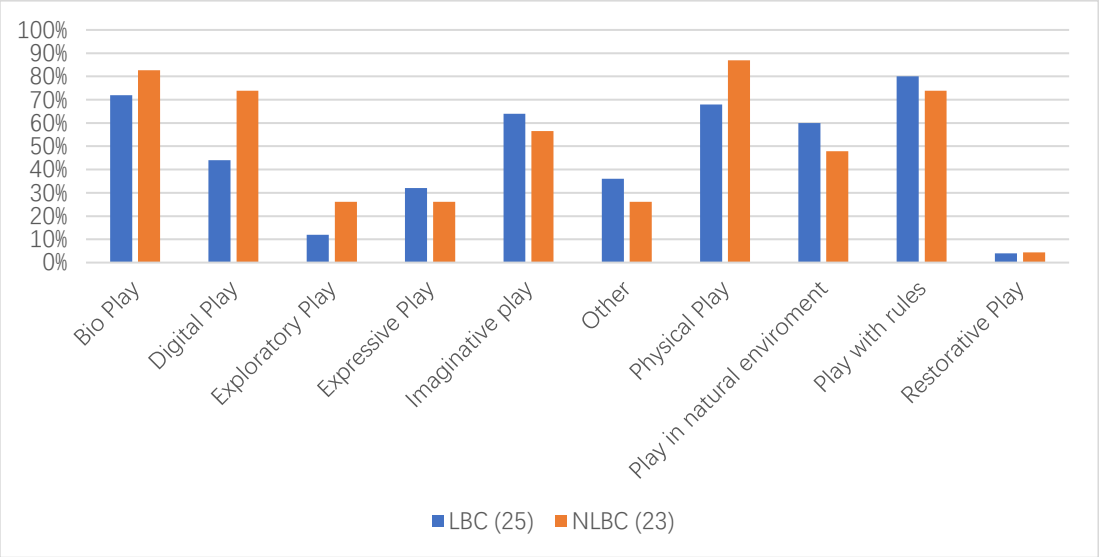

Figure 4.59 Comparison of play activities between LBC and NLBC (children's reports)

Chapter 5

Findings

Caregivers' perspective

5. Findings from caregivers' perspective

This chapter discuss the children's play from the caregivers' perspective. Findings are presented in three sections. In the first section, aspects of children's play reported by caregivers are discussed under the framework of SPIT model. The second section in this chapter shows the themes emerged from the caregivers' interviews. These themes were meaningful to answer the "why" question about the children's play space, people to play with, play activity and play time. These themes suggest children 's play was influenced by caregivers. These influences came from caregivers' control, caregivers' supervision and caregivers' beliefs. These three categories influenced different aspects of children's play. In this second section, these themes and subthemes are discussed in detail and include why caregivers control or supervise children's play. The third section of this chapter highlights one major theme from caregivers' answers: the general environment and play spaces that were transforming in both the village areas and the newly built resettlement community area. The lack of provision, natural or man-made, for play and the lack of children to play with were mainly reported by the caregivers and they often compared and referred back to the environment they used to live in during their youth. Under current transformation, adaptions to the environment were found to be an issue for caregivers and their children's outdoor play. To have a clear view, in the end of this chapter, the relationship between findings on children's play, caregivers' influences and the transforming environment are discussed.

5.1. Places for children's outdoor play (caregivers' responses)

During the interviews, the question "where do your children usually play?" was asked to caregiver participants. "Home and the surroundings" were reported as the location in which children usually played by caregivers (see Figure 5.1). The other three most mentioned locations answered by caregivers were "relatives' homes and surroundings", "neighbours' homes and surroundings", and "schoolmates' homes and surroundings". Playing at caregivers' work places was also mentioned by two caregivers. Only one caregiver reported their children playing outside the village. These answers suggest

that, according to caregivers' own knowledge, children either play near their own home or near places of someone the caregivers know. There might be overlaps between these locations. For example, the neighbours could be the participants' relatives and vice versa. However, this kind of overlap does not affect the fact that, in caregivers' views, except for playing at homes or with parents, their children mostly played near the residential places of people with whom they are familiar.

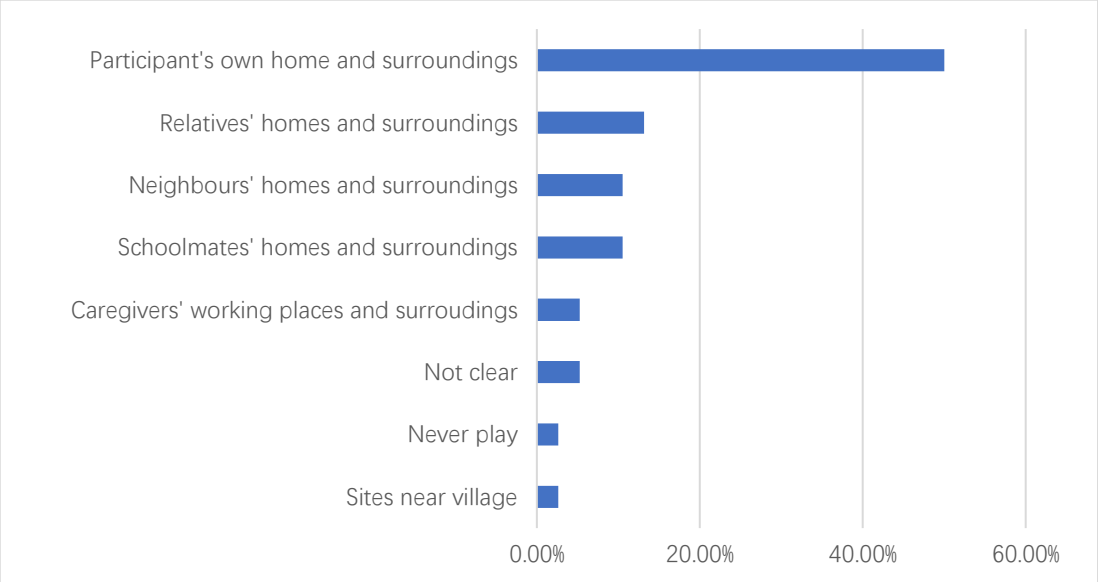

Figure 5.1 Places for play in number of responses (caregivers' reports).

During interviews, it was noticed that caregivers tend to mention the 'people' factor of the places first, rather than reporting the physical location of where their children usually play. This way of describing might reveal their consideration of children's play space; whom their children play with might be more important than where they play.

5.1.1. Places for play and place of residence

According to the reports (see Figure 5.2), the vicinity of home and surroundings were most frequently reported by both groups of caregivers. Among village caregivers, reported more of their children's play at neighbours' homes and surroundings (15%) than community caregivers (6%). That their children play at relatives' homes and surroundings was also more frequently reported than community caregivers. In comparison, caregivers from the community reported more of their children's play in schoolmates' home surroundings (17% more) than in the village caregivers' reports.

These findings suggest while all the children played in home areas, and in the homes of others. Who they could visit was different, at least in their caregiver's mind. For community children, a schoolmate was often who the children visited, but for village children relative's and neighbours' places were where they often played.

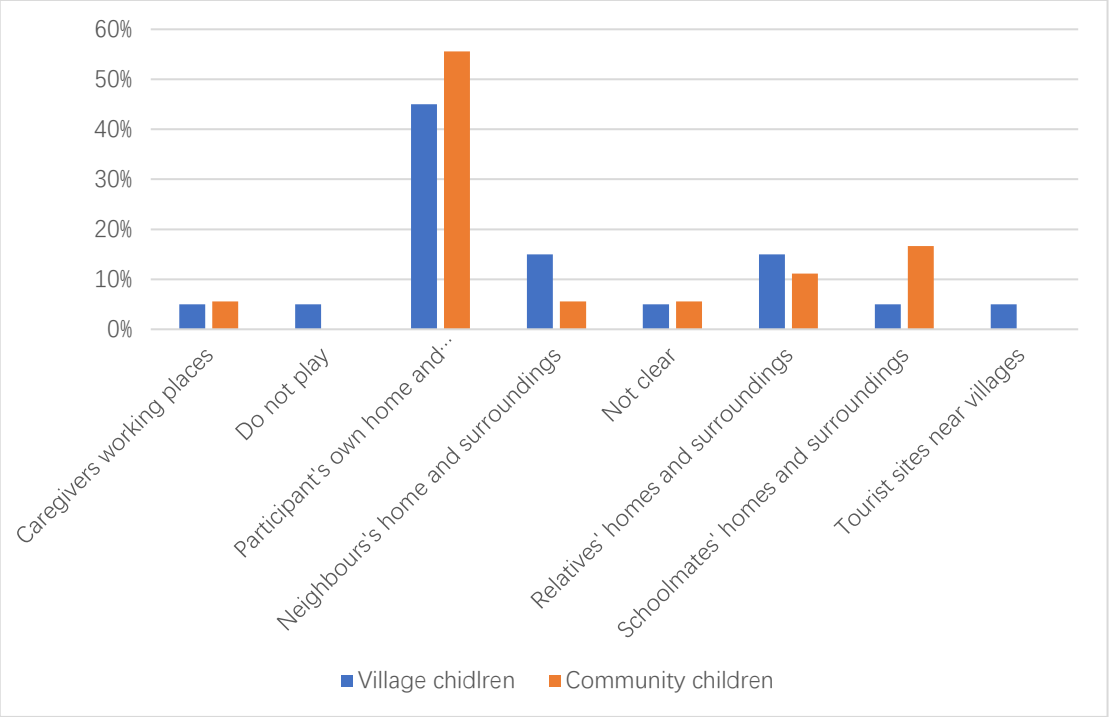

Figure 5.2 Places for play in percentage by place of residence (caregivers' reports).

5.1.2. Places for play and gender

According to the caregivers' reports (Figure 5.3), both genders played mainly at home area and in the surroundings, although more frequently reported by caregivers of girls. Play at schoolmates' home area and relatives' home area and nearby were more frequently reported by caregivers for boys than for girls. However, the reported difference between boys and girls here was rather slight.

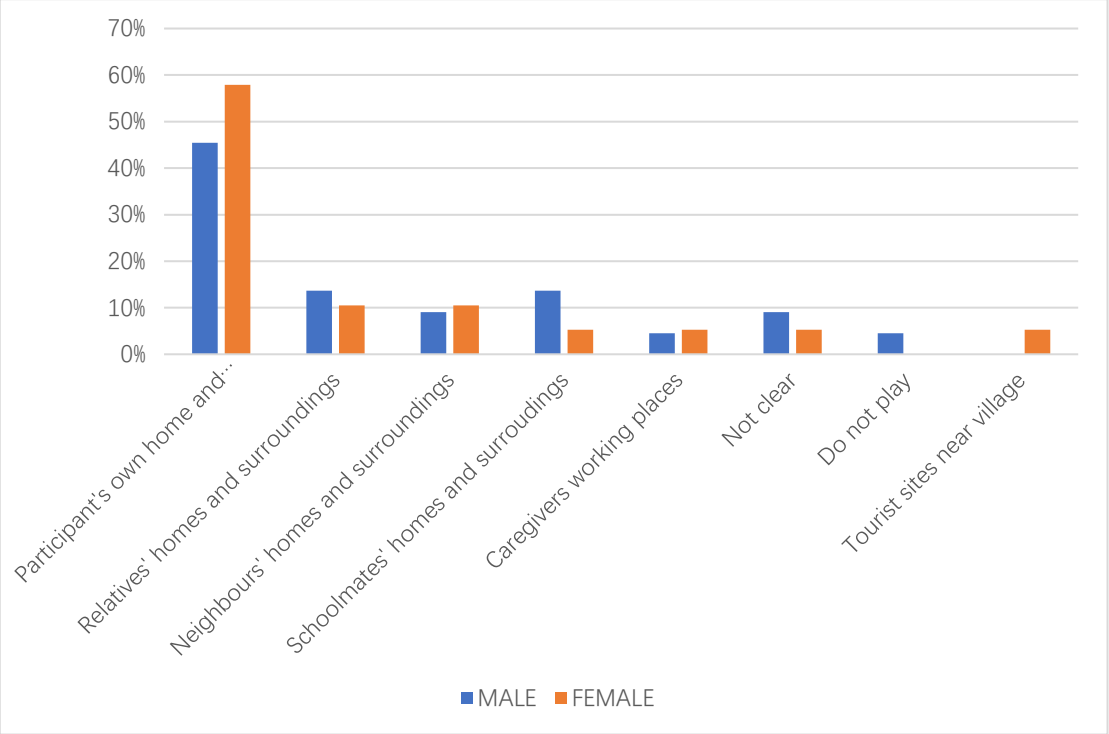

Figure 5.3 Places for play in percentage by gender (caregivers' reports).

These results suggest that the places for children's outdoor play might not be strongly influenced by gender from the caregivers' perspective.

5.1.3. Places for play and LBC/NLBC

Very limited differences in places for outdoor play were found between LBC and NLBC in the caregivers' report. Instead, a major difference could be seen between the children being taken care of by grandparents and parents. As the Figure 5.4 shows, homes and surroundings were more frequently reported among grandparents' who took care of children. Visiting other places, such as relatives' homes (about 5%) and schoolmates' places (about 5%), was rarely reported by grandparents. In comparison, a variety of places was reported by parents. Relatives' homes and surroundings and schoolmates' homes and surroundings were more frequently (30% and 23%) reported by parents. Responses of "never play" and "unclear" were all from the answers by grandparents. These results suggest that children taken care of by grandparents play far less in other places or with any people other than family members.

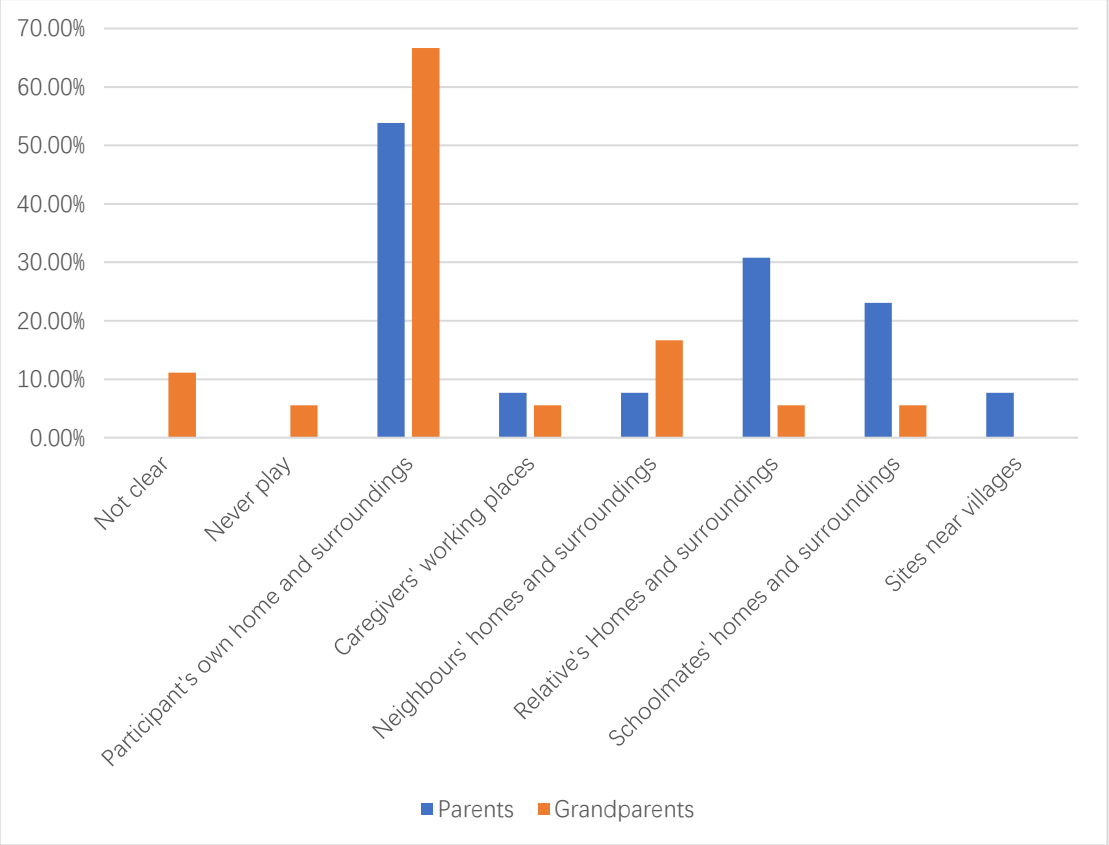

Figure 5.4 Places for play in percentage by parents and grandparents (caregiver's reports).

These insignificant differences found between LBC/NLBC in contrast to the significant difference found between parents/grandparents suggest understanding children's play spaces based on LBC/NLBC was found to be less meaningful. During the field work observation and engagement with the participants, the researcher was told sometimes, that NLBC were also taken care of by grandparents, even when their parents migrated for work. LBC, especially children in grandparents' care, might have even less outdoor play opportunities compared to LBC children with a sole parent. Therefore, the actual career (parents vs grandparents in this research) was more influential and worth studying when understanding children's outdoor play.

5.1.4. Places for play and age

Outdoor play places varied with children's ages. Figure 5.5 was derived from the caregivers' reports. It illustrates places where children in each age group played shown in percentages. For example, six-year-old children only reported playing at home and surroundings. From Figure 5.5, it can be seen that nine-year-old children

reported the richest variety of places for play. Ten-year-old children have the second richest variety of play places. The youngest children (six years old) and the oldest children (12 years old) played in the least varied places, most often reporting their own homes and surroundings. Children who never played were also reported by some caregivers of the 12-year-old children.

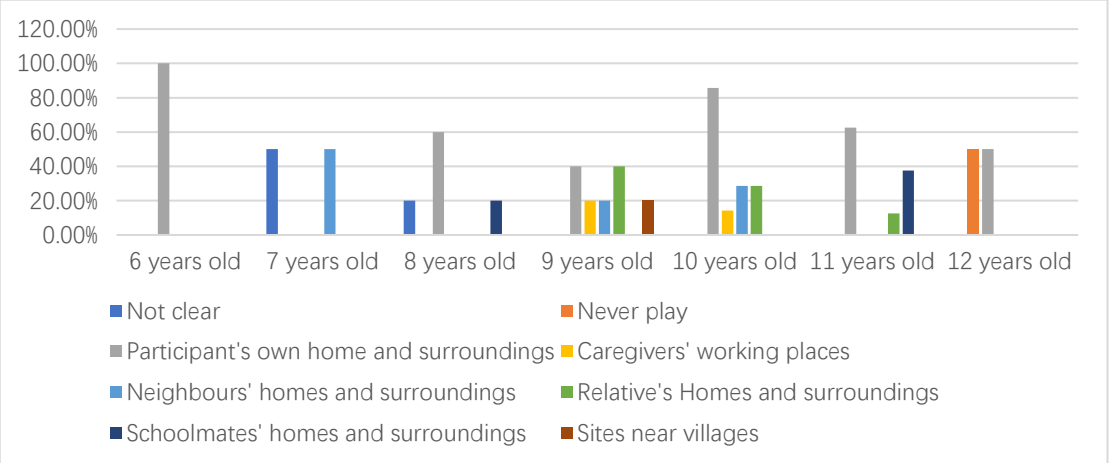

Figure 5.5 Places for play in percentage by age group (caregiver's reports).

Generally speaking, children at younger ages and older ages tended to play in less varied places in caregivers' reports. This might due to only children in the middle age group had their own ability and time to play. Academic burden and caregivers' influence might be potential reasons for these results.

5.2. Type of Spaces for children's outdoor play (caregivers' responses)

In addition to where children play, the question "in which kinds of places do children usually play" was asked. According to the caregivers' reports (Figure 5.6), these spaces included built environments, such as indoor home spaces, home yards, ground floor storage rooms, squares in the residential community, supermarkets, spaces in schools, and spaces in a driving school (a field for driving practices belonging to driving schools that could be accessed by local people). The answers also included spaces with natural elements, such as rivers, lakes, woodland, farmland, and mountains. The figure below shows these spaces by the number of caregivers who gave such answers.

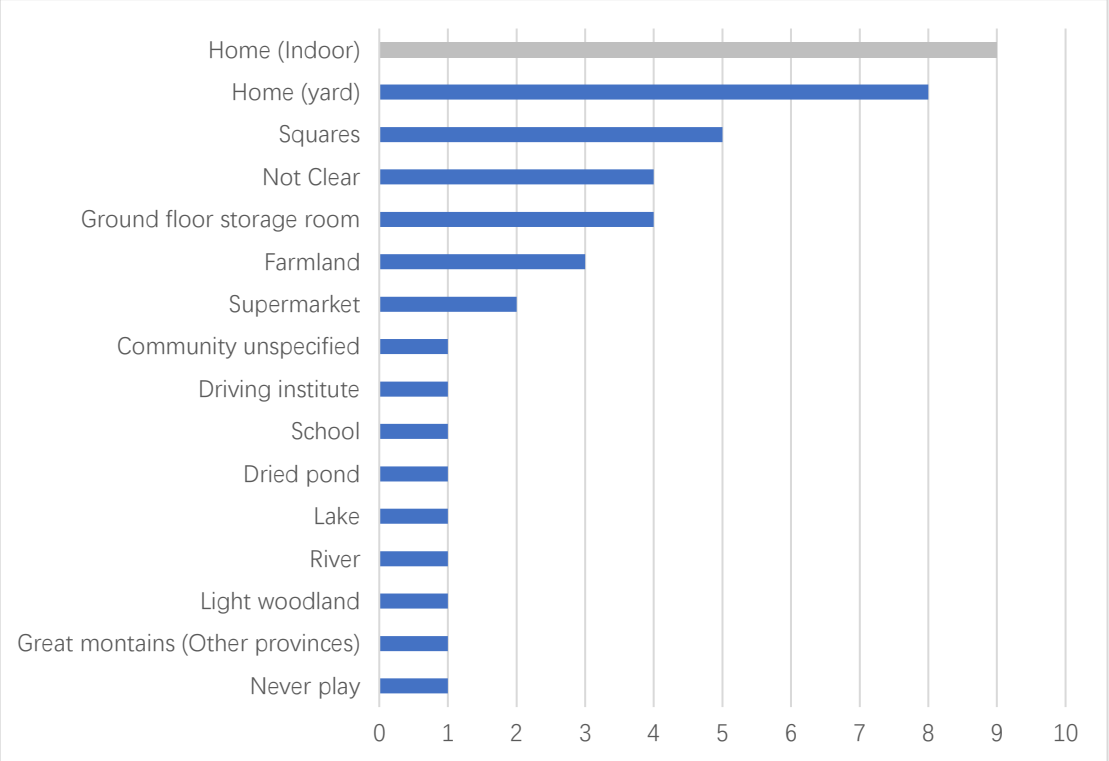

Figure 5.6 Reported type of play spaces in number of responses (caregivers' reports).

"Playing indoors at home" was the most reported space (reported by 9 participants). This was followed by the "home yard" (8 participants), “squares” (5 participants), and "the ground floor storage room area" (4 participants). Compared with built environments, natural spaces and spaces with natural elements were the least mentioned. Landscape elements, such as lakes, rivers, woods, and mountains, were only mentioned by one participant. Farmland was the most reported landscape space, but was only mentioned by three caregivers.

When asked about their children’s preferred spaces, only a small number of caregivers could give an answer. Squares (2 participants), streets (1 participant), ponds (1 participant), and farmland (1 participant) were reported as preferred. Farmland was reported by seven caregivers as disliked spaces.

In other words, according to caregivers, children mainly played in the home environment (indoors, yard, and the ground floor storage room surroundings) or public spaces (squares, supermarket, and school). Children played less in natural environments (farmland, woods, and water locations).

5.2.1. Type of places and place of residence

Among community caregivers who answered the questions, squares and ground floor storage rooms were the most frequently reported spaces of play for children. However, fewer answers from community caregivers were about playing indoors (about 6%) (apartments in buildings) compared with village caregivers that indoor (about 16%) and home yard (about 16%) were the most frequently reported spaces for play. The home yard, indeed, was the least frequently (3%) reported play space by community caregivers as their children did not have much private space in the community to play in as in the villages; instead, the ground floor storage room surrounding area was the most reported area. Therefore, these results suggest both community children and village children were similarly active at home area, despite the resettlement community having fewer areas near the home for play (and this area was sometimes shared with others) compared to the larger home yards available to the village children.

In caregivers' reports (Figure 5.7), both village and community caregivers reported the natural environment as spaces for play, but these answers were few. In addition, compared with village children who could play in rich environments such as rivers and mountains, community children played in only one type of natural space: the farmland.

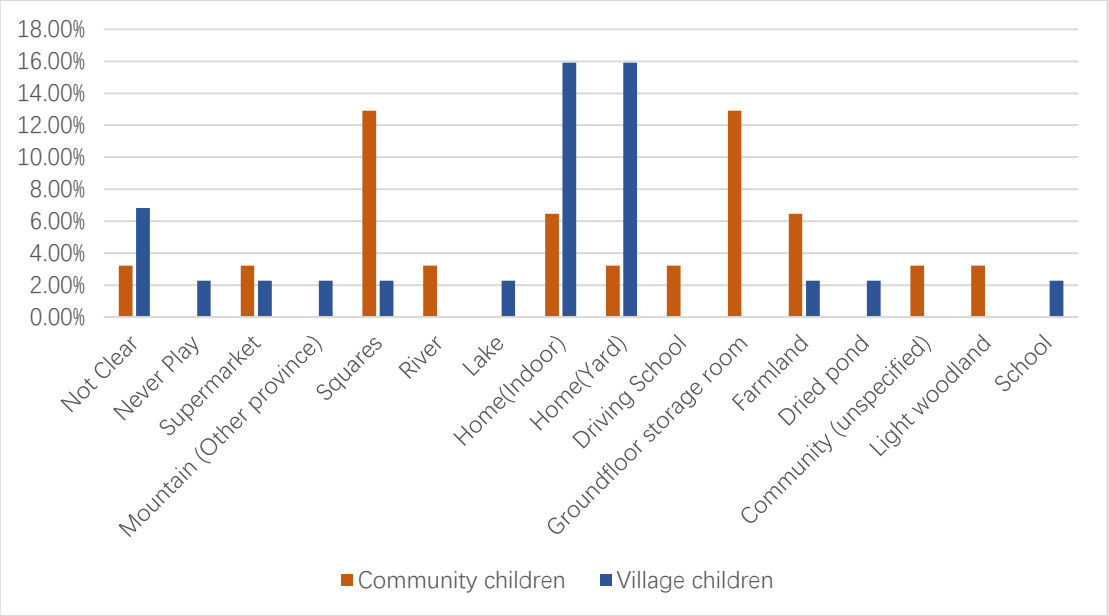

Figure 5.7 Type of spaces for play by place of residence in percentage (caregivers' reports).

5.2.2. Type of places and gender

Gender also played a role in children's play. From the caregivers' answers (Figure 5.8), it was found that boys' play activities were mainly reported indoors when they played in home environments, while girls' activities mainly happened outdoors in home yards or the ground floor storage rooms areas. For other spaces away from home, especially farmland, more play was reported by boys' caregivers, and only the caregivers of boys reported their children's play in farmland.

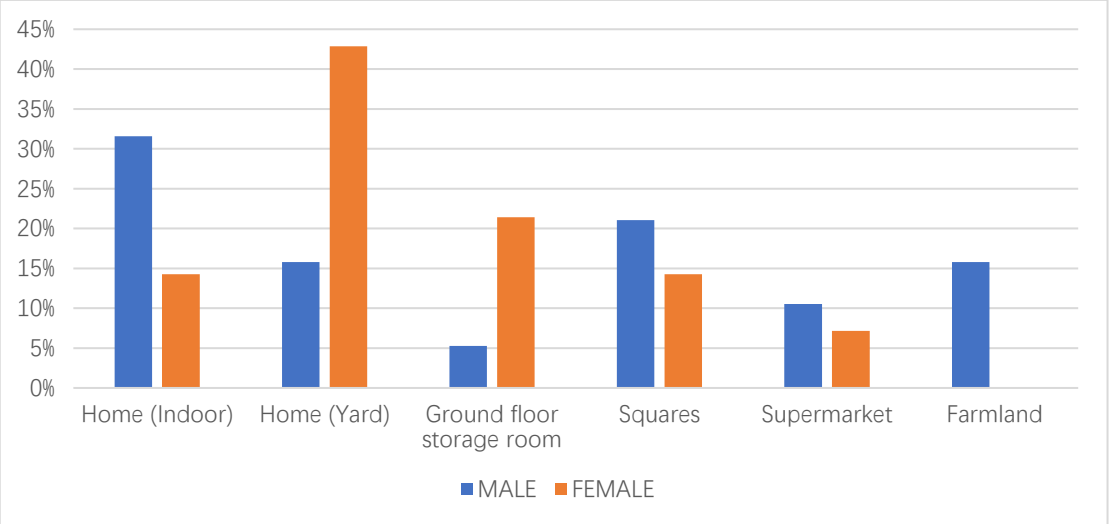

Figure 5.8 Reported types of play spaces in percentage by gender (caregivers' reports).

5.2.3. Type of places and LBC/NLBC

For LBC and NLBC groups, no patterns could be found in the caregivers' reports. This might be because, the caregivers in the interviews, not only include "parents", but also "grandparents". The LBC/NLBC official records provided by school, used here for analysis, only showed whether children's both parents were at home (for 6 months by the definition of LBC). But the records could not show who actually were taking care of the children. For example, in the fieldwork engagement, the author observed that, for some children who have both parents at home were recorded as NLBC but interestingly they were still cared by the grandparents for certain reasons. On the other hand, for LBC who had one parent left at home, they could be cared by the sole parent in home full time rather than cared by grandparents. Therefore, LBC/NLBC as an indicator could not specifically tell who actually take care of

children as also discussed earlier in section 5.1.3. Being LBC or NLBC could tell whether their parents “were there”.

Therefore, when dividing children in groups of children cared by grandparent(s) and children cared by parent(s), a difference was found. As shown in the Figure 5.9, home environment (indoors, yard, ground floor storage room area) was most frequently (83%) reported by grandparents but much less reported (46%) by parents.

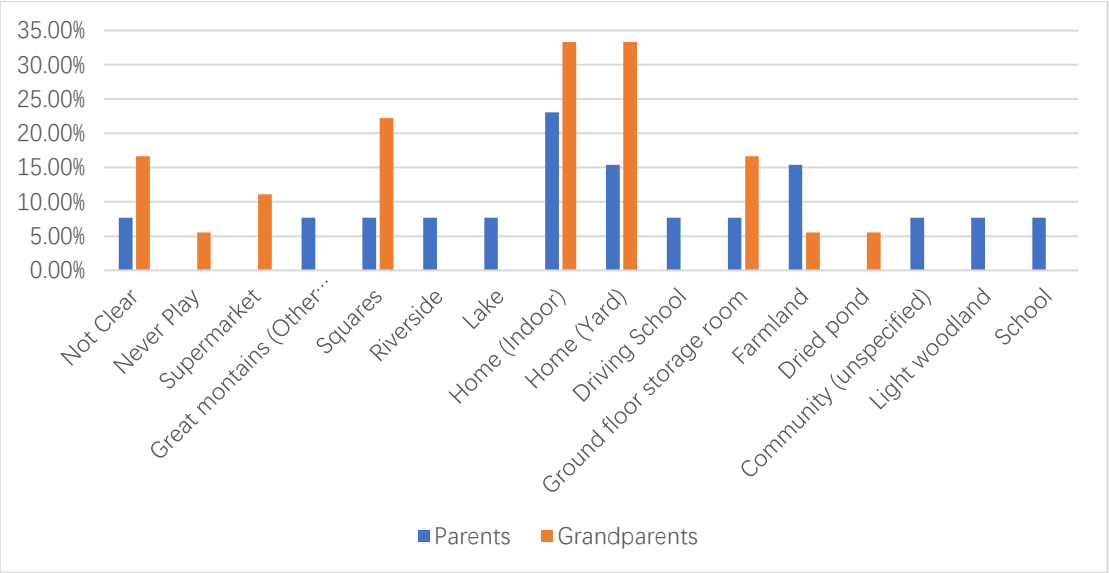

Figure 5.9 Reported types of play spaces in percentage by parents and grandparents (caregivers’ reports).

This suggests children under parents' care had more opportunities to play outside, especially in the natural environment and children under grandparents' care played mainly indoors or in-home surroundings. This result is consistent with the previous results regarding where children play om section 5.1.3, which found that children under grandparents' care mostly play in homes and surroundings, more so than children under parents' care. This difference between parents and grandparents again shows that the type of caregiver was a more influential factor than the factor of LBC/NLBC.

5.3. People: Playmates for children play outdoor (caregivers' responses)

In terms of people that their children play with, the caregivers often said that their children played with two to four people. According to caregivers' answers, shown in Figure 5.10, these people could be their relatives (14 participants). Although playing with children of neighbours was the second most frequent answer, this number was less than half of the reports of "playing with relatives' kids". There were also other answers, such as playing with siblings and schoolmates, but these reports were limited.

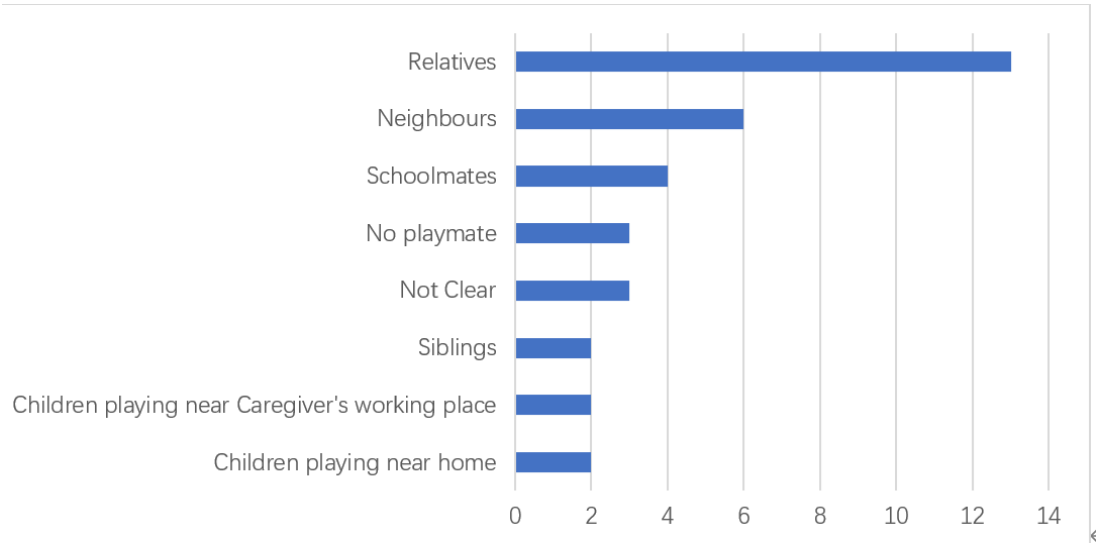

Figure 5.10 The children's playmates in number of responses (caregivers' reports).

There were overlaps between answers from caregivers. For example, participants' playmates could be their relatives and their schoolmates and/or neighbours at the same time. However, the words they used to describe the relationship helped the researcher understand caregivers' views about who the playmates were and on what caregivers focused when talking about playmates. Caregivers' familiarity with their children's playmates (including the playmates' families) were important to caregivers. Having their children play with children that caregivers knew and in places near homes was the most important considerations for them.

5.3.1. Playmates and place of residence

According to caregivers' reports (Figure 5.11), Among the community caregivers who

answered this question, playing with relatives (about 47% of their responses) and playing with no one (about 12%) were more frequently reported than other options. In comparison, among village caregivers, more of them reported their children played with neighbours and schoolmates.

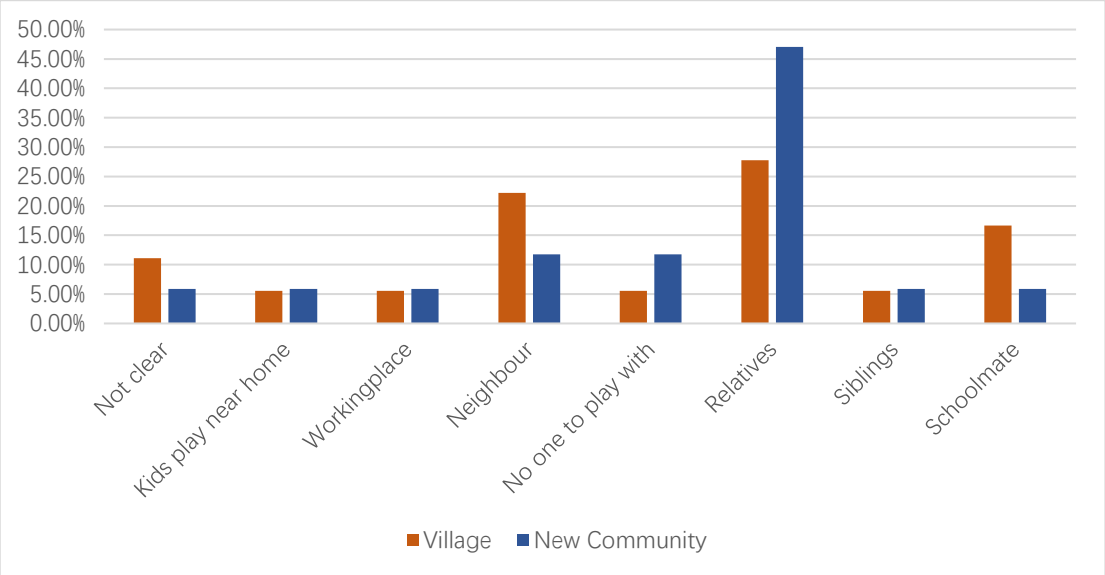

Figure 5.11 Reported playmates in number of responses by place of residence (caregivers' reports).

5.3.2. Playmates and gender

According caregivers' report (Figure 5.12), generally relatives were still the most frequently reported playmate for both genders. Specifically, play with relatives and schoolmates was more frequently reported among caregivers of girls than among caregivers of boys. Compared to caregivers of boys, less of caregivers of girls were unclear about their girls whereabouts and the caregivers of girls never reported their girls played with random children near home.

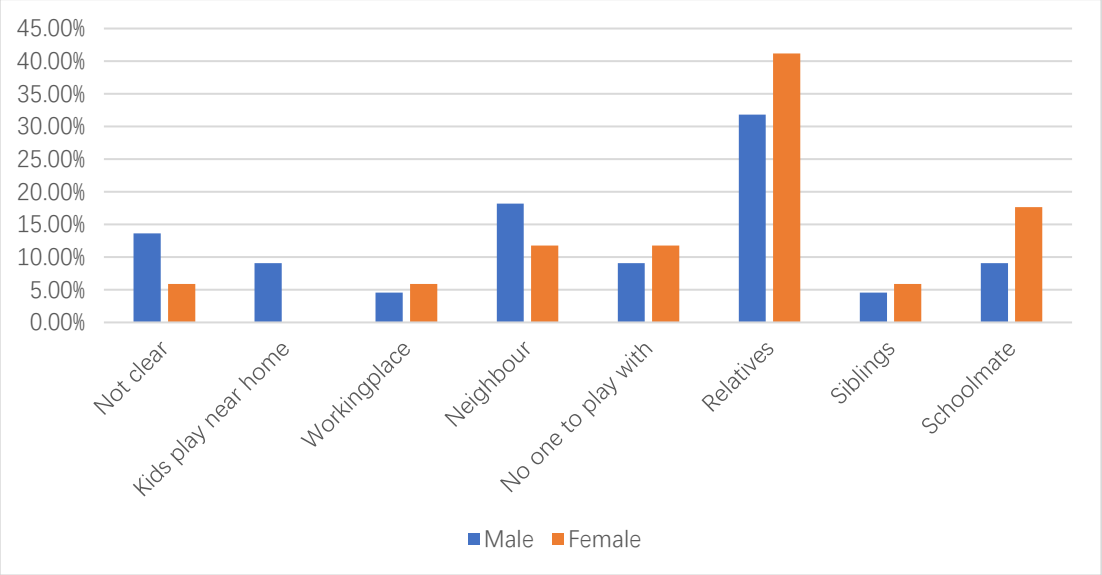

Figure 5.12 Reported playmates in number of responses by gender (caregivers' reports).

In terms of the playmates' genders, 11 caregivers gave responses. Five caregivers stated that their children only played with same-gender children, and two stated that most of their children's playmates were same-gender playmates.

5.3.3. Playmates and age

As there are a number of groups in the "age" subgroup, it was not meaningful to subdivide the limited data for quantitative purpose. However, caregivers' views on whom their children played with in terms of age did show some relationship between age and playmates. Their children usually played with kids about the same age, and only two caregivers stated the playmates were not the same age. When caregivers were asked the age of their children's playmates, the most common answer was "about the same age". From the interview, it can be seen that "brothers" or "sisters" one or two years younger (older) were also treated as "the same age".

5.4. Interventions for outdoor play (caregivers' responses)

According to the caregivers' reports, there was no support for children's play and play environment. Neither in the village and the resettlement community, no spaces, facilities or any other supports were specifically offered at the time of research from

the public or community. Intervention from caregivers was found the only measure taken to support children' s outdoor play. A number of caregivers have shared they would take their children to travel to parks outside of the town during the holidays, and they would return to their hometown for a better landscape that could provide children with games. These caregivers hoped a richer game environment could be provided, and hoped that the school would provide children with more organised play opportunities. Among these caregivers, one was noted. The grandmother of N10 was creatively leading her children and other children improvising the local environment and creating games for them (see Figure 5.13)

The grandmother of N10, female aged 10 mentioned:

I sometimes get cardboard boxes for the kids to play in the foundation pits under construction.

Figure 5.13 A grandmother "invented sand sliding" and organize children to play.

However, this was the only caregiver to have such an action. More intervention from all parts of the society needs to be incorporated especially for children who are experiencing transitions in their lives.

5.5. Time for children's outdoor play children (caregivers' responses)

According to the caregivers' reports, playtime usually happens in the evening and after supper during school days. Few caregivers reported their children playing immediately after school. During weekends and holidays, their time of play also depended on the completion of homework and other activities. Studying, therefore, was an important and influential factor for children's time of play. Some caregivers reported that their children did not have any playtime due to heavy homework, which is similar to the children's own answers and the pattern of the GPS in found in the chapter 4.

The grandmother of L1, male aged10 stated:
'After eating, sometimes they can play from 7 o'clock to 8 o'clock. Then we will go to a neighbour's home for homework together. Near 9 o'clock, we came back, sometimes we watch TV and play at home.'

Also, as the grandmother of an eight-year-old girl (H1) stated:
'After school, it's getting dark. We rarely play except for on Sunday. When I picked them up, it's 4 or 5 o'clock, it is time for a lot of house work and cooking and eating dinners. Then it is (time for sleep).'

Boarding at school was another reason that children who come from villages needed to spend whole weekdays at school in the new resettlement community area. Their free time was strictly scheduled by the staff who took care of them, as reported by caregivers.
The mother of J1, nine-year-old boy, said:

'They are not allowed go out for playing. After school, they cannot go out and run around. They go directly to the place where they live on weekday. Um..., once one child goes out, the staff has to bring them back. They were either reading inside of room or playing in the room.'

5.6. Activities for children's outdoor play (caregivers' responses)

In caregivers' answers (Figure 5.14), outdoor activities were reported by the majority of the caregivers, compared to indoor or semi-outdoor activities (such as playing on cell phone, playing with toys and poker indoor or outdoor) in terms of the number of statements they made.

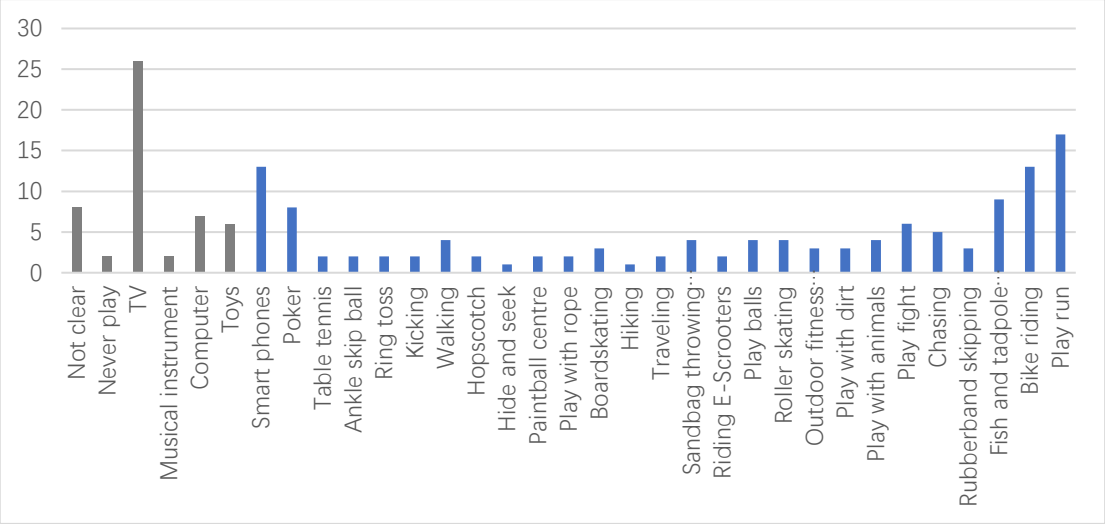

Figure 5.14 Different activities reported by caregivers in number of responses.

The emerging digital play from caregiver's perspective

Caregivers reported that physical play, digital play and play with rules were the main activities of their children.

The mother of L6 aged 11, a boy, mentioned:

'(He can) play on the phone at home all day, if you don't call him, he won't leave the phone. I feel that today's children are quite that (addicted to) on mobile phones. They played the phone right after school. When going out to play they take phone anyway. Right? (asking the kid.)'

'Today's children have nowhere to play except on their cell phones and watch TV. Unlike before, there were few roads before. The children wander around and run around in the village, adults can rest assured.'

The mother of N3, eleven-years-old boy said:
'When we were young, there was no electricity in the house at that time. Then I ran out to play. Run, go around, play at one neighbour's home and then another neighbour's. At that time there was no TV, nothing. All go out to play…Today's children if they don't get together to play games on mobile phones, they still hang out (more). He watches TV by himself, and sometimes he doesn't want to watch it for a while.'

5.7. Differences between caregivers and children regarding outdoor play.

After presenting the findings on space, playmates, and playtime from caregivers and children, similarities and differences were discovered in the responses from both groups, as outlined below.

5.7.1. Differences about play space

Parents reported both spaces in the neighbourhood, such as squares and supermarkets, as well as many natural spaces such as farmland, lakes and forests (section 5.2 on page 168). In contrast, children reported only four types of spaces, namely farmland, square, supermarket and street (see section 4.2 on page 109). The most noticeable difference is that in the caregivers' reports, the spaces that accounted for most of the children's play outdoor were the yards in traditional villages and the proximity of residential buildings in the resettlement communities which did not appear in the children's responses at all. However, this does not mean that the parents' responses were in error. Because it is clear from the children's responses to location of play spaces that they did play in the proximity of their homes (page 92). The issue was that although the children played mainly in the vicinity of the homes, they also played in different environments as visited during the children led walks. The carers' understanding did not show the richness of the children's space, either in their responses to the children's activities or in their responses to the play spaces. This may imply the lack of parental consideration given to their children's outdoor play spaces.

5.7.2. Differences about play activity

The number of types of games reported by children far exceeded the knowledge of the caregivers. Although caregivers reported their children playing outdoors and with different types of play activities, it was noted that few specific games could be named. More importantly, play in the natural environment was almost missing in caregivers' answers (see section 5.6 page 178). According to caregivers, the majority of play activities were viewed as general exercises, such as playing, running, and kicking, and involved the use of objects like balls, skipping ropes and rubber bands, rings, and toys. The narratives of parents about their childhood experiences suggest that the failure of parents to understand children's play in nature may be due to the fact that in childhood they did not think of activities in nature as play, but rather associated the land and nature with production. That could also be the reason why some of them were placing play in opposition to learning.

5.7.3. Differences about playmate

Children’s answers generally follow the same pattern as the caregiver's answers, with the children stating that they mainly play with relatives, neighbours, and classmates (see section 4.3). Caregivers from the community believed that their children played with their neighbours to some extent (see section 5.3.1 on page 173). However, according to the community children's responses, they did not play with their neighbours at all (see section 4.3.1 on page 128). Children play with friends' friends, children in the same community and even strangers. As children also play with the kids of their carers' friends. This serves as further proof of the caregivers' socialisation network could have influence on their children's friendships. Second, unlike caregivers' reports, far more girls than boys reported playing with neighbours, while more boys than girls play with neighbours in caregivers' reports.

5.7.4. Differences about play time

Caregivers and children responded similarly that children's play time was influenced by their timetable for school or extra-curricular activities (see section 4.5.10 on page 149 and section 5.5 on page 177). The difference, however, is that children can only

be receiving learning tasks, whereas parents may be imposing them. This therefore emphasises the importance of parents' attitude not only on outdoor play but also on learning and academic performance which are discussed with other reasons that could lead to caregivers' restriction on children's play in the following section.

5.8. Caregiver's control, supervision and beliefs on children and their play

After analysing caregivers' interviews' data, three main themes emerged: caregivers' control, the caregivers' supervision, caregivers' beliefs about play. The caregivers control behaviour and supervision behaviour on their children, influence children's outdoor play in various aspects including spaces, people and most strongly on play time. Detailed influences are discussed in this section to answer where and in which type of spaces, what kind of playmates, when and what time were influenced by caregivers' control behaviour and supervision, how they were influenced and to what extent each aspect of children's play was influenced. More importantly to understand why such influences exists, caregivers' beliefs were discussed which include the responsibility to raise up children, safety concerns and perceived vulnerability of children, expectation on academic success, social fears and expectations for children to grow up healthily.

5.8.1. Caregivers' control

In this chapter, caregivers' control behaviour was found to strongly influence children's play, including children's mobility, play space, play activities, playmates, and playtimes. Among these, caregivers' control was found to heavily influence children's mobility, space, playmates, and playtimes. Caregivers focused less on play activities.

5.8.1.1. Caregivers' control over place

In terms of the caregivers' control over places, roads, water bodies, farmlands and other places caregivers perceived as distanced were the most controlled.

Danger from the road and traffic

Roads were the most forbidden places for play by caregivers. This control included not allowing children to play on roads, play near roads, play along roads, or play when crossing. First, this controlling behaviour limited children's independent mobility and play spaces. For example, the mother of L1 stated:

'I support his play in outdoor places, but I do not allow him going to the main road. He just can play within the village. I don't support him going outside'.

Second, the control over playing on roads also limited children's play activities on roads, such as roller-skating or skateboarding. This control over activities such as bike riding and scooter riding might have further limited children's access to other places. For example, as the mother of 10-year boy (N1) living in the community stated:

'If he plays in the community, I think that fine. But if he rides on the motor road, I absolutely do not allow.'

As children could not go near the motor road and crossroads, it resulted in fewer opportunities to visit other places, for example, from villages to the resettlement community as the mother of L6, who lived in the village, stated:

'I don't want him to go to the community (resettlement community). You have to cross the road (main motor road at the fringe of the village) in order to go there.'

The mother of Z2 from the village also stated:

'Because there are too many cars on the road. I am too frightened for him go out … the traffic on that south-north road is too heavy. I could not let him go out. Too much traffic.'

This explained the pattern found in the GPS analysis that even when the distance between villages and towns was close, few village children travelled to the new community or vice versa (see section 4.1.3 on page 94).

Informal water bodies and farmlands

Water bodies and farmlands were places that caregivers usually did not allow children to visit. Water bodies included creeks, ponds, and other 'water nearby',

according to caregivers. These water bodies were considered informal and within children's travelling ability. However, unlike in the case of roads and faraway places, the specific condition of the environment decided whether these were feasible for children to play in. For example, as L5's mother mentioned,
'*She can play in the shallow water. It is not a problem.*'

For children, water bodies were favoured. Therefore, conflicts were found between children's play and caregivers' control. For example, as the mother of N3 stated,
'. . . I asked him where did you go, and he said I went to the river on the east to catch tadpoles . . . I talked to him, and he won't listen; his cousin was beaten by his grandmother for this.'

Despite caregivers' control, water bodies were thought of as enjoyable places by caregivers as well. Caregivers often took their children fishing to wetland parks or water ponds. However, all these activities were carried out under caregivers' supervision, which might indicate caregivers' supervision facilitates children's pay.

Some caregivers did not allow children to visit farmlands. According to one caregiver, this was because of the increasing number of wells built for irrigation as told. However, only a few caregivers reported this control. Additionally, children disliked farmlands because of their higher temperature and a lack of interest. Therefore, children's visits to farmland were less influenced by caregivers' control than the physical environment.

Perceived distant places

Distance to home might be an important factor deciding where children play. Several caregivers reported that they only allowed children to play indoors, in the yard, in neighbours' homes, or within the resettlement community or villages. The mother of an 8-year-old boy from the resettlement community (N8) said,
'He does not go far, and the farthest place is the supermarket. That's the distance I could let him go along. Just this range (from home to supermarket or) to the school.'

This greatly explains the pattern reported by caregivers that children mainly played

in home surroundings (section 0 p163). For caregivers closer to homes, this meant a safer environment for children.

5.8.1.2. Caregivers' control over play activities

Only a few caregivers reported their control over play activities. These included playing with sticks, climbing trees, playing with animals, playing on mobile phones, and riding bikes. Generally, how caregivers perceived the dangers associated with different aspects of children's play, such as playmates, play objects, and the play environment, decided caregivers' control behaviour. For example, regarding tree climbing, if the tree was too high, children were not allowed to climb it. Regarding e-scooters, one caregiver reported, 'If he rides the 3-wheel scooter, I might allow; even so, I do not allow him to drive outside'.

Except for bike riding, which was associated with road dangers as a place control, the other reported activity controls were not strict. Statements such as 'I don't want him to do, but he always does' or 'He did, but I would not like him to' were often used. Road danger was considered more serious than other kinds of danger. This indicated that caregivers' perception of the environment influenced their control. Playing mobile phones was the only activity that children reported as being a controlled play activity. This may further indicate that caregivers were less concerned about play activities than the space in which the activities took place.

5.8.1.3. Caregivers' control over playmates

Besides control over places, control over children's playmates was frequently observed in caregivers' answers. In this section, it was found that familiarity was an important criterion caregiver used to select their children's playmates. Other aspects of playmates were also considered, such as gender, school performance, and morality.

Familiarity with children's playmates and families

Unfamiliar people and strangers were the most mentioned types of people with whom children were not allowed to play. Caregivers' relatives were the most familiar people. Therefore, caregivers limited children's playmates mainly to relatives. For example, as the grandmother of X1 stated,

'Our children do not know kids in this area . . . I do not let her go out to play . . ..

Girls from my brothers' family could play with her.'

The grandmother of H1 also provided a similar report:
'Just they two (her brother) play at home, play something, sometimes watch TV. We are not that familiar with other people.'

This confirms the finding that the majority of children's playmates were relatives, as shown in the earlier section (section 5.3 p 173). However, this familiarity between children and their playmates was often a matter of the caregivers' perception. From the children's answers, it was clear that children did play with strangers and made friends quickly. According to children, strangers could become friends after just one play session.
A mother of a 10 years boy (N1) stated:
'He told me, this is my friend, my friend. So, I asked: what is the name of your friend? And he said: I don't know'

Caregivers' familiarity with other children also determined whether they wanted their children to play with the children or not. This was found in many cases. For example, the mother of N3 stated,
'When he came back in the morning, I would ask him whom he has played with . . .. If he plays with whom I know, then fine. If I don't know that kid, he should tell me which family the kid belongs to or the kid's relatives.'

Gender control
Gender influenced the control over children's playmates. Several caregivers of girls clearly mentioned gender control. This kind of control was also derived from caregivers' beliefs about boy-girl relationships. For example, as the grandmother of an 8-year girl in the community (N7) stated:
'She is not old enough. She doesn't know about boys and girls, and I said to her: you are a little girl, you know that? So, she doesn't play with boys. If playing, she only plays with her sister.'

The grandmother of another 8-year-old girl (H1) stated:
'As a little girl, she should not; how could (she) play with boys?'

This caregiver's control could explain the finding from GPS analysis that boys and girls did not play together in terms of time and space (see page 133). However, from observation during the interview with caregivers when their children were playing around, children did play with opposite-sex peers. By asking the caregivers, it was found out that these opposite-sex peers were relatives of them. This suggests that gender differences were not important to caregivers when their children played with relatives. Because caregivers would not allow children to play with opposite-sex peers who were not relatives, relatives' homes and surroundings became the main play places as found in quantitative analysis (section 5.1.2 p165).

Caregivers of boys reported no such gender control. This suggests caregivers did not influence boys' preference for same-sex peers. Instead, boys' preference depended on their views about whether girls could play the same games that boys played. As a boy in 5 grades (S2) responded, 'boys do not play with girls, they can't play what we play'.

School performance and morality

Caregivers also controlled children's playmates. Caregivers considered school performance and the morality of other children before either encouraging or limiting children's play with others. Caregivers did not want their children to play with children who were naughty or did not work hard in school. The mother of Y1 stated, 'I think the study is good . . . so he can make friends and study with them.'

The grandmother of L4 stated:

'I let her be together with them. They studied well in school and they are from higher grades. They could teach her on the homework.'

The mother of N1 said,

'If these kids were good kids with good morality, he could learn more from them. If he plays with those naughty kids, he could learn swearing in two days.'

5.8.1.4. Caregivers' control over playtime

Few participants reported direct control over specific playtimes or play lengths. Playing at night was the only thing not allowed by some caregivers. However,

caregivers' requirement that children finish their homework strongly influenced children's playtimes and overall play opportunities. Children were often occupied with homework and extracurricular classes. For example, the grandmother of L4 said, *'It has been a whole morning and afternoon. I told her mother. Can you let our kid be free for a while? We have already had four cram classes.'*

Similar statements could be frequently found in their answers. For example, the mother of L5 in who lived in the village, said:
'She could go out and play only when the homework is finished. If she plays too much, she doesn't have the mood to do homework.'

Another mother from the villages stated their child (L6) their children could play when the homework was finished and had no other things to do. Caregivers often used words like 'they have to do. . .' to describe the importance of finishing these study tasks. After these tasks were finished, children were allowed to play. Therefore, finishing tasks was a prerequisite for overall play.

In summary, caregivers had control over children's play spaces, playmates, and playtimes. These included controls overplay on roads and in water, play with unfamiliar people, and play with children with poor school performance or poor morality. Girls could be told to play only with people of the same gender. Caregivers' emphasis on studies was found to be a prerequisite for children's overall play and playtime. These control behaviours were associated with caregivers' perceptions and beliefs about the physical and social context of their living environment, as discussed in the next sections

5.8.2. Caregivers' supervision

Caregivers' supervision emerged as a theme in caregivers' answers. It was found directly influential on caregivers' control and children's play. Three types of supervision were found. The first involved caregivers watching out for children when they were playing without participating in the play activity. This offered a way of mitigating unknown dangers. And reduced the level of control by caregivers. The

second form of supervision involved playing with children, whether the play was initiated by children or caregivers. Both types allowed more play opportunities. However, the third form of supervision could also lead to fewer play opportunities because caregivers confine children at home to keep them under supervision if caregivers do not go out. The details were discussed as below.

5.8.2.1. Playing with children

All caregivers supervising their children's play claimed they 'played' with their children. However, from their answers, it was clear they seldom joined in their children's 'games' or interacted with their children. For example, the mother of L5 said,

'I just watch her playing . . .. As long as she is enjoying playing (I am fine). I can look around and see the views anyway.'

During the kind of play initiated by children, caregivers' only duty was watching over their play. As the grandmother of N4 stated,

'If he goes downstairs, I just stand there and watch him running and playing.'

Children's play activities did not attract adults to participate. As a result, children and caregivers did not play together. If caregivers-initiated activities, children could take part in, which allowed children and caregivers to play together. According to caregivers' and children's reports, these activities included walking, shopping, dancing in public squares, fishing, and sightseeing. It did not necessarily mean that caregivers and their children enjoyed the same activities. For example, children liked to skip rope, whereas caregivers liked to go dancing. A place that offered both children and caregivers' activities at the same time did allow caregivers to supervise children while pursuing their own activities.

5.8.2.2. Supervision increases play opportunities

Letting children play where they could be seen was a supervision method used by most caregivers. Children either played in a fixed place where caregivers could see them or caregivers followed them to places where they played. Interestingly, in both cases, no caregiver reported any direct control behaviour over their children except for asking children to play in places where caregivers could see them:

'As long as they are in sight, they can play whatever and however, they want'
Stated by the caregiver of L5. Similar statements were shared by several caregivers (caregivers of N4, N10, N2). This indicates that a high level of supervision did not mean less freedom for play. Other supervision styles like phone calls and GPS tracking were also noted in the answers.

5.8.2.3. Supervision reduces play opportunities

In this research, caregivers who did not supervise their children's play slightly outnumbered those who did supervise it. Out of 31 respondent families, 17 reported they usually did not supervise their children's play, and out of these 17, 10 reported that they did not supervise their children at all. Lack of time was the main reason given for this. Caregivers were occupied by farming, working, and looking after other children. This could lead to either control over children's play or to unsupervised play. Younger children received more supervision compared to older children. For example, the grandmother of an 11-year boy (S2) stated:
'I am so busy. I now look after the younger ones. She is only three years old and just went to kindergarten. She (the older child) is now older I don't follow her now.'

This indicates, the strong need for supervision also led to caregivers' control and therefore limited their children's play. However, it seems such supervision could be lifted when children were old enough. For example, the grandmother of an 8-year-old girl (N7) said*:*
'Sometimes the little one fell asleep, I could not spare time to watch the other kids, (because) I have a little kid and also the big kids. So, I just let the older ones play by themselves. It let me no choice if you don't let them play as they will.'

The researcher: *'Let them play outside by themselves?*'

The grandmother: '*Yes*.'

The grandmother of a ten-year-old boy (L1) and the grandmother of a ten-year-old girl (L4) also stated they did not watch their children play because the latter were now older. They said their children could play without supervision. However, an examination of their control behaviours showed that they did have rather strong

control over their children's play. Their children were asked to play mainly indoors or near the home. Sometimes, they were asked to play at relatives' homes. Therefore, supervision might not lead to more outdoor play but rather to more control and less play opportunities for play.

5.8.3. Caregivers' beliefs

Caregivers strongly believe they have responsibility of children's life and feel under very high pressure to look after the children very carefully. Caregivers' beliefs included their safety beliefs, health beliefs, social beliefs, and beliefs about the study. Their beliefs and a high sense of responsibility bred out of a sense of fear were the main drivers of caregivers' control over children's play. Five sub themes as caregivers' beliefs are discussed as follow. These are the caregivers' responsibility, safety concerns and perceived vulnerability of children, social fears, expectation on academic success and expectation for children to grow up healthily.

5.8.3.1. Responsibility

Caregivers' sense of responsibility and pressure to take good care of their children were found to be factors influencing children's play. This responsibility was mostly reported by grandparents. For children, especially LBC, whose parent(s) are absent, older caregivers might take up the responsibility of childcare. For example, the grandmother of D2 stated,

'I have to follow him everywhere. As grandparents of the kid, we are responsible!'

Besides feeling responsible for their grandchildren, grandparents felt responsible for the children's parents. They worried they could not raise their grandchildren well because of their responsibility to the grandchildren's parents. As the grandmother of an eight-year-old girl (N7) said:

'Your mother entrusted you to me. If anything happens to you, how can I live'.

This led to stricter control over children's play compared to children under parents' supervision. For example, the grandfather of N2 stated:

'Their parents were not here; it is all about responsibility. I can't afford any risks. So how he plays, where he plays, at which corner, I must watch him'

From children's answers, this stricter control could be confirmed. For the girl (N7) cared by the grandmother mentioned above, neither scooter riding nor going outside of the new community was allowed by her grandmother. The girl herself confirmed this:
'I never went out (in the new community), and no one took me out to play'.

This sense of responsibility grandparents held might explain why the actual caregiver was more influential on children's play than LBC/NLBC in found earlier in terms of where to play and what type of place children played in.

In summary, caregivers' beliefs about the importance of children's study were identified as the most important factor in their control behaviour. As long as children finished study tasks, they were allowed to play. Children's study was considered a prerequisite for play rather than a factor influencing the level and manner of caregiver-controlled behaviour. Next, caregivers' beliefs about dangers relating to playing strongly affected their control over play. Perceived detrimental dangers by caregivers often led to strict controls. Health concerns about the play were observed, but caregivers placed a very low emphasis on them. The possibility of catching diseases from animals was considered the only concern related to physical health. Although more caregivers reported that play could positively affect children's mental well-being, this effect was emphasized mostly in relation to study. Other than these generic beliefs towards play, several special concerns were identified. These were related to the rural development context, including concerns about the physical environment and social issues such as road and traffic dangers, unknown dangers, fear of conflict and contact with others, and grandparents' sense of responsibility for children. These all led to caregivers' control and thus fewer play opportunities for children. To ensure control, caregivers usually supervised their children, as discussed in the following section.

5.8.3.2. Safety concerns and perceived vulnerability of children

Caregivers' safety beliefs on play and their perceived fragility of children were found influencing to children's play. Most caregivers reported safety beliefs. In total, 18

caregivers shared their concerns about how play could harm children physically or mentally. These included concerns about spaces, playmates, activity and unknown dangers. Danger on roads as spaces and human trafficking dangers as unknown dangers were considered the most important reasons for control over children's play. Safety concerns about playmates were more related to negative influences to and from other children.

Road dangers

Most caregivers highlighted road dangers. Expressions such as 'scary', 'worried', and 'accidents' were frequently used to describe caregivers' feelings about roads. Caregivers perceived these dangers as being very serious. Both caregivers from villages and communities reported such concerns. For example, the mother of N6, who moved from a village to a new community, stated,

'We did not even play near the village border before moving to the new community, because we used to live near the main road . . .. (Now in the new community) we are also living near roads, so we don't go to the villages. But, if there is no motor traffic road or it's not that busy, we allow them to play.'

A mother (caregiver of N1) in the community also expressed a similar concern:

'It is so scary! Especially the crossroad, it is too dangerous. They went out without permission at one time and I could not find them…You need to cross a couple of roads to some places, it so scary"

In the villages, caregivers mainly complained about the increased roads and traffic than it used to be. As the mother of the L6, who live in the village which is just next to the resettlement community, revealed her concerns on safety during the interview:

Mother of L6:

'It's not like before. There wasn't this much traffic on the road. Now, there are more roads and traffic. I do not let him go out.'

Researcher:

'Because of the traffic?'

Mother of L6:
'Yes, traffic accidents often happened there. I don't like him to go there even he needs to go to school (located in the resettlement community). Many things happened. So, I take her to school. I don't agree with playing there alone. After all, it's not safe'

Compared to this caregivers' perceived village environment was safer. For example, as the mother of L5 mentioned:
'Woods are good, no cars or such things there. I will be worried if (my children) play outside, but there are no cars there in the woods.'

Even though woods were considered safer, caregivers' encouragement for children to play there was not found. Further, regarding high spaces and water bodies, caregivers' main concerns were the danger of falling or drowning. However, caregivers said less about these dangers.

Dangers from playmates
Caregivers perceived dangers from playmates, such as the danger of their children getting hurt or hurting others. Caregivers believed that naughty playmates could cut put their children in danger. Regarding dangers from caregivers' own children, the caregiver of S2 stated:
'The downside of playing outside is we are afraid he is naughty and fight others. You know, kids' tempers nowadays are unpredictable'.

Regarding 'bad kids' who could influence their children negatively, the grandfather of Z1 stated:
'He will learn bad things if he has too long (to play out). He will become naughty. There are all kinds of people out there, and he knows nothing'.

Uncertainty and Unknown dangers
In addition to specific dangers, the fear of unknown dangers during children's play was also reported. Such perceived dangers could influence caregivers to control children's play. Unlike the fears of danger from play activities and danger from

playmates, which were rather generic, the fear of unknown dangers was mainly caused by environmental change, especially the uncertainty brought by the increasingly complex population. This was important in the context of the present study.

Because of the resettlement, the population in the new community was complex. It included existing residents and local people, people who moved to the new community from different villages and cities, construction workers, and other floating people. This complex population increased caregivers' concerns about safety issues. As the grandfather of N9 stated,
'People moved to this new community even from 5-10 km away… Some people got (from the government) too many apartments, so they don't live here. They sell them or rent them. Some apartments are commercial housing for sale. Too many people (moved here), making the population too complex …'

The grandfather of N2, who also live in the resettlement community, said:
'He must have my permission to go out. But (he) rarely got go. Because we don't know the people after we move to this environment, he only knows some kids from his class. (He) rarely go out even at the weekends …'

Because people were continuously moving in, frequent population changes required caregivers to rapidly adapt to the situation, often unsuccessfully. As the grandfather of N9 stated:
'We get to know people gradually, but there are still a lot of people we don't know'.

This rapid development and environmental change led to another type of unknown danger. Unlike with specific dangers, caregivers were not sure about the outcomes of unknown dangers. The words they used to describe these dangers were 'I am afraid', 'what if', 'I won't take the risk'. They expressed concerns such as children getting lost, falling victim to human trafficking, and dealing with dark or enclosed spaces.

For fear of their children getting abducted, a grandmother from the village (caregiver of D2) responded to the interview question about children's outdoor play：

'No, I don't allow him! Although people are wealthier now, (I) am still afraid of losing children. There are people stealing kids.'

Another village caregiver also stated the fear of this danger:
Researcher:
'So, is it ok for her now to take a one-hour trip to her schoolmates' home for play (which was reported by caregivers as their play experience in the past)?'

The mother of D2:
'Definitely not! Its' not like the old times, it's not safe out there. Do you feel safe going to someone else's home? You don't know the adults in their family. I don't know them.'

This fear of the unknown was also reported by community caregivers; for example, the grandmother of N4 stated:
'Now he (friend of the child participant) came to play with us (the child participant). He plays with another kid older than him (from the previous village) …even though, it's not safe. Children get abducted. I am worried.'

Darkness, although reported as a reason for forbidding children's play in the evening, many caregivers reported conducting their own play activities in darkness in the village without caregivers' control and supervision. The reasons caregivers gave for these activities were a less caregivers' control and less traffic in the past. Therefore, the change in the environment was the main reason caregivers gave for their uncertainty. This uncertainty was also one of their reasons for limiting children's play to places and people caregivers knew about.

Dangers learnt from information

In the interviews, all participants reported that their children had not been involved in dangerous accidents such as traffic accidents. Their concerns over unknown dangers came second hand from news reports. As the grandmother of L1 stated:
'I could not let him go out, and children trafficking is everywhere on the news, internet, and phones . . .. People are talking about this; kids were stolen here; kids were stolen there'.

The main source of such information was from the internet, for example, as the grandmother of D2 responded when the researcher asked about how did they know about the abduction:
'It's all heard. There were children lost here and there in the county. The videos on the phone even tell how children were stolen in detail.'

Other unknown dangers caregivers expressed included drowning, falling into wells, getting into car accidents, having one's legs broken on the hard pavement, getting hurt using outdoor fitness equipment, getting into accidents caused by house appliances, or getting hurt when playing in the yard. The influence of news on caregivers' concerns over children's outdoor play was mainly reported by older caregivers. In all, 10 caregivers expressed such concerns, and eight out of them were grandparents. Their concerns might derive from their responsibilities discussed in section 5.3.1.1. Children under grandparents' care experienced stricter control. This supports the finding in the qualitative research (section 5.1.3 and section 5.2.3) that children under grandparents' care played in more limited places than children under parental care.

Perceived vulnerability

Parents showed concerns over children's play activities. However, only a few caregivers mentioned these concerns. Such concerns were mainly related to children's physical well-being, such as getting hurt when playing with sticks or falling from trees and having an accident while riding a bike. Only boys' caregivers had this type of concern. This limited concern might be due to caregivers' belief that children should be mentally strong when dealing with minor difficulties. Many caregivers recalled their play activities as children and elaborated on their childhood hardships. In comparison, many of them thought children nowadays were 'over fragile'.
'Children nowadays are too fragile. Not to mention going to somewhere faraway, they have to be pick up and send to school even by cars.'

As the mother of N3, eleven-year-old boy, stated:

Mainly, there are more cars and more people. I have no idea. In other words, there are fewer children than before, also squeamish.'

The mother of J1, nine-year-old boy, mentioned:
'*I am afraid that (the slingshot) will hurt him, I won't let them play …which I played when I was young….'*

Also, she reported:
I take him to catch cicadas, he took the light, and then, he didn't dare to catch, let me to do it. He was in a hurry to have a look but dared not look. He was afraid.'

There is also a history of being pampered from the generation of parents. The grandfather of Z1. Male aged 7, mentioned:
'I would leave it (housework) to him to do. You know… (when I raised) his father, I am too doting. The children can't be like him anymore. His father would stir up trouble at his (grandson's) age.'

However, at the grandparents' generation, participants were less concern about the physical health issues. The grandmother of D2 recalled her life when talking about play:
'Work, brush the pot, cook, collect firewood, mow the grass. I don't have much time to go out and play. I have a little sister who is only nine years old, just like him. My older sister has left. My brother hasn't married. I have to do it myself'

5.8.3.3. Social fears

Not only caregivers' control but also caregivers' interaction with other people directly affected children's play. Caregivers' social concerns, such as concerns about conflicts with other members of society, caregivers' sense of superiority to others, and grandparent caregivers' sense of responsibility, also indirectly limited children's play.

Fear of conflicts

Caregivers were resistant to dealing with other people when resolving conflicts between children. This fear of conflict led to their control over children's play. As the mother of H2 stated:

'That family is very unreasonable. Children playfighting is normal . . .. Their adults took sides with their children. I even did not start talking. They (caregivers) started crying. I am reasonable, but I am afraid they may start trouble, So I do not let him play with them. I let him play with his sisters and the friends of his sisters. Now I look after him, so I just let him watch TV at home.'

Similarly, as the grandmother of H1 stated,
'I don't like (him) playing on the street. There are too many children. If there is a quarrel, who are you going to blame?'

This led to caregivers' control over their children's playmates and, therefore, over the place where children could play.

Social class（social hierarchy）- superiority

Caregivers' superiority might also limit children's playmate selection. Participants who originally lived in the town reported feeling a sense of superiority to other residents in the resettlement community. As a grandfather of two kids (N2) stated,
'We are not like them. We came from the city; they are not from the city; they just moved from villages nearby.'

Though few respondents shared this feeling, it was still considered important. With the ever-increasing complexity in the population of the resettlement community, this sense of superiority might lead to a 'none-acquaintance society' as mentioned in the background. Therefore, caregivers tended to control children's play with unfamiliar people. This lack of interaction among caregivers might further reduce children's play opportunities.

5.8.3.4. Expectation on academic success

Caregivers' beliefs about education were found to be one of the most important factors that led to their influence on children's play. For a large proportion of caregivers, the play was considered a negative effect on children's study. For example, X1's grandmother stated,

'What can you learn in a study? You can't learn anything. What can you learn when you are playing outside?'

As a result, caregivers often limited play activities. This negative attitude towards play was strong, and the words used in caregivers' reports were clear. For example, as the grandmother of H1 stated:

'What possibly play can help? If let me say, I just let her writing and reading books; we don't think other things are good.'

Caregivers showed great enthusiasm about supporting their children's academic performance. For example, the grandmother of L4 said:

'Their classes cost 6000-7000 RMB (£600-£700). I said, let this be. We only have one child. All the money we made is for him. No matter what, (we) have to support him.'

Although they might complain about the cost, caregivers in this study all had a strong faith in supporting their children. Their desire for their children's future success and their dissatisfaction with their former life could be why they focused so strongly on their children's studies.

Future success and past regrets

Caregivers' desire for their children's future success was the major reason they focused on their children's education. Caregivers linked study performance to better future careers. As stated by the grandmother of H1:

'The more you learn, the better you are. What kind of future could he have if you let him play?'

When caregivers talked about study, they often referred to their own (and/or their children's if caregivers were grandparents) life experiences. Failures in life and a lack of money were often linked to their low education rate. This was highlighted

throughout their conversations. For example, as the grandfather of N9 said:
'His father has no skills, just pure labour; it is not good.',

and the grandmother of N7 said,
'I haven't been to school. Children of our age longed for studying at school. I have no other wish. All this is just for you (children) to go to school so that you can have a career'.

From these statements, it is clear that play was considered less important or even meaningless compared to study.

Study competing with others
The comparisons with other children were other motivations behind caregivers' comments on children's play. One caregiver participant (N3) from a resettlement community stated,
'There are some students having classes after school, so (he) has to work really hard to compete and catch up with them . . .. He studies at home. Play? Play what? We are not like those rich families with only one child.'

The pressure due to fierce competition from other children was also mentioned. As the grandmother of L4 stated,
'My son (the father of the child) said, "Aren't we doing this to get them to get into a good school?" Her (the child's) aunt goes to university, so he (father of the child) makes her study for a key high school. Then he said in order to go to that key high school, she should be prepared and must be enrolled by a key middle school.'

Children's play, therefore, could be directly influenced by the fact that caregivers made them devote more time to study. Caregivers' sense of competition with others also led to their control over children's play to ensure that children finished their study tasks.

5.8.3.5. Growing up healthily
The influence of health beliefs about children's play was found. It included concerns over children's physical and mental well-being. However, compared to safety issues

related to children's lives, health issues were less often reported by caregivers. Few health concerns related to children's play.

Physical health concerns

The possibility of catching diseases from animals was the only physical health concern reported, and only two participants mentioned it. As one of the caregivers said,

'I don't want him to feed the animal. It is not good to hold them. The dogs and cats, they have parasites on them. I don't want him touch them . . .. I am not worrying about biting.'

The dirtiness of the environment was another point caregivers raised. More than one caregiver reported on the water near their homes using words like 'filthy', 'very dirty', and 'sewage'. However, this dirtiness was not always linked to health concerns. For example, caregivers did not allow children to play with water because this could make their homes dirty.

One caregiver stated they were worried about children's eyesight if the children played too many mobile phone games, several other caregivers encouraged their children to play mobile games and watch TV to keep the children indoors. However, interestingly, digital play in this research could not be seen as activities confining children indoors. Both caregivers and children reported children gathered together play phone games in the outdoor environment for example, in doorways or in the supermarket area. For example, the mother of N3 stated:

'They play phone games, but they need to gather together. Sometimes two children play one phone…sometime several children played together in the supermarket.'

It is interesting, when playing phone games, although children's attention was on their own phone screen individually, they still gathered in groups. Therefore, digital games, particularly on mobile devices, might even encourage children's interaction in real-life environments, even in outdoor spaces.

Mental health concerns

Caregivers' beliefs about play in relation to children's mental well-being were often

reported. They believed outdoor play could make children happy. As the grandmother of L1 stated, ‘As long as he is being happy, he can grow . . .. Not playing is not good for children. Caregivers are worried about the pressure of schoolwork on their children. Some caregivers believed playing was a way to ‘refresh their children’s minds’ and that it ‘leads to effective studying’. Only a few caregivers reported that they let their children play as long as they wanted. For example, the grandmother of L2 stated:

‘If I say it, learning and playing should be balanced. I won’t keep her writing. Keep learning. That doesn’t work. She can play as long as she wants. I don’t know about others, but this is my attitude.’

Although these caregivers showed supportive attitudes towards children’s play, they all linked play with study in their answers. Caregivers’ beliefs about children’s study and its relation to play are discussed in the next section.

Gaining knowledge and skills

Gaining knowledge and social skills were found to be another belief associated with children’s play. Caregivers believed playing outdoors could ‘broaden their knowledge’ (Mother of Z2 and Mother of J1). Children playing with others could benefit from the latter, especially if the latter had excellent academic performance. As the mother of N1 stated,

‘I would like him to play with more children, so he can make more friends . . .. He can learn from others . . .. If they are children with good quality, he can learn more school knowledge.’

Similarly, as the mother of Y1 stated,

‘The play can benefit his study if he gets along well with others (researcher: you mean get along well so that they can study together?). Mother of Y1: ‘Yes.’

In addition to school knowledge, some caregivers believed play could also teach children skills such as doing housework and buying food and clothes as well as social skills. Playing outside could help children learn how to deal with different people, including friends. Children could learn how to call different people (J1), how to talk politely (N6), how to get along and blend in with other children (N2, N8, N12), how

to help each other (Grandfather of S2), and how to become more independent (N6). However, these beliefs could lead to caregivers' control over children's playmate selection. Playmates who had good performance in school and good moral qualities were preferred.

5.9. Transforming environment and outdoor play

Environments in both village and the resettlement community have changed. In the interview, the caregivers mentioned many times that the natural environment such as forests and rivers has decreased, and the construction of industrialized factories and modern forms of transportation (increased number of vehicles and ring roads). These brought environmental pollution and changed the ways of how they used to travel between villages in the rural environment which also affects the children access to places to play. In comparison, people in the resettlement community faced loss of yards and a large change in their living environment compared to previous living styles. In this section the change in the environment and the influence on children's play were discussed from caregivers' perspective.

5.9.1. Environment in villages

In villages, caregivers reported reduced area of farmlands and woodlands and a lack of playable water. They also reported pollution. This led to a lack of interaction between children and the environment.

Figure 5.15 Typical environment of the traditional villages in Minquan

5.9.1.1. Play environment in caregiver's generation and physical changes

Caregivers reported a reducing number of farmlands. Farmland in villages was being turned into residential homes. The mother of L6, who lives in one of the villages, stated,

'Lots of fun places are gone. The farmland has almost gone now. All have been built into homes. There is less farmland.'

The mother of L5, who lives in the same village, missed the natural environment of her own hometown in other provinces. She showed the researcher photographs and said:

'Look at this river. I played in this river when I was young. Pepper was at the door. This is the rice field. When I woke up in the morning, I could see this rice field. This dirt road goes right here to the fish pond.'

Forests areas are also being reduced. For example, the grandmother of D2 stated,

'I used to go to the forest in the summer. It was cool. I can play for a while . . .. Now they were all cut down and turned into homes.'

It was not only the older generation that had this feeling. The mother of H2 stated, *'In the village, I was born, they're a lot of forests. I always played in the forests . . .. There were locust trees and poplar trees. But now some people have built houses, and there are not many places to play.'*

The development in villages and the increasing number of homes were the reasons for the fewer number of green spaces. However, this loss of green spaces was not linked to children's play. Caregivers only related it to their own lack of activities. When they thought of farmlands, they recalled their own positive experiences.

5.9.1.2. Lack of playable water

In villages, caregivers reported a lack of playable water bodies. Existing water bodies were in poor condition. This might be caused naturally, as the caregiver of H1 described:
'They were all playing with soil; there is no water there in the pits and river. They cannot hold water even when raining, and water cannot flow in.'

This lack of water might also be due to industrialisation in the villages, as the caregiver of N6 stated:
'The water pit has been buried by an industrial zone in the village.'

In addition to the deep water reported by multiple caregivers, the water quality of some rivers was poor. Many caregivers stated that rivers were polluted and infested with mosquitos. Some dry ponds were used as a rubbish dumping area. Because of a lack of playable water in villages, caregivers travelled with their children to places with water bodies such as wetland parks and lakes in nearby cities. This was consistent with children's reports that water body in the rural area were in poor quality and therefore received attract less children to play in.

5.9.1.3. Lack of outdoor play facilities

According to all caregivers' reports, there was a lack of outdoor play facilities in public spaces. Unlike children living in modern communities with access to squares and facilities, children in villages 'sometimes go to elementary schools or

kindergartens in the villages to play on the equipment, as the mother of J1 stated. However, with the closure of schools in villages because of the school merger policy, children might have fewer opportunities to play in elementary schools or kindergartens.

5.9.1.4. Lack of children in the village

Lack of children in the village was found to be an issue that influenced children's play. Caregivers claimed their children could not play because of a lack of other children to play with, especially children of a suitable age. For example, the grandmother of D2 stated,

'Like in our village, we do not have many kids in the village. The village is too small. They are not the same age, so he does not play with them.'

However, the density of houses in village areas was not low compared to that of other places in China. This can be supported by a statement from the mother of L5:

'Unlike Henan province here, people pile together in one area like a village, in our hometown (Hubei province, South China). We live sparsely, one home here, one home there.'

In comparison, many participants living in resettlement communities reported that the number of children there was large. They used words like 'a lot' and 'many'. As a result, children might find play opportunities in resettlement communities, as the parents of D1 stated,

'Here, there are basically few kids of the same age as her (in the village). So, she plays in my working place (resettlement community). There are a lot of kids there'.

However, because of caregivers' control over on-road crossing, children might be confined to their village home region with fewer opportunities for play. Only children under their caregiver's supervision could play in new communities, as reported. This, in turn, might influence children's playmates, play activities, and playtime. What's more, in the community, although there were a larger number of children, it might be difficult for children to play together due to they were confined in home areas evidenced by the GPS tracking, the quantitative analysis and the observation noted below in section 5.4.1.

5.9.2. The environment in resettlement communities

Issues in resettlement communities were mainly caused by people's adaptation to the new environment from villages. These included the inconvenience of living in buildings and of higher temperatures in the community outdoor environment and the increased danger from roads and traffic. These issues directly limited children's outdoor play. They also influenced caregivers' behaviours and led to their control over children's play.

5.9.2.1. Adaptation to living in apartments

High-rise apartments in communities could influence children's play opportunities in various ways. Compared to low-level houses in villages, high-rise apartments did not offer play opportunities because 'they could not climb to the roof' (D1) and 'could no longer play in gardens' (N8). Higher floors and a lack of elevators also reduced caregivers' willingness to go out, especially aged caregivers. As the grandfather of N9 stated,

'Before was better. Now it's only because I have such a big garage here. If not, (I have to) climb up and down. It's not convenient'.

Living in apartments also meant a loss of space, such as gardens and farmlands, which caregivers could use whenever they liked. Their previous lifestyles and habits moved together with them to the resettlement community.

Figure 5.16 Public spaces used by residents for drying grain, planting and drying food on trees

As a result, they were found using spaces for drying wheat and grain and planting vegetables in the residential area's public greening. Their previous lifestyle has not changed greatly, but the new life in the resettlement community made farmers unable to find a suitable and comfortable place to afford these activities. The occupied public spaces lost the functions of its original design and could not be used by children in its original way.

For children, as a result, the surrounding areas of detached ground-floor storage rooms were usually preferred by children and caregivers. This could also be why children played in home surroundings in the community, particularly ground-floor storage rooms. During caregivers' adaptation to the new environment, they still showed a preference for their previous living style. As the grandfather of N9 stated, *'Look, I planted vegetables (in the new community), and they have grown to this height but got removed . . .. The land is for greening, and they don't allow your plants.'*

Such limited spaces reduced caregivers' use of the spaces all together. Without environments in the community where residents are willing to interact and socialise with other people, children's play might be limited.

5.9.2.2. Temperature

The temperature in the community could also influence children's play. For example, as the grandfather of N2 stated,
'It is summer now. (Our kids) can play longer; if it is getting cold, (they could play) about one hour.'

The uncomfortable temperature might keep children and their caregivers inside:
'In summer, it's too hot outside. We stay home with AC. In winter, it's too cold. We stay home with AC.'

The pavement might further reduce the level of comfort outdoors, as the grandmother of N4 stated:
'Our old home was not as hot as it is now. The ground is very steamy now. If you

walk on it in summer, you can feel it's burning. It's better inside the building. It's cool.'

These factors not only directly prevented children's play outdoors but also limited caregivers' activities.

5.10. Potential relationships between the themes

As noted in this chapter, a relationship was found between caregivers' control, caregivers' beliefs, and caregivers' company. Figure 5.17 below shows these relationships.

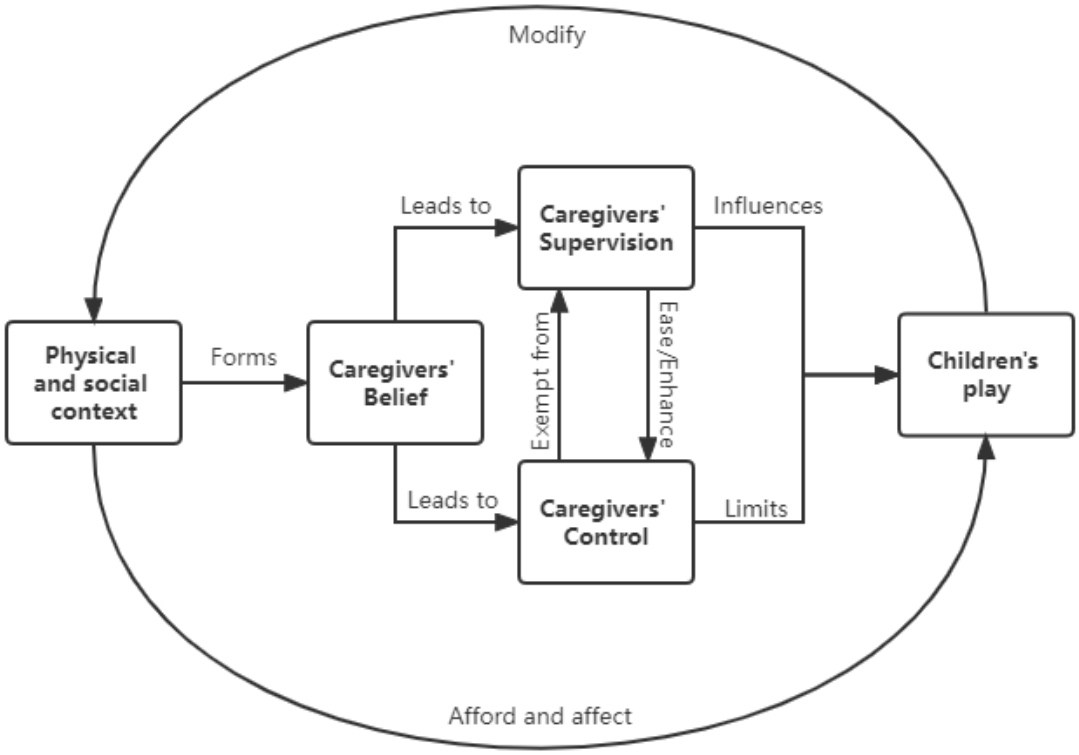

Figure 5.17 Relationship between themes

Safety and educational concerns were the most highlighted concerns, leading to control over play places, playmates, play activities, and playtimes. Caregivers' beliefs led to not only control over children's play but also supervision of children. Supervision could reduce caregivers' safety concerns and uncertainty. It affected their control over children in two ways: First, supervision reduced the level of control due to children being under caregivers' supervision. This offered more play opportunities. Second, supervision led to more control when caregivers did not want to go out and asked children to stay close. Caregivers' control and supervision together determined their influence on children's play. Caregivers' beliefs that caused their control and supervision behaviours were influenced by the physical and social context, especially in this research. Safety and education beliefs were mainly the results of an ever more complex population in the community and caregivers' desire for children's future success.

Children's play could also be directly influenced by the environment they were living in. In the caregivers' reports, the environment was seldom associated with children's play. Understanding their current environment was considered essential. Results from the observation and walks revealed the status of participants' play environment. Their play was affected mainly by the pollution in the village and the difficulty of finding friends. Unlike in the villages where the lack of play companions was mainly caused by migration, the lack of play companions in communities was due to children's short play range and caregivers' control. Offering spaces that encourage both children and caregivers to use them increase the children's opportunity for outdoor play and allow caregivers to supervise when children's playing and increase their engagement with the other people in the environment. This will be discussed in the implication section (section 7.1). After the analysis in this chapter, to consolidate the analyses from both children's perspective and caregivers' perspective, and respond to the research questions a discussion was included in the next chapter.

Chapter 6

Discussion

6. Discussion

The literature review presented the results from earlier research into play among children in outdoor environments. However, there has been little such research in the context of rural China which is experiencing rapid changes caused by local urbanisation and development. Drawing on the current research, this chapter compiles key findings regarding children's outdoor play and critically discusses these findings in relation to previous studies, examining key components of outdoor play, influencing factors, and issues in the transforming environment on children's outdoor play, including resettlement, children left behind, and urbanisation.

6.1. Where do children play outdoor

Cummins (2009) argued that spaces and places of children should be distinguished. Spaces are more related to the abundance of things composed with geographical connections, real and imagined, which can change over time, whereas places are more related to location and given meanings. The following section of the article will address the location and type of spaces where children play, corresponding to the research questions.

Regarding the location of children's outdoor play, this study found that they primarily played in the areas surrounding their homes and the homes of acquaintances. The limited availability of play areas and barriers to accessibility, along with concerns over caregivers' perceptions of safety, have resulted in children being restricted to playing in the environment of 'homes'.

6.1.1. Playing within homes of islands

Children, caregivers, and GPS data provide a consistent answer about where children in traditional villages and newly resettled communities in the research areas in rural

China during non-school hours: they played in the yard and vicinity of the home (individual houses in traditional village and apartments in multifloored buildings) while village children own relatively more opportunities playing in environment with richer affordance. This is consistent with the finding of previous research that children mainly play in home yards and in the local vicinity in rural areas (Kyttä, 2002; Florgård & Forsberg, 2006; Çubukçu, Kahraman & Yavaşal, 2018).

Previous articles have elaborated on the reason of children's play in home vicinity from two angles. One suggests that non-home environment which lacks diversity of spaces, and a lack of accessibility, push children away especially those in early age with limited ability to move independently (Chawla, 1994; Holt et al., 2008). The other angle highlighted the home environment as it could afford children's play activities (Kyttä, 1997, 2002) and provide a sense of security and belonging (Severcan, 2018). In the current study in rural China the lack of available other spaces, accessibility and the sense of safety at home was found which might contribute to the children's playing in home environment.

6.1.2. Push of the environment

The lack of available spaces and poor accessibility for play in the research site hinders children's play opportunities. Previous studies found rural areas offered more opportunities for play, had available play space and were full of natural and adventurous characteristics for children to experience (Matthews et al., 2000; Loucaides, Chedzoy & Bennett, 2004; Loucaides, Plotnikoff & Bercovitz, 2007). In the current research, monotonous spaces and lack of provision for children's play were reported by participants from both traditional villages and from the new community. This parallels the findings in many research across the globe in rural areas in the UK (Giddings & Yarwood, 2005; Tyrrell & Harmer, 2015), in the US (Nigg et al., 2022)and in Australia (Veitch et al., 2013) that in the rural areas, the facilities, equipment and support for children's play were poorly provided.

When local facilities are not available, access to places becomes essential. Safety concerns related to road danger have been found to be the key factors deterring children from exercising their independent mobility (Hillman, Adam, & Whitelegg,

1990; Hillman, 2006; Malone & Rudner, 2011; Carver et al., 2013). In the current study in traditional villages children did own a certain level of active transport. They travelled to play in surrounding woods, and some made journeys across villages. However, this kind of travel was only occasionally reported. Parents chose to chauffeur their children in order to keep them away from traffic dangers (Bradshaw, 2001; Fyhri et al., 2011; Kyttä et al., 2015). Although many scholars have criticised the fact that escorting children can mean that their play becomes organized and influenced by parents' schedule (Tyrrell & Harmer, 2015) caregiver's lifts indeed increased children's play opportunities in local areas especially in the new resettlement community as children described "there is not much for play" in the research area. Children preferred wetland parks outside their villages and playgrounds in the city. On holidays, with caregivers' chauffeuring, children's travel range could go up to 150 km when visiting other cities or tourist sites (see section 4.1.1 on page 89). However, these long-range travel across villages and to distanced places accounted for only a small proportion of total activities these were discussed in this section. What's more, chauffeuring to children's places was contingent on both caregivers' and children's willingness and capability, and as previous researchers have found some children did not want to be escorted by their parents as they felt embarrassed, and some parents were unable to transport their children because of their busy work schedules (Tyrrell & Harmer, 2015). The inability of parents to participate in children's play due to work commitments was also confirmed in the current study (see page 189). Particularly with young people migrating to work, the farm duties that would normally fall under their purview had been handled by women and the elderly. They had even less free time and therefore children were left to explore by themselves.

Despite travelling for play, the most common form of long-range travel for children was between their schools and homes, particularly for those residing in traditional villages. Such travel may, according to previous researchers, be an opportunity for developing physical, cognitive and social skills (Yatiman, Aziz & Said, 2012). Play on routes to school and other places reported by children as joyful and fun outdoor environment were strongly deterred by parents' chauffeuring and road dangers. This is consistent with previous studies reporting trip between school and homes were increasingly made with cars (Mackett, 2013). For example, in the UK, 80% 7-8 years

olds could travel alone to school in 1971, but only 9% by 1990 (Hillman, Adams & Whitelegg, 1990). Village children must cross major highways that run through their villages and some main routes within the resettlement communities. Chauffeuring increased the busyness of the roads on the one hand and reduce the chances of children being present on the road on the other (Mackett, 2013; Holt et al., 2016). With active travel already scarce, children from villages who attended community schools in resettlement areas typically only returned once per week, often on the back of a scooter or in a car. This further limited their opportunities social play on the roads.

Accessibility impacted children's play outside and the lack of local available spaces further reduced children's motive to roam inside the traditional villages and the resettlement community. Previous research highlighted the importance of public transportation and found the lack of public transport facilities in rural areas prevented children from reaching their play areas on their own, which contributed to their feelings of isolation and boredom (Matthews et al., 2000; Giddings & Yarwood, 2005; Henderson, 2005). In the present study, children did not indicate a shortage of travel tools or public transport with respect to outdoor play, but the pull of home, and in particular the pull of caregivers in this study, kept children close to home.

6.1.3. Pull of homes

In previous research, children played close to home due to increased traffic while the yard and cul-de-sac provided safer play spaces that could support various outdoor activities (Kyttä, 1997, 2002; Veitch, Salmon & Ball, 2010) especially in more rural areas with poor accessibility to other locations (Moran, Plaut & Merom, 2017). Traditional villages in the current research were made up of scattered individual dwellings and courtyards which could offer safe spaces for play. However, whilst the children in this study perceived roads to be dangerous and occasionally suggested that they found water to be dangerous, in relation to home or other people's homes, they did not indicate home environment could provide a sense of security and belonging as found in Severcan's (2018) research, at least in relation to play. The play places used by children were more related to the 'people' of the place than location or characteristics of the places. 'Relatives' homes, 'neighbours'' homes,

‘friends’ homes and ‘classmates’ homes in the current research were all locations that share a common characteristic in that they were owned by people who were familiar to children and especially to caregivers.

The parents' responses in interviews gave the straightforward answer that their own residence and occasionally those of acquaintances were the designated areas where caregivers permitted their children to engage in play (see section 5.1 and Figure 5.1 on page 164). Therefore, this study makes a contribution to the existing literature by emphasizing that children in this research predominantly played in the vicinity of their homes, as well as the homes of their relatives, neighbours, and schoolmates, with a notable emphasis on those of their relatives. This might mean that interpersonal relationships are being constrained to around the home (Luo & Luo, 2015) and parents’ perception of the neighbourhood safety is associated with children’s outdoor play (Delisle Nyström et al., 2019). In caregivers’ eyes, that acquaintances represented the safety of the location, due to the supervision of the children by acquaintances and a sense of confidence in knowing the whereabouts of the children. With children mainly playing in the vicinity of these homes, children were found less frequently playing at other places and these 'islands of play' constructed round homes might be shrinking.

6.2. What kind of spaces children play in outdoor

Previous researchers have found that children play in a variety of outdoor spaces, which in rural areas include natural spaces (Chawla, 1994; Matthews, Limb & Percy-Smith, 1998), public open spaces (Tyrrell & Harmer, 2015; Severcan, 2018), home yard, heritage sites and various found spaces (Sancar & Severcan, 2010). In the current research, children reported a poor diversity of spaces only referring to squares, supermarkets, farmlands and school playgrounds (see section 4.1.2 on page 92). However, the children's responses to their play activities revealed the diversity of their play within both man-made, natural, and found environments (see section 4.6). This contradictory result might indicate, despite their enjoyment of playing in a variety of spaces, the lack of availability, accessibility, and the quality of play spaces limited children's choices.

6.2.1. Natural spaces: preferred but not categorised as play space.

Children's responses to the question about their typical play space revealed that only a small proportion reported playing in natural environments (see section 4.1.2 on page 92). On the first glance, this result seems to contradict much previous research that children were attracted to wilder areas, such as woods and rivers, because of the natural environment offers freedom and opportunities for independent play (Chawla, 2007, 2015) spaces to play and meet (Hart, 1979; Moore, 1986) and somewhere to escape from everyday hassles, and to clear their minds (Thompson, 2011).

In some research it has been argued, children do not prefer playing in natural environment (e.g., in Indonesia by Prakoso (2018)). Specifically in the rural context, it was assumed that children's dislike of the natural environment might be due to villagers living in suburban areas have more contact with vegetation and therefore do not appreciate it much (Wojnowska-Heciak et al., 2020). Rural children may have a more utilitarian orientation to nature (Bogner & Wiseman, 1997). They do not consider these natural spaces as a “cool place” (Malone & Hasluck, 2002) or they do not portray themselves as part of nature as grown adults do (Van den Born 2008 cited in Svobodova et al., 2012). Children might be more concerned with whether the location can facilitate their social activities than simply whether the location is natural (Matthews et al., 2000; Giddings & Yarwood, 2005; Chaudhury et al., 2019).

In the current research, no evidence was found suggesting that children do not prefer natural spaces. On the contrary, when answering play activities children’s lively words talking about their playing with wildlife and other natural elements showed that children played in various natural environments including hills, rivers, woods, etc (see section 4.6). Children's failure to report natural spaces as play spaces might because character of a space and the affordance of the environment for activities was more important (Fjørtoft & Sageie, 2000; Fjørtoft, 2004). Children paid more attention to the elements in the landscape for activities. For example, the activity of "creating miracles" was actually digging tunnels in which soil was a necessary element. Children could perceive, use and modify these elements in the environment

for their play as found in the current research in both traditional villages and the community (see section 4.1.3 and section 4.1.4). This phenomenon coincides with (van Heel, van den Born & Aarts, 2023) findings that although natural spaces were not preferred, natural elements were a recurring theme in children's motivations for choosing a particular place or were mentioned under activities as attributes with which they interacted. This explains why the natural environment almost disappears in their answers about the play space. At the same time, it is evident that the natural environment provided children with a diverse range of affordances for their activities, from the perspective of the children. Children loved the natural environment, not loathed it.

6.2.2. Public space: lack of diversity, though not excluded.

Much of the literature has found children prefer a variety of public spaces like streets, parks, semi-public spaces and playgrounds (Valentine & McKendrick, 1997). However, in the present investigation, despite engaging in play in public squares, the children failed to mention these public locations when addressing the query about play areas, with only a small number of children opting to play in large amusement parks situated in faraway towns. Previous studies have noted the tensions between children or groups of young people and adults reduced children's use of public spaces (Matthews et al., 2000; Malone, 2002; Hillman, 2006; Holt et al., 2016). Unlike urban places, the physical configuration and constraints of many rural villages often meant there was a keen rivalry over the social ownership of space, with antagonism and displacement as inevitable outcomes (Matthews et al., 2000). In the current research, the exclusion of children from the environment was not found. Only one participant reported that when playing in farmland he was told to keep outside. However, the reason was not told, whether it was to keep children away from dangers (wells in the farmland as reported by many caregivers in section 0) or as exclusion from adults. Neither child and caregiver participants reported the children's mobility was constrained due to exclusion in either traditional villages or the new community. This finding is different from previous research conducted in Australia, Canada, and Europe, where exclusion was identified as a significant obstacle to children's play in public spaces (Matthews et al., 2000; Malone, 2002; Percy-Smith, 2002; Giddings & Yarwood, 2005).

6.2.3. Lack of diverse spaces and access.

If children favoured natural environments and public squares and were not excluded, why did the GPS data and reports from caregivers indicate otherwise, with children from both the traditional villages and the resettled community rarely visiting these places? In the new residential area, nearby spaces and accommodation tended to be the preferred locations for play, with a preference for the immediate surroundings of homes and ground-floor storage rooms, as opposed to natural or public outdoor environments. GPS showed green spaces and squares in the community were very rarely used by children, although these spaces were less than 100m to their living places (see section 4.1.4) well within the distance children could walk, for example 800m in research by Veitch et al. (2013). In village areas, children's activities were recorded in natural areas. However, these activities were much less than in the places near homes (see section 4.1.3). Limited access to green spaces and inadequate facilities in local squares for children's activities could be contributing factors. In the resettlement community, both green spaces and public square offered limited affordance. The green space solely consisted of a plain lawn with no trees or variation in terrain. It also lacked any other vegetation, such as plants or flowers, and was devoid of any landscaping. This was the case in both the village and the larger community. Children responded with dissatisfaction, stating that their play requirements in the square were not catered for adequately (see section 4.2.2.1). The square solely comprised of an outdoor fitness facility for adults. Although some children used outdoor fitness equipment for play, they found the experience boring and felt there was nothing to do in the square except go shopping there, and some children complained the squares were too far to go to.

The green spaces in the villages in this study presented greater prospects for children's play compared to those found in the resettlement community. This was attributed to the presence of additional trees, varied terrains, water features, and local wildlife. However, the availability of space for children to play does not necessarily imply that they will be able to utilise the space. Previous research has indicated that children in the village may opt out of visiting natural spaces because of the potential hazards that come with encountering wild animals and dangerous

elements in a natural environment (Skår et al., 2016). Fear of water and potential encounters with drunks, drug users, vagrants, gangs and other unfamiliar people could discourage children from choosing natural environments for play (van Heel, van den Born & Aarts, 2023). Children in the current study did not report such potential hazards in the natural surroundings, and only a handful of children expressed concerns about the dangers of playing in water and road hazards. In the villages, mobility restrictions limited children's visits in green spaces that offered attractive potential amenities (Kyttä, 2002). According to Skår et al. (2016) in their research in Norway this restriction on mobility was due to four main factors including access to nature; risk and safety, adult's supervision and time use. Result in the current research concise with these findings. Despite of the lack of access to natural and open public discussed in this section, similar to what Skår et al. (2016) found, in the current research the mobile restriction was mainly caused by social factors which was caregivers' control and this control was closely related to children's play (see section 5.8.1).

6.3. Play activities, time and playmates

Children in this study engaged in diverse game activities, with outdoor play demonstrating the greatest variation. In comparison to organised play, children's outdoor activities in rural China were more diverse, but not necessarily accounted as unsupervised free play. Furthermore, digital play was not exclusive to indoor settings, as it was also conducted outdoors and positively influenced children's participation in other outdoor activities.

6.3.1. Varied outdoor play activities and limited organised play.

Earlier research on the play activities of children has looked at free play versus organised play. On the one hand, research indicates that children living in rural areas engage in more free play activities due to the diverse and abundant environment (Karsten, 2015). On the other hand, children may be increasingly involved in more structured play activities in rural areas and which reduces their free play

opportunities (Valentine & McKendrick, 1997; Karsten, 2005; Mackett, 2013; Nordbakke, 2019). Play activities were diminishing compared with previous generations (Smith & Barker, 2001; Ward et al., 2016) and children initiated and spontaneous contact with nature was taken over by these organised activities (Skår & Krogh, 2009). In this study, diverse categories of play activities were identified, with outdoor play constituting the majority. Physical play, play with rules, bio play, and other activities were the main forms of outdoor play. These were followed by digital play and play in the natural environment (see section 4.6). When comparing caregivers' answers on play activities and their memories of their childhood, the variety of play activities among current children has expanded greatly (see section 5.6 and section 5.9.1.1). The majority children in the current study were playing actively by utilising the affordance in the environment for the games they had chosen and with peers they had chosen.

Children in rural China, like in many western countries, were increasingly subjected to being chauffeured around by parents and shaped by adult schedules (Bradshaw, 2001; Fyhri et al., 2011; Kyttä et al., 2015). Organised play did not dominate their activities. With few instances of reporting travelling with parents and some organised activities such as attending dancing classes and cram schools, children did not report frequent participation in organised events. Social-economic class of parents was associated with more organised play (Fyhri & Klæboe, 2006). No association was identified in the current study. The infrequency of reported organised activities may be due to insufficient play facilities in the local area for organised events outside of school. For example, one child reported his roller-skating in a driving school. Hence, the absence of structured play and rich play activities reported among children does not necessarily imply that they have more opportunities for free play in general. It could possibly be a mere indication of inadequate provision and the remarkable resilience and resourcefulness of children in identifying and establishing play areas. Unsupervised free play remained significantly limited by the carers. Therefore, the current research argues that in rural China undergoing transformation, children are not embracing the rich environment that is typically expected in rural areas due to caregivers' restrictions, nor do they have easy access to organised play which is a play opportunity itself, and also allows for more free play before and after events, while expanding children's social networks for potential playtime (Nordbakke, 2019).

6.3.2. Digital Play: playing mobile phones outdoor

In the current digital age, researchers are discovering a rise in indoor digital play and a corresponding decline in outdoor play (Soute, Markopoulos & Magielse, 2010; Maitland et al., 2013). Digital play, despite the restricted range of activities reported by children, the children's enthusiastic accounts indicate that they were genuinely drawn to them. Various criticisms have been raised regarding digital play. It has been argued that understanding and interacting with the world via second hand sources such as televisions and computer games, hinders children's learning skills, effective ways of interacting with others and development of emotional stability, resilience, connectedness or empathy (Maitland et al., 2013).

It is logical that these studies contrast digital play against outdoor play, as digital play, such as computer games and watching TV, keeps children indoors rather than outdoors. As children are spending more time indoors, missing out what they can only learn through engagement in real-life outdoors environments with others. (Louv, 2009; Christakis, 2016).

However, the findings of the current study do not support the conclusion that children's digital play diminishes outdoor play and contradicts the idea that it reduces their socialization in outdoor environments. In the present study children engaged in gaming and socialising activities on mobile devices such as smartphones, tablets and smartwatches which were found to be the dominant forms of digital play (see section 4.6.1). Hence, engaging in digital play did not always equate to staying indoors. In the current research, no evidence suggests that outdoor digital playing curtailed children's chances for engaging in other outdoor activities. Rather, mobile gaming became a drive for children to gather outdoors and play in an outdoor environment. Children 'ganged up' in the outdoor space, allowing them to discuss tactics and strategies for games face to face and to check each other's smartphone screens as a team. The assembly of children in an outdoor setting may also potentially present the opportunity for additional outdoor activities.

As a result, mobile games promote children to ‘play in’ the outdoors. However, “digital play in outdoor environment” might be another form of sedentary activity outdoor which can result from children engaging in outdoor activities and interacting with others in that setting. Children attended to their devices “head down” so did not contribute to their running around (Soute, Markopoulos & Magielse, 2010). However, beside this assumption, what this study can confirm and add to the literature is that children in the area studied found this outdoor digital play popular and it satisfied their need of outdoor play, which was to socialise with peers. Depth and quality of relationships has been a concern with general online socialisation (Cummings, 2002). But this concern could not be found in the current research. However, mobile phones and games enabled children to gather and engage in real-life play, especially amongst school friends who did not live near each other, such as those in traditional villages or resettlement communities.

A shift from outdoor play to video games has been believed to make children retreat to homes and rely on entertainment like video and digital games (Malone & Hasluck, 2002; Skår & Krogh, 2009; Nordbakke, 2019). In the current setting, although there was a lack of facilities for children's outdoor activities, no children indicated that this lack was what prompted them to digital play. They share the same enthusiasm for digital play and other outdoor activities (see section 4.6.1). In addition, parents’ safety concerns to physical environment make digital play a useful option for them and resulted in children spending more time indoors and being more closely supervised (Bundy et al., 2009). Such behaviour was also found among caregivers in the current research, they gave children phones to keep them close. However, interestingly, they also forbid their children’s use of the phones as well (see section 4.6.1.4). What’s more, caregivers in the current research tend to ask children to do their homework at home directly than indirectly keeping children under control at home by letting them play with their mobile phones. Caregivers did not pay close attention to what their children played. Therefore, digital play itself and its audiovisual elements, evolving challenges and fantasies the digital games attract children (Scarlett et al., 2004). In this study, digital play served not only as a means of fulfilling children's play requirements but also as a tool through which children could learn and share their games with others via social apps such as TikTok (see section 4.6.1.3). This could offer an explanation as to why children have acquired

diverse games, particularly the games with rules, while their caregivers have passed on little to them. It therefore promoted children's other outdoor activities. Some recent research has suggested that innovative technology has the potential to enhance children's play experiences. These issues are primarily addressed in the context of using ethnology as a tool to research children's play or to evaluate its role in research (Soute, Markopoulos & Magielse, 2010). What the current literature and this study suggests is that children initiate digital play themselves, which leads to outdoor meetings with friends and promotes the distribution of games.

6.3.3. Time for studying and the availability of peers.

Playtime was scheduled by school time on school days and greatly influenced by children's time on finishing homework after school time and holidays. There was no fixed pattern for their playtime or length of playtime. As long as the homework was finished, they could play until the caregiver called them back (see section 4.5.10). For children's playmates, similar to the literature, the availability of peers was related to where children could play (van Andel, 1990). Furthermore, the number of playmates was a typical factor influencing the content of the play. However, both the playtime and choice of playmates were significantly influenced by caregivers who were considered the major determinants for children's outdoor play in the current research.

6.4. Differences in subgroups

Children are not a homogeneous group, and their experience varies by gender, age, class (Thorne, 1987; Smith & Barker, 2001). Age and gender were found to have an effect on children's play. However, the influence was either minimal or affected indirectly by the supervision of caregivers.

6.4.1. Differences by age

Age influenced children's playtime and places. Consistent with previous findings, children's activities increased with their age that children aged 6-7 were found least

active most of the time during the day, while children aged 10-12 had the most activity level (see section 4.5.9). However, the oldest children (12 years old) were found to be less active than children of 11 years old. This might be affected by school schedule and heavier pressure of schoolwork which could also be supported by the finding on children's outdoor spaces by age: the oldest (12 years old) and youngest (6 years old) were found to play more in their home surroundings or not play at all, while children aged 9-10 could play in more diverse places. Younger children tend to be kept near home, and older children could have more freedom. The age of 9 and 10 might be the mature age for more outdoor play in current research as they maintain a high level of activities throughout the entire day. However, for children aged 11 and 12, even though they were less supervised, increased study pressure and caregivers' control emphasis on study might limit their play. Before and after school time were the periods for the majority of older children's activities, and their activities in other periods were significantly reduced.

6.4.2. Differences by gender

Major differences were found between genders in terms of place and time of the outdoor play. Apart from travelling between school and homes, there were great differences in their activities time. Specifically, on Saturday and Sunday, boys were more active before lunch, while girls were more active after lunch. In the evening, when boys were inactive, girls still maintained a high amount of activity at 21:00 (see section 4.5.6). In the community area, GPS results showed that boys' outdoor play spaces and girls play spaces were different. More girls reported playing in the intermediate home environment in this research, including yards and ground floor storage rooms. In comparison, boys were found playing in even more indoor or place away from homes such as friends' homes, stores and supermarkets and farmland. This corresponds with previous studies that girls prefer their home environment and boys prefer outdoor and natural environments (Kyttä, 2002; Brown et al., 2008; Abbott-Chapman & Robertson, 2009).

Previous research has considered the gender issues related to children’s play. Findings were mostly about to the difference in play activities (Karsten, 1998; Macdonald et al., 2005; Newman et al., 2007; Mäkinen & Tyrväinen, 2008;) and play

spaces (Kyttä, 2002; Brown et al., 2008; Donkersloot, 2012), while in current research, the difference in playmate preference was noticeable and indirectly influenced children's places for play. Most of the children who answered the question said they only played with peers of the same gender (see section 4.3.3). For girls, this was influenced by the caregiver's control, who often strongly opposed their contact with boys. Interestingly, if the boys were relatives, girls were allowed to play with them, and gender was not considered by caregivers as an issue anymore. While caregivers believed that girls played more with relatives and less with neighbours, children did not mention this difference. Especially for boys, they have clearer reasons for their choices: girls could not play their game. The activities in which the boys and the girls were participating were themselves different (Macdonald et al., 2005).

6.5. The determining factors for children's play in rural China

The available evidence suggests that there are personal, social and environmental factors that influence how children play in their communities (Loucaides, Chedzoy & Bennett, 2004; Veitch, Salmon & Ball, 2010). These include both physical factors including availability of and accessibility to facilities and social factors, including the influence of parents (Aji, Budiyanti & Djaja, 2016). Availability, physical accessibility, as well as attributes of outdoor space seems critical as outdoor play occurs in outdoor environment. In the absence of such an environment, children are naturally unable to play. Compared to physical constraints, social factors were found to be more influential in the study conducted by Skår et al. (2016). In the current study these were the lack of playmates and caregivers' influence.

6.5.1. The possibility of finding friends

The current research argues when children were able to play out, the availability of children is determining as it affects children's choice of the location, activity and

play mate for outdoor play. Making friends or simply finding someone to play with influenced their preference for a place (van Andel, 1990; Tyrrell & Harmer, 2015). This determined whether or not play activities could take place. Availability of peers also affected children's choice of activities. In the current research it was found a group of five children was often preferred. Certain outdoor games might not be carried out due to the lack of available children. Many children expressed a preference for playing with a group of children as it generated a more positive play experience, rather than playing with fewer peers.

6.5.2. Caregivers' influences

Sancar and Severcan (2010) argued there are relationships between the children's activities and parents' attitudes. Caregivers' control and supervision were found to be major influencers to children's play (see section 5.8). Playtime was found directly and strongly affected. The type of play spaces and playmates were mainly affected by caregivers' safety concerns. In comparison, play activities were the least affected and concerned by caregivers unless activities were related to safety issues.

It is clear from the children's responses that they were capable of travelling to the surrounding woods and even through the villages. The limitation of mobility due to caregiver's chauffeuring and control resulted in their limited active travel range. Especially in natural spaces, the unpredictable and unsupervised nature means that carers need to control how children play (Matthews et al., 2000). Findings in the current research echoes this finding. In addition to direct control, caregivers' perceptions to nature could also influence children's views. Parents' attitudes towards the environment were shaped by their childhood experiences (Alexander, Cocks & Shackleton, 2015). This experience in nature had a lifelong impact on people's relationship with nature and their interests as adults (Chawla, 2015). In the current research although caregivers reported nature experience in their early life and preference, they did not think the natural environment could make their children's play opportunities better or worse. This is similar to Escalante et al. (2014)'s research on children's play that people in a low-income area are less concerned about their poor living environment on children's play. However, in the current study, caregiver's limited attention on natural environment is more related

to adults' instrumental view of the environment that (place is often a commodity, a resource to be exploited) (Sancar & Severcan, 2010). Compared to study and organised activities which are perceived meaningful by parents, free play was perceived as childish with little benefit for children's school performance and future success (Jensen, 2008), it is not surprising that parents do not encourage their children to play in the outdoor environment. Not only do caregivers fail to encourage children to play in natural environments, but they also restrict children's travelling and reduce their access to nature. Children therefore tend to play in spaces near homes.

This is opposite to the research carried out in the Asia in Japan that parents gave children more freedom for independent travel to schools and other places (Malone & Rudner, 2011). Returning to the earlier discussion of exclusion in this section, children were not found to be excluded in public places in the current study, this might be because children did not have the opportunity to negotiate with others in public places if their activities were confined to the home by their caregivers. Caregivers' influence was the determining factor for children's play.

Caregivers' control on playtime determined children's play opportunities which were strongly associated with caregivers' education beliefs on children (see section 5.8.3.4). This echo previous studies in which education could be an influencing factor for landscape preference (Yu, 1995; Van Den Berg, Vlek & Coeterier, 1998; Skår et al., 2016). Leisure time is viewed as a learning time during which skills and competencies can be gained to develop children's uniqueness and competitive position later in life (Lareau, 2002; Vincent & Ball, 2007; Stefansen & Aarseth, 2011). In the current research, formal education such as studying at home and time used in cram schools for better school performance occupied children's free time rather than organised play and adult-initiated activities. According to the attitude of caregivers, play, no matter in what form, was scarcely linked with development and learning. Liu et al. (2020) found in their research that nearly two-thirds of children's activities were for tuition and art activities. In this research, caregivers often related their own lack of opportunities to study in the past to their motives on fostering heavier academic burdens and less play experience to children. Studying as a factor, therefore, was influential on children's play.

Safety was another reason for caregivers' control and this was tightly related to places for children's outdoor play. Road and traffic were perceived as dangers by caregivers in the current research in both the modern community and the villages. This finding is consistent with previous studies that children's outdoor playtime is reduced due to parents' fear of traffic danger (Skår & Krogh, 2009). This danger is however perceived than actual. In the present study it can also be found that children were allowed to play at home or near the homes of their acquaintances. However, these places may also be exposed to potential dangers such as traffic safety issues. There may be two explanations for this, the first being that these are environments that the parents consider themselves familiar with, and the second being that the parents believe that an acquaintance can take on the responsibility of looking after them. The dangers associated with crime, especially in cities, are considered to be one of the main reasons why parents discourage children from playing outdoors. In some research parents believe that the countryside is a safer environment than the city (Loucaides, Chedzoy & Bennett, 2004). Some other studies also associate the fear of crime with the high density of vegetation (Shaffer & Anderson, 1985) which criminals could use as hiding places (Nasar & Fisher, 1993). In the present research woods in villages were reported as safer places as they are away from traffic. Although a few parents reported trees and water may cause children to fall or drown, woods were not specifically associated with crimes.

Previous research discussed negative influences from other children such as drugs taking, drinking, smoking and sex as well as their own children becoming the perpetrators (Valentine & McKendrick, 1997). In this study, swearing and fighting were the only negative behaviour caregivers reported. In comparison, uncertainty especially danger from strangers, has been highlighted in the literature (Karsten, 2005; Holloway & Pimlott-Wilson, 2014) and were found to be a major cause of their control behaviour in the current research (see section 5.8.3.2), especially among grandparents. A culture of fear could be created by the media coverage of high-profile cases and sensationalised child abductions, which make people overestimate the frequency of their occurrence (Holt et al., 2015). In rural China, children's outdoor play was not subject to strict parental control in the past, which was supported by the responses of parents in this study. Stricter control by grandparents

might be due to pressure from other adults, as discussed in the next section.

In addition to caregivers' control, caregiver's supervision was found to reduce the caregiver's uncertainty and lead to a reduction in control. Following and keeping children in sight were the main way of reassuring and allowing more play for children in this research. However, supervision could deter children's outdoor activities as well. Children were kept close to caregivers at home due to caregivers' lack of motivation to go out and use the environment, especially in the new community. The challenges of adopting a new environment might be the reason, as discussed below.

6.6. Play in the transforming environment

In the current study resettlement, local urbanization and children's being left-behind, all had impact on children's outdoor play which is consistent to the literature that the increase in cars and motorways, the decrease in the quantity and quality of natural spaces, the decrease in the number of children and the commercialisation and privatisation of spaces have been identified as barriers to children's play opportunities as a result of changes in urban environment (Percy-Smith, 2002; Wridt, 2004; Karsten, 2005; Malone & Rudner, 2011). Resettlement results in the requirement for children to seek out play opportunities within unfamiliar surroundings. The process of urbanisation in the area has led to environmental degradation and pollution, which coupled with the decline of local traditional culture and activities, has limited children's access to outdoor recreation. Caregivers' lack of willingness to socialise with others has indirectly impacted children's mobility. For children who have been left behind, they were confined indoors more strictly by grandparents who felt immense pressure and responsibility from the children's parents (see section 5.8.3.1).

6.6.1. Resettlement, school merger and outdoor play

In the current research children migrated from the traditional villages to the near urbanising townships including resettlement communities. In rural China people

migration from homes with yards surrounded by farmlands and wildlife to more densely populated apartments in gated communities. Moving to new places needs children's comparison and adaption (Tyrrell & Harmer, 2015). In the current research, changes in the physical environment, particularly moving upstairs in apartments in the community, and changes in the social environment as the population becomes more complicated affect their outdoor play.

6.6.1.1. Children migrated to community: Moving up stairs and the constrained adaptability

In previous research, storage, spatial constraints, privacy, safety concerns, inadequate communal play space, apartment layout and size, and tensions with neighbours relating to noise are found potential challenges for parents raising children in apartments (Kerr, Klocker & Gibson, 2021). The findings of the current research are consistent with this, in particular that new residents from surrounding villages were not able to adapt easily to the relatively urbanised life of the resettlement community due to a lack of support for their activities and socialising. The living environment becomes monotonous. Children could not climb on the roofs or play in the garden as they used to be in the villages. Living in the apartments reduced the desire of children and parents to go downstairs. As they wished to keep children around, children had to stay indoors.

The resettlement community had been established for three years at the time of the study, and fresh inhabitants kept moving in. Although living in a new environment, relocated residents still kept the formal living behaviour of the villages. Residents had been trying to transform the environment. Adults used the community space to cultivate the land, and children used the ground floor storage room as a courtyard (see section 5.9). Similar results were found by Nethercote (2016) that parents adopt various methods for coping with spatial constraints, such as compromising on privacy and utilizing public spaces for family activities when there is no backyard available. However, in the current research, their adapting of the environment was usually forbidden by 'rules' which they as 'urban residents' had to obey. The residential property management company which is responsible for maintaining and repairing the public service facilities of the building or neighbourhood had forbidden such

improvision of public spaces and would restore it to its former state if found changed. This is different from the situation in the countryside, where residents were not constrained to make changes to the public space around their homes which were self-built, whereas in the new community, the planning and function of the public space was defined and approved before the construction. After construction, it was the property management company that managed and planned the function of the public space. This is also due to the fact that the public space around the building was shared by all residents as distinct from being owned by a single occupant as in the traditional villages.

Although it seems children's utilisation of the spaces (such as digging holes and building with soil) was not deterred, some children chose to play in the ground floor storage room which might be because they feel a sense of ownership over the space, similar to how they might feel about a yard in traditional villages which was also found by Sancar and Severcan (2010) that children played in abandoned homes as they believed those places belonged to them or their relatives. This shift to shared and smaller spaces required distinct emotional and material negotiation (Kerr, 2018). There was no evidence in the current research to suggest that children were extending their play, and most evidence suggested that children were playing in areas near the homes.

6.6.1.2. Children from villages: Staying with no friend and restricted in town

The outflow of population from the village to the new community due to resettlement and to other cities meant that it was increasingly difficult for children to make friends in their local neighbourhood and therefore there were less play opportunities and less use of local spaces. For example, children preferred to play in caregivers' working places in the town or the squares in a new community where there were more children playing accompanied. While they were studying and boarding in the new community, village children almost never visited the public green spaces (see section 4.1.4). Although green spaces were rarely visited in general, village children, in comparison to their peers resided in the community, travelled shorter and visited less varied places regardless of whether they were left-behind children or not. Children might have lack of belonging in such relocation contexts

(Percy-Smith, 2002; Henderson, 2005; Severcan, 2018) which village children floating in the community in the current research might also experience. However, village children's belonging and the influence on play is not known from the current findings. Instead, teachers' discipline restricting their play range was reported by children as the main reason.

6.6.1.3. Ever complexing population in resettlement community

Relocation to new neighbourhood may impact children's feeling on how safe the environment is and they might be self-imposed restrictions due to the "new fears" (Chaudhury et al., 2019). Strangers specifically were perceived as danger especially among caregivers (Valentine, 1997; Matthews et al., 2000; Malone, 2011; Bauer, Brussoni & Giles, 2021). However, in the current research, children did not seem to feel such dangers as they still made friends with strangers. Children were concerned less about safety compared with playability and aesthetics (Müderrisoglu & Gültekin, 2015). It is the caregivers who restricted children's play and meeting friends due to the ever-complex population and their perceived fear of strangers (see section 5.8.1.3). Unlike a self-initiated home moving, relocation involves a significant number of families residing together in a new environment in the short period of time. Clan relations in traditional villages were affected by spatial segregation. Children were less allowed to play with neighbours and more with relatives. This corresponds to Carroll, Witten and Kearns (2011) in Australia that residents who moved to apartments hardly ever saw each other and those with good relationships might have been already been friends before.

Intolerance, exclusionary practices, and moral judgment have been significant factors in the formation of territorial boundaries during the development of cities (Malone, 2002). Incomers often face local exclusion. Exclusion was not found in the current research in the rural settings. Perhaps it is because of the natural formation of clans based on family name and bloodline that makes the villagers more tolerant of people from their own village as suggested by Chawla (1994), intermarriage creates interdependentship and gives parents a sense of reassurance about their children's play environment. The present study, though, did not find any conflicts arising between children and adults. However, this does not mean that exclusion does

not occur in new resettlement communities with increasingly complex populations. In fact, in this study one of the caregivers migrated from the city expressed reluctance to engage with residents from the village as he viewed them as" villagers". The absence of exclusion is simply that, as previously discussed, children's opportunities to go out become limited, and therefore opportunities for contact and conflict are correspondingly suppressed. With the gradual disintegration of the community of acquaintances, it is possible to foresee potential contesting for space especially in resettlement communities.

6.6.2. The children left behind and their outdoor play

Many scholars have suggested that children left behind are physically and mentally disadvantaged and lack sufficient parental support (Asis, 2006; Wen & Lin, 2012; Wang et al., 2015). The children in this study did not report anything that directly caused a reduction in their outdoor play opportunities as a result of being left behind. Despite the usage of the term "left-behind children" by both government and academics to classify and describe the children without parental company, this study found that there were few differences between left-behind and non-left-behind children in terms of outdoor play, particularly for children from villages. Children themselves in this study never referred to other children as 'left-behind children' even when they knew that their playmates' parents were away. Children only complained that their friends (left-behind children) could not join them in play because they were restricted by their grandparents.

6.6.2.1. Grandparents pressure, responsibility and their restrictions on play

The general social environment including parents, peers, classmates and teachers are factors influencing issues related to left-behind children (Harmon et al., 2014). Influences from caregivers might be an important factor that restrict LBC's outdoor play. The caregivers of LBC were mostly grandparents. Responsibility and pressure of taking good care of children were found to be another influence on children' s play. Especially in LBC families, grandparents as caregivers suffered from the fear of not raising children well and the pressure from children's parents. It was found children taken care of by grandparents had the lowest play opportunity for playing in a non-

home environment. In villages, neighbours' home surroundings were almost the only place for their children to play for those children cared by grandparents. To avoid dangers and enhance children's academic performance as part of their responsibility to parents, their control on children's play was found to be stricter. They had more negative attitudes towards the children's play activities, were stricter in their control of the children, and were under more pressure to keep the children safe and educated therefore resulting in the less play outdoor compared to the NLBC.

In the West, it is the parents who have pressure from guidance on child-rearing received from the government, media, and from other adults which exemplify the ideals of parenting (Hillman, 2006). By contrast, research conducted in rural China suggests that grandparents' stricter discipline of their grandchildren is largely due to parental pressure and a sense of responsibility. Young farmers leave the countryside, no longer relying on the experience of the previous generation, but acquiring new life skills through self-learning and thus acquiring social goods and economic gain, so older people (grandparents) are no longer the main holders of resources, thus changing the way families earn income and shifting power, causing a fundamental breakdown in the traditional social structure of rural elders (Wu et al., 2004). The younger generation (parents) is gradually becoming the transmitter of knowledge and its status and importance in the family and village is increasing (He, 2015). This may be the reason why grandparents of children feel pressurised from their children's parents in terms of raising children. In this sense, the restricted chances for play that child left in the care of their grandparent’s encounter, represent a unique issue related to rural development in China. This suggests that understanding the caregivers of children is more crucial than considering left-behind children as a research indicator when studying children's outdoor activities. However, this does not mean there is less importance of addressing the needs of children who are living apart from their parent(s). Therefore, further research is required to investigate the relationship between different types of caregivers and children's outdoor play.

6.6.2.2. Vulnerable children and restricted mobility

In the course of this study, children shared with the researcher their space for play in varied environment. However, children's use of spaces is influenced not only by

their neighbourhood design but also by the licenses granted by parents for independent mobility (Hillman, 2006; Bauer, Brussoni & Giles, 2021). In the current research in rural China, despite being able to recognise play spaces, the children expressed that their mobility was significantly restricted by their caregivers and schools. It may be because adults view children as vulnerable and in need of protection from the dangers of modern society (Tranter & Sharpe, 2007). The influence and impact of the external world outside the garden must be controlled and managed by parents to ensure that it does not seduce the children and expose them to risks (Malone, 2007). Play activities are more likely to be organised by adults or supervised and to take place indoors (Isenberg, 2002).

The irony is that by restricting children's movements, parents may be putting them at greater risk should they find themselves alone in the environment (Malone, 2007). The almost zero-tolerance attitude to risk has an unintended but detrimental effect on children's social, emotional and physical development (Valentine & McKendrick, 1997; Valentine, 1997). This may result in children lacking in environmental competence, sense of purpose, social competence, self-worth and efficacy, and resilience (Malone, 2007).

The potential factors might be the increased distances between schools and homes (Malone, 2007; Curtis, Babb & Olaru, 2015; Schoeppe et al., 2016), modern lifestyle and increasing extracurricular activities (Barker, 2011). In the present study, caregivers' perceptions of environmental dangers as well as academic pressures were also found to be the main reasons for their restrictions on children's outdoor play. The issue of left-behind children in rural China has also undoubtedly increased caregivers' protection for their children. Grandparents, in particular, were found having a strong sense of responsibility and concern for their children's health and academic success. Chinese parents place more emphasis on their children's academic performance and actively neglect their children's character development and life skills, which can also prevent them from developing a healthy concept of self-care (Wang, 2022). The findings in the current study are similar to what Bauer, Brussoni and Giles (2021) found on children's mobility in a rural setting: rural caregiver keep their children physically close during outdoor play and they enforce geographic boundaries to their children's mobility. However, it is reassuring to note that in their

study, parents taught their children coping strategies to deal with potential risks in the outdoor environment. However, such behaviour was not found among caregivers in the current study. Therefore, current research suggests that it is imperative that caregivers and schools are aware of the benefits of the environment and free play for children, and need to give children more license to move freely in the environment.

6.6.3. Urbanisation, local development and play

Corresponding to research carried out in other places around the world urbanisation brings physical, cultural and social obstacles to children's outdoor play (Sancar & Severcan, 2010; van Heel, van den Born & Aarts, 2023). In the current research urbanisation has led to environmental degradation, loss of traditional activity spaces and changes in the way parents socialise, all of which directly and indirectly affect children's opportunities for outdoor play.

6.6.3.1. Loss of physical and cultural environment for play

Loss of play spaces, limited accessibility and degraded landscape quality have been found to be the problem brought by urbanization which is consistent with previous research (Karsten, 2005; Woolley & Griffin, 2015; van Heel, van den Born & Aarts, 2023). Particularly in villages, although the caregivers did not consider environments for play, but they did express their concerns on the reduction of forests and farmland and reduced quality of their living environment. This change in the physical environment-imposed challenges for children's play. Not only did the construction of a factory take over original woods, but the irritating smell of its emissions also put children in a dangerous environment. The dryness and pollution of the pond meant children had to visit nearby wetlands and lakes with caregivers' supervision. Perceived and actual traffic danger due to development further prevented rural children from going to the resettlement community to play with children, even if they usually had classes there. Many researchers have highlighted the adaptability and resilience of children to their environment (Kirschke & Vliet, 2005). For example, children have demonstrated great resourcefulness and levels of independence when

facing environmental disasters (Woolley & Kinoshita, 2015). While acknowledging the admirable resilience of children, it remains uncertain whether their outdoor play is truly satisfactory when they must adapt to a degraded environment. Is their transformation of the environment a mere compromise, as Kyttä (2002) suggests that children have no alternative but to play in waste?

The answers from two generations revealed that rural activities which were once intrinsic to traditional rural life, such as attending outdoor cinemas and listening to Chinese opera, involving socializing with friends from neighbouring villages and travelling, have indeed vanished. From this perspective, current research in rural China validates the existence of environmental amnesia (Kahn, 2002; Zylicz, 2002; Muñoz, 2009; Scannell et al., 2016; Soga & Gaston, 2018) particularly towards traditional cultural activities. Adults who are the vehicles for the activities in the rural life, especially parents, no longer take pride in rural values and instead seek success and wealth. As they migrate away and ignore rural play, the lack of activities leads to the natural extinction of the spaces that once hosted them. Disappearance of stories and legends about historical spaces affects the creation of collective memories and social identities (Severcan, 2018). Children can neither receive a legacy of play from their parents, nor can they find traces of traditional activities in their living environment.

6.6.3.2. Social Paradox among adults: get acquainted and stay away

Urbanization is altering parents' socialisation, which affects children's outdoor activities. Parents worried about the morality of their children's friends, the morality of their friends' families and the social class of their families manifested in their seeing themselves' as urban and seeing others as rural. The previous research has considered the links between socio-economic status and children's play opportunities, either reporting rich play opportunities due to more family resources (Tandon et al., 2012; Cottrell et al., 2015) or paradoxical poverty in families with low social-economic status that children in poor families roam further and enjoy richer play outdoor opportunities (McKendrick, 1997). In the current research particularly in the community, caregivers were found resistant to dealing with other people when

resolving trouble between kids (see section 0). Some were afraid of contacting other caregivers to avoid conflicts. This might be because the population became far more complex than caregivers were used to be in the villages. On the one hand, rural people continue to hold on to values and the importance of their rural acquaintanceships in a rapidly changing environment which could be seen from their trust about children's play in the acquaintances' places. They were also eager to know their neighbours' status to make sure their children could play in the safe place. Yet on the other hand, they are quick to mark their new identities and move away from others. Rural people were gradually becoming less familiar with each other on ability, personality, family status, income and social networks as they withdraw from a life that previously consisted of living, working and sharing benefits together in traditional rural life (Wang, 2015). This willing to know and unwilling to be known brought about by rapid urbanization leads to a paradox and struggle to create the acquaintance society as before.

Chapter 7

Conclusion

7. Implication, limitations and conclusions

7.1. Implications

The provision and the need for children's play are often mismatched (Sibley & James, 1991). This section aims to provide insights into the research question on how landscape can enhance children's play in rural China during transformation. In the present study, children in both traditional villages and resettlement communities encountered distinct challenges. Village children were exposed to a degraded environment, had fewer opportunities to make friends, travel to school actively, and had fewer opportunities to play on the way. In the resettlement community a lack of provision and spaces for play, cultural activities and interactions with other members in the community were found.

Previous researchers have suggested "bringing spaces to children" and "bringing children to spaces" (Yin, Kasraian & van Wesemael, 2022; van Heel, van den Born & Aarts, 2023). These recommendations are relevant to contemporary research especially enhancing walkability and decreasing proximity within conventional villages by establishing spaces accessed by clear routes. (Hillman, 2006; Holt et al., 2008; Sancar & Severcan, 2010; Malone, 2013). In the resettlement community, it is deemed crucial to provide varied and vibrant play areas that enable activities (Kyttä, 2002) akin to those that children used to engage in when they lived in the villages. Moreover, such spaces should promote interaction among children and their caregivers with the physical and social environment (Chaudhury et al., 2019).

7.1.1. Implications for play spaces in villages: Safe and accessible play environment

In the current study, the primary challenges for play spaces for children in rural areas included diminished landscape quality, reduced numbers of available children due to

migration, and, most importantly, restricted mobility due to caregiver control. To increase play opportunities for children, it is necessary to meet caregivers' expectations for their children's safety. This may require proposals that prioritize supervised play in nearby areas, such as the home environment. But while this approach may appear practical, it is also unyielding when it comes to limiting children's mobility. Consequently, it is crucial to alleviate parents' apprehensions regarding free play and to inform them about its advantages.

Active transport and independent mobility should focus on journeys towards nearby neighbourhood destinations connecting the school and the dream play area (Carver, Timperio & Crawford, 2012). This is also proposed in the current research. It was found in the previous research that children prefer pathways that facilitate play, community activities, safety, hygiene, and provide chances to gain knowledge and interact with the environment while simultaneously preserving it (Malone, 2013). Sometimes a street provided a connection between two cherished locations, such as their residences, schools, playgrounds, relatives' and friends' houses, places where they could visit their grandparents, or places where they had had fun with their best friends (Sarcar & Severcan, 2010). In the current research as Hillman (2006) suggested, increasing road space and resources should be allocated to the creation of secure networks for pedestrians and cyclists is considered crucial. However, Hillman and Adams (1992) pointed out that it is difficult to segregate motorised traffic from pedestrians and cyclists using the same streets, as cars are often home-based or parked on roads, even in new developments. Increasing the visibility, sign use, way-finding icons and colour codes are proposed in the current research. This approach was recommended in many studies (Malone, 2013; Aji, Budiyanti & Djaja, 2016; Yin, Kasraian & van Wesemael, 2022).

Creating appealing and varied spaces for children's play off the road is important (Striniste, Carolina & Moore, 1989). Frost (1985) argues, when children are bored, they are more likely to have accidents. To take benefit of the advantages presented by roads for children's recreation, one option is to incorporate favourable aspects of cul-de-sacs (specifically, reduced through-traffic) with advantageous attributes of grids (namely, high walkability) (Holt et al., 2008). In the current study, offering play spaces designed for children in one or two selected villages with rich and quality

affordances, particularly on the corridors, but not the main road connecting villages might attract children from surrounding areas. As such sites are in-between villages, the shorter distance to each village could encourage active movement (Carver et al., 2013). In the village setting, with nature being closer to home, children might have a lower threshold and more opportunities for unsupervised experiences. Such a play space can become a social space for children from neighbouring villages, which also solves the problem of children finding friends in the village. They can use it as a meeting point to go to their villages with their friends, under peer supervision, and play on the road. Travelling on one's own to such relatively nearby place might also stimulate more negotiation between children and caregivers. This process is expected to have influences on caregivers' and children's perceptions of danger and parents' attitudes towards children travelling alone. When children whistle cheerfully with their friends on their homeward journey, and then share their daily stories, adventures and achievements with their parents or grandparents, it is expected that the caregivers' perceptions of play and play environments might naturally and optimally evolve.

Although the possibility for offering designed play spaces is discussed here, the lack of the 'rural backbone' could pose challenges to management unless supported by local authorities. With the reduction in village population, it would be more challenging for such landscape interventions in the future. How to revitalise the village is the key to improving children's environment in the villages.

7.1.2. Implications for play spaces in the community.

Within the community, while roads were observed segmenting spaces and might impact children's mobility, these are typical issues related to children's play in urban settings. Recommendations for improving the transport system, traffic management, risk education, and children's participation in identifying potential dangers were suggested by previous research (Bartlett, 2002; Kingston et al., 2007; Wilks, 2010). The current research highlights that children engaged in few activities in green and public open spaces close to their homes due to their monotonous features. It is noteworthy that these children were previously rural residents who grew up playing

in diverse village environments.

Spaces in the resettlement community in the current research were found to offer limited support for activities and were perceived as boring environments in the current research. Compared with offering meticulously maintained park lawns and top-of-the-line manufactured play equipment towards reconfiguring the nearby natural environment for children to engage with local plant life and insects. This approach can offer a more environmentally sustainable and beneficial strategy for encouraging biodiversity and fostering connections with nature (Yin, Kasraian & van Wesemael, 2022).

From the current research, this could be achieved by providing children in the communities with environments that are diverse and familiar, mirroring their former lived experiences. Rishbeth and Powell (2013) highlighted the performance of activities that people are familiar with and the value in public spaces for developing a sense of belonging at the local scale. Preserving and sustaining the physical features such as density, historic building stock, and land-use mix, alongside the social elements relevant to traditional neighbourhoods like friends and relatives, could enhance children's public realm engagement because of the safe, accessible, social, natural, and attractive elements characterize these places (Severcan, 2018).

However, a complete replica of the village environment and play experience might not be possible. What is more, children in rural spaces are not passive recipients, but active agents in shaping their own cultural spaces (Matthews, Limb & Percy-Smith, 1998; Fjørtoft, 2004; Giddings & Yarwood, 2005; Malone, 2013). Children intuitively use their environment for physical challenges and play. For example, Power, Norman, and Dupré (2014) found in their research on children's perception of rural places that children could change 'dead' spaces into spaces of social vitality. Therefore, the current research suggests that instead of using hard-paved squares and monotonous high-maintenance landscaping as in the research site, it would be more beneficial to create an environment which incorporates elements of village life such as soil, trees, terrain, water, and other forms of wildlife which are familiar to rural children and will be promptly accepted and employed by them.

However, places are not essences, but processes in which the relatedness and meanings are continually being produced and reproduced during the interaction with the surroundings, the self, and the others (Gustafson, 2001). In the current research one of the socio-special challenge lies in the resettlement community for children is the continuous inflow of population. It increased the probability of children finding playmates but also meant that the limited space needed to be shared with more children, other social members or even strangers from various background. To cater for the needs of local residents including children, residents' local culture and history could be integrated with the environment. If a place can provide the cultural, historical and religious background for a group of people, it becomes meaningful at a collective level (Hay, 1998). However, the growing complexity of community population also amplified caregivers' apprehensions over strangers, which acts as a deciding element in discouraging children's outdoor activities. If a person lacks expectations for future interactions in a location, their sense of attachment to that place decreases (Sancar & Severcan, 2010). Increasing interaction between children and their caregivers, as well as other individuals in rural environments is crucial for facilitating outdoor play opportunities.

7.1.3. Implications in transforming environment: Creating spaces meets children and caregivers' need for socio-special needs

Caregivers' safety concerns, especially about strangers, was found one of the main reasons for their control on children and was associated with their lack of interaction with other caregivers and other community members in public spaces. Moreover, caregivers' limited interactions with the physical environment and their children meant they seldom used outdoor spaces, which further reduced the opportunity to interact with others resulting in a vicious circle. This problem was severe in the resettlement community.

Resettlement residents could not fully transform from village residents to city residents in a short period of time (Zhan, 2021) resulting in their keeping of old living styles (Li et al., 2016). The rapid transformation from a 'semi-acquaintance' society to a 'none-acquaintance society' made caregivers reluctant to communicate with

other members of the community they were not familiar with before. Like children, caregivers also needed a space that could afford activities they used to have in the villages. A space that could encourage their use and could be shared by other members was therefore needed. It was suggested reconstructing such shared space could enhance the sense of identity, belonging and participation among village members (Li et al., 2016). For example, in the current study, it was found that parents grew crops in public areas. While many studies have advocated the benefit of city gardens/urban agriculture for food security (Van Tuijl, Hospers & Van Den Berg, 2018), these areas also contribute benefits as places for creating social inclusion. This was highlighted by Turner et al. (2011) who suggested that community gardens could help to establish a sense of connection, ground people in place, and provide a sense of purpose and belonging, not just to a community, but to nature more broadly. In China, it is common for residents to grow vegetables in public spaces, especially in areas when the residents come from rural backgrounds (Zhu et al., 2016). This is because it reminds them of their rural upbringing and their connection to rural life (Zhu et al., 2016). They could get away from rural area, but not feeling of the attachment to the land (Xue, 2019). In Changsha, China, residents were found planting vegetables in public spaces in six out of the seven investigated communities (Deng and Yan, 2017). Zhu et al. (2016) in Hangzhou found that residents in new communities were growing vegetables in regions close to buildings and below community walls. Zhu et al. (2016) found that by exchanging growing experiences and exchanging produce it also cultivated new friendships. For children, Xiao (2016) also suggested that establishing community gardens might aid children in improving their knowledge of nature. For instance, learning names and functions of the plants and their potential uses for the family (Aji, Budiyanti & Djaja, 2016). Such activities also lead to increased involvement in outdoor play and interaction with parents. While planting in communities' public spaces in China is a common practice, the main concern is that it is a spontaneous action by an individual and lacks formality. Zhu et al. (2016) drew attention to the possible issues arising from the unplanned establishment of vegetable gardens in residential areas including disputes over the division of limited plots among vegetable-growing residents, objections from non-vegetable-growing residents who perceive the gardens as an invasion of public space, and conflicting opinions among managers regarding the upkeep of public areas. A possible solution is to rearrange the spaces in the community by utilizing vacant

squares and designating reasonably large areas of land specifically for growing within public parks or open public spaces (Zhu et al., 2016). In the current research, the public square lacked adequate facilities for activities and was often ignored by local residents. The surrounding area of the community were not intensively developed. Thus, leaving much potential for such interventions. Although the sustainability and costs of investment and management have been suggested as barriers (Ponizy & Stachura, 2017), if managed by local residents and led by the local authority and supported by developers (Chen et al., 2022), such projects might be promising in the current context in the resettlement community.

In addition, restoring traditional events might also be helpful to encourage community interaction. These events could be organised by local stakeholders in the community. During such interaction, a sense of trust could be constructed in the resettlement community, which may be the key to reconstructing the culture (Li et al., 2016). The sense of community therefore could lead to more events offering more opportunities of play (Holt et al., 2016). Local public spaces could be used by more caregivers. Community watch, therefore, could be enhanced. As a result, with increased safety (perceived and actual) in the community, the caregiver's control and supervision on children's play could be loosened. Children might embrace more freedom of play in diverse places.

Although these suggestions seem promising, in the current research, the interaction among existing neighbours was found to be limited. The sense of sameness, along with the construction of a community, could be damaged by representations of 'other', that varied by age, class or status as 'incomers' (recent arrivals) or long-term residents (Valentine, 1997). Newcomers in the current research were often neither related in bloodline nor as previous neighbours from their respective villages.

Encouraging residents' engagement in the public spaces is important. Children play in proximal to home with restricted mobility. Such sanitised environment free of risk is one where these desirable attributes are unlikely to flourish (Hillman, 2006). Although children might face potential conflicts with community residents as Malone (2002) suggested, contestation and conflicts could often build a community rather than disconnecting it. Interaction between children and 'strangers' needs to be

encouraged, rather than discouraged, as it can promote a more community-oriented society (Hillman, 2006). Keeping children “as safe as necessary” instead of “as safe as possible” have a potential value for child development while also ensuring their safety (Yin, Kasraian & van Wesemael, 2022). It is worth noting that multiple resettlement communities could be built in one area. A study on the outdoor play of children in areas with multiple resettlement communities may hold future significance.

7.2. Limitations

The adoption of GPS methods provided meaningful results for understanding patterns and recording specific places of visit. However, the children's actual activities could not always be determined. Whether children were playing or travelling could not be differentiated. Although the speed of travel was applied to filter out travel by trains and cars, the purpose of certain activities like bike riding or scooter riding could not be known. Whether it was travel or play or travel for another activity could not be learnt from the data. In future research, using GPS devices with decent photo taking functions instead of those with low quality utilized in the current research might be helpful. Allowing children to take pictures of their choice might reveal preferences and, at the same time, to some extent, reflect the actual activities during the wearing of the devices. However, the price of such watches with quality assurance is usually higher. What’s more, due to the financial limitation, only limited number of GPS devices could be purchased and distributed to children in the study. This lack of available devices limited the overall number of participants and therefore provided fewer rich data for quantitative analysis for subgroups, especially for the one containing a lot of members within the subgroup such as the age group. Future research should consider obtaining funding from children's projects, local government, or NGOs to provide improved support for purchasing devices.

Who actually took care of children was not initially included as a factor at the research design stage. However, from the findings, children supervised by grandparents differed from children supervised by parents in terms of play. ‘Children's actual caregivers’ as an indicator should be considered in future research studying children’s play especially in relation to restrictions on their mobility. Not

only in the left-behind children's families but children living with both parents could also be supported by grandparents much of the time. In this research, children's actual caregivers have only been identified through caregivers' interviews. For children whose caregivers were not interviewed, their actual caregivers were not known. GPS data, therefore, could not be analysed accordingly. In future research, children's actual caregiver(s) should be included in the research design stage. Although obtaining this information might be difficult due to the frequent change of family status, outdated student records, wariness shown by caregivers, and sensitivity needed in direct communication with children as a vulnerable group, unveiling relationships between children's play and their actual caregivers could be meaningful. This is because these caregivers might include not only the next of kin but also non-relatives. In-depth research on this group of children and their play might be a topic for future research.

This research considered children's outdoor play in a selected site in the northern part of China. For a more comprehensive comprehension of children's play and outdoor play settings, further investigations should be carried out in other rural regions undergoing transformations, which may vary in terms of physical, cultural, and social contexts. In addition to researching in different contexts, Cummins (2009) suggested that 5-year instalment research is needed to understand the change brought on children's play. In 2021, the 'double reduction policy' (Opinions on Further Reducing the Burden of Homework on Students in Compulsory Education and the Burden of Off-School Training) was proposed by the Chinese government (MOE, 2021). One of the 'double' refer to decreasing the workload of students in schools, including academic assignments and classroom hours. The other one refers to cramming lessons that are prohibited during national statutory holidays, days of rest, and summer and winter breaks (MOE, 2021). More time was freed up from schools and additional after-school studies. However, academics point out this time freed up from subject-based learning, is now being occupied by tuition and so 'children have just come out of the tiger's den and into the wolf's lair' (Wu & Zhang, 2023, p.3). Therefore, future research could focus on such potential changes in play time and their relationship to children's use of the environment and caregivers' interventions.

7.3. Conclusion

This study investigated outdoor play among children in rural areas undergoing transformation in China. Participants were recruited from local children and their caregivers residing in both the traditional villages and the newly established resettlement community. The study employed various methods, such as GPS tracking, interviews, play diaries, focus groups, and child-led walks. Following the fieldwork, the retrieved data underwent quantitative and qualitative analysis. Several significant findings were identified. Based on these findings, a discussion was conducted to consolidate the results by referring back to previous studies.

Children were found mainly playing in the home and immediate surroundings, which is consistent with previous studies. Particularly, children were found playing in the vicinity of relatives' homes, neighbours' homes, and friends' homes. Familiarity was identified as the key indicator for play places. In contrast to 'where is the place', participants answers focused on 'whose place is it', especially in answers by caregivers. Only a limited number of children in villages played in the natural environment, other than these islands of homes. Previous studies suggested that rural children might not prefer natural environment. In the current study in rural China, the 'naturalness' was woven in children’s answers about play activities such as playing with dirt, plants and other elements of the wildlife. Some researchers have discussed the reduction of play activities in recent generations (Smith & Barker, 2001; Mustapa et al., 2018). However, in the current research, a rich type of play was reported by the children. Although caregivers did not know their children's exact games, their reports did roughly match the children's answers. Activities that children play now, vastly outnumber caregivers’ play activities in terms of variety. This indicates that the diversity of children's play has increased rather than decreased compared to past generations. Although digital play has become popular among village children and community children, children showed that they valued outdoor activities as an important part of their play. Digital play rather than curtailing outdoor play opportunities was presented as a form of outdoor play itself and a way of learning and spreading games.

However, the rising use of digital play brings about a concern that children's rights in

virtual environments may be even more at risk than in the real world. Because in the virtual world children are no longer citizens of their local community but citizens of the world. In the digital realm, games are no longer limited to children, and they have to compete with adults in games created by adults and possibly for adults. Although, children could learn and spread games with social media in the current study, the widespread use of mass media, including the internet, means that children's worlds are increasingly shaped by spaces and ideas far beyond their locality (Valentine, Holloway & Bingham, 2002). It is also a concern whether children's online remote experience may lead to a change in how they see and use their local environments.

Age and gender differences in play were found in the research. Age was more associated with the caregiver's control and supervisor, as older children tended to be less supervised. Boys and girls were rarely found interacting in terms of play places and playtime. This might be because boys believed girls could not play their games, and girls were more affected by their caregivers' control and attitudes. This is consistent with previous studies in other rural and urban environments (Kyttä, 2002; Macdonald et al., 2005; Abbott-Chapman & Robertson, 2009).

Caregivers' control and supervision due to their concerns about safety and education were the key influencing factors on children's play found in the current research. For safety concerns, danger from strangers, traffic and uncertainty were the main worries of caregivers. In comparison, caregivers were less concerned about children's play activities as long as they did not take place in dangerous environments. Other than safety concerns, caregivers' attitudes towards children's education determined children's playtime. Unlike previous studies which addressed organized activities and events which either increase or reduce children's play opportunities (Cottrell et al., 2015; Skår et al., 2016; Hewitt, 2020), in the present research, children's time was strongly affected by formal study in cram schools and by homework. Caregivers could perceive play as a barrier to children' s future success. In the present research, caregivers expressed worries about the adverse impact of other children on their children, which led to caregiver intervention in children's choice of playmates. Caregivers were concerned with the academic performance of their children's peers.

Local urbanization, relocation and adult's migration, all had impact on children's outdoor play. In rural areas, adult's migration to cities meant they left their children behind at home. Current research investigated the outdoor play of children who were left behind. Although, they have often been labelled as a disadvantaged group in much research, in the current research, few differences were found between left-behind and non-left-behind children in terms of outdoor play, particularly among children from villages. Instead, there were differences between children who are looked after by their grandparents and those who were not. Those in the care of grandparents had the fewest opportunities to play outside their home environment. In traditional villages, the home surroundings of neighbours were almost the sole playground for children who were looked after by their grandparents. The current study suggests that grandparents' sense of responsibility to children's parents is the reason behind their stricter control over their children's play. It also indicates that whether or not a child is left behind may not be an effective indicator for studying outdoor play. Future studies could investigate the primary caregiver of children within households where both parents stay at home in rural areas.

Due to urbanization, the present investigation found that changes in the natural and social environment of the countryside had an impact on children's outdoor play. In villages, residents experienced a degraded quality in the natural landscape affected by local industrialisation and difficulties in accessing the county public spaces due to travel distances and road dangers. There were reduced numbers of available children to play with due to migration, and importantly, restricted mobility due to caregiver control as a determining factor. In comparison, in the resettlement community, both children and caregivers complained about living in modern communities, including the inconvenience of living in apartments on higher floors or hard road pavements. Children have lost the varied spaces in which they once played, leaving them to adapt to their current monotonous environment. Caregivers growing vegetables and fruits in public spaces as part of their rural lifestyle were prohibited in the community. Caregivers' reduced activities outdoor meant less company with children when they want to play outside. For safety concerns, caregivers further confined children to stay at home under their gaze.

In resettlement communities, the influx of diverse populations from different regions

with varying bloodlines accelerated the gradual disappearance of the society of acquaintances. It was found that some carers were unwilling to actively communicate with other members of the resettlement community due to the increasing complexity of the population. Their fear of strangers resulted in limitations on children's outdoor activities, in addition to physical constraints. Yet parents had few restrictions on their outdoor activities during their childhood. Due to such changes in the physical and social environment and increased control by caregivers, children's play became restricted to the "islands of homes". It is also concerning whether caregivers' reduced socialisation influence their children's behaviour as found in the community that children were less likely to play with relatives, and did not play at all with neighbours or previous schoolmates in the villages.

The children in the present study are impacted by various social and societal transformations. Providing them with uniform, generic interventions is insufficient in addressing these changes. In traditional villages, it is recommended from the current research to provide play areas for socialising and meeting between villages that are close to homes and with easy accessibility, as well as offering opportunities along the routes. In the community, it is suggested to create spaces that facilitate rural lifestyles and promote physical and social interactions.

In China, in the process of rural development it shares identical problems as those mentioned in the context of the study. Children in the present research were experiencing the consequences of spatial and social transformations, such as the lack of access to outdoor areas, limitations on movement, a reduction in the number of playmates, increased dedication of playtime to academic tasks, and a shift in the form of play from outdoor activities to video games. Current research may provide insights for practice and landscape studies in other areas also undergoing such urbanization and population migration in rural China. However, the definitions of urban and rural are multidimensional and ambiguous, varying across cultural and policy environments (Chawla, 1994; Henderson, 2005; Sandercock, Angus & Barton, 2010). Results from the current research cannot be generalised for other urbanising places in the world without close attention to the local context.

However, it is equally vital to be mindful of the impact of urbanisation changes on other members of community. It is crucial to recognise the potential of children as active agents who could benefit the wider community (Malone, 2002, 2013). Therefore, offering opportunities for children to play outdoor could be achieved by securing their right and enabling them to take on their own responsibilities and abilities to build a community through their participation.

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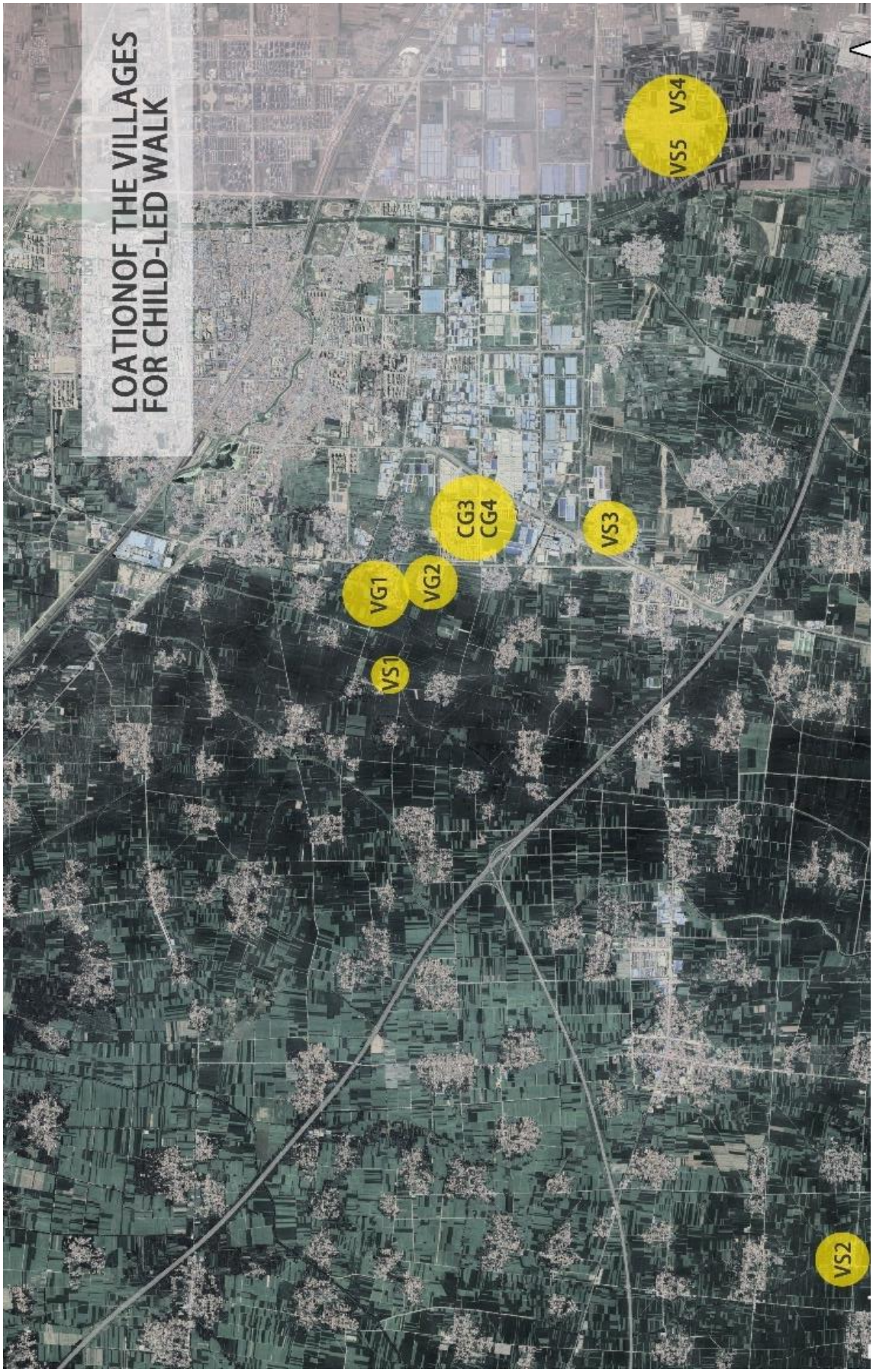
Appendix

Appendix A. Children Led-walk Routes



Appendix B. Play activities reported by caregivers and children

Reported play activities

Children's answers	Caregivers' answers
Bio play	Bio play
Catch earthworm	Play with animals
Catching fish and shrimp	Fish and tadpole Cattching
Get to know plants	
Pick persimmons and eat persimmons	
Play with birds and chilckens	
Play with cats	
Play with cattle and horses	
Play with chicken droppings	
Play with dogs	
Play with duck geese	
Play with hedgehogs	
Play with pigs	
Play with rabbits	
Play with sheep	
Play with the dragonflies	
Play with the tortoise	
Digital play	Digital play
Computer	Computer
Smartphone	Smart phones
TV	TV
ExplorativePlay	ExplorativePlay
Burn the branches	Play with rope
Firecrackers	
Fix bikes	
Play with sticks	
Expressive Play	Expressive Play
Chatting	Musical instrument
Dancing	
Drawing	
Singing	
Watch others play	
ImaginativePlay	ImaginativePlay
Go through the dog hole	
Play house	
OTher	OTher
Commercial playground	Paintball centre
Doing makeup	Traveling
Festival events	
Shopping	
PhysicalPlay	PhysicalPlay
Basketball	Ankle skip ball
Bicycle	Bicycle
Chasing	Chasing
Climb walls	Kicking
E-bike	E-bike
Fitness equipment	Fitness equipment
Play badminton	Table tennis
Play with balls	Play balls
Playfight	Play fight
Rubber band skipping	Play run
Running	Walking
Slide	Ring toss
Swimming	Roller skating
Swing	Boardskating
Trampoline	

Play in nature	Play in nature
Boating	Hiking
Breaking branches	Play with dirt
Buiding dams with stones	
Buiding with soil	
Builing hills with dirt	
Creating robots from dirt	
Cutting grass	
Digging traps	
Dirt building distruction	
Flying kites	
Hammock on trees	
Making bridges with brunches on a hole	
Making cakes from earth	
Making mud	
Play in hills-Unspecified	
Play in mud	
Play in water	
Play with earth-unspecified	
Playing in river enviroment unspecified	
Playing in woods unspecified	
Playing on collapsed trees	
Playing on haysack	
Sliding on slops	
Throwing dirt as smoke granade	
Tree climbing	
Tree-Unspecified	
Trowing rocks in water	
Play with rules	Play with rules
'Burn apple burn leg burn chicken'	Poker
'Canguan'	Hopscotch
Catching and chasing	Hide and seek
Fruit squat	Sandbag throwing Games
Hand in hand circling	Rubberband skipping
Hide-and-seek	
Hopscotch	
Invented Games-Unpsecify	
Invented rule games	
'Knight games, fight on one's back'	
'Little car'	
'Pick up the rocks'	
Playing poker games	
Rock-paper-scissors	
'Stepping on eggs'	
Three legs race	
'Touch the poles'	
Vampire	
WarGame	
Restorative play	Restorative play
Walking alone	
Watch others playing	

Appendix C. Consent forms and information sheet for pilot study

The University Of Sheffield.

Participant Information Sheet

1. Research Project Title

Growing up in rural China: The outdoor play experiences of left-behind children.

2. Invitation

You are being invited to take part in this research project. Before you decide to do so, it is important you understand why the research is being done and what it will involve. Please take time to read the following information. Ask if anything is unclear. Take time to decide whether or not you wish to take part.

3. What is the project' s purpose?

This research seeks to understand the relationship between children's outdoor play and their play spaces in rural China. To understand if there is a role for the landscape to contribute to these spaces in the rural areas for the local left-behind children's experience of play and, if so, whether and how they might contribute to the planning, design and management and related stakeholders such as the policy makers, charities, and other suppliers.

4. Why have I been chosen?

You have been chosen because we want to understand how your child play and how you think about their play outdoor.

5. Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be able to keep a copy of this information sheet and sign the consent form. You can still withdraw at any time. You do not have to give a reason.

6. What will happen to me if I take part?

For you: You will be asked to take a short interview which we estimate will take you 30 minutes.

For your child: He/she will be given a diary and GPS tracker to record their play activities. These data will be anonymous. The researcher will also observe the child' s play and hold a focus group together with other participated children. During the focus group discussion audio recording will be used.

7. What do we have to do?

For the you as caregivers, please answer the questions in the interview, express you opinions and may discuss with the researcher.

For the children, the GPS tracker will record their daily play activities. Other than that they are asked to show me where, when and how they played outdoor, their play experience or any other thing they want to say in the focus group. When they play outdoor, they may allow the researcher to ask them to lead to their liked outdoor play space and share their experiences.

8. What are the possible disadvantages and risks of taking part?

During the interviews, when talking about feelings and telling stories, it may bring back negative memories. Therefore you can refuse to answer or stop the interview if you feel uncomfortable.

9. What are the possible benefits of taking part?

Whilst there are no immediate benefits for those people participating in the project, it is hoped that this work will have a beneficial impact on how the outdoor space in the rural areas can be tailored for children by

various stakeholders such as government, NGOs and community. Parents may benefit to understand how children feel about their play and when, where and who they usually play with. It may also allow their caregivers and the need in the play such as the influence of peer or caregivers' interaction.

10. What happens if the research study stops earlier than expected?

Should the research stop earlier than planned and you are affected in any way we will tell you and explain why.

11. What if something goes wrong?

If you have any complaints about the project in the first instance you can contact the researcher. If you feel your complaint has not been handled to your satisfaction you can contact the supervisors of this research.

12. Will my taking part in this project be kept confidential?

All the information that we collect about you will be kept strictly confidential. Data collected may be shared in an anonymous form to allow reuse by the research team and other third parties. However, you will not be identifiable in any reports or publications. Any data collected about you will be stored online with a passwords protected computer.

13. Will I be recorded, and how will the recorded media be used?

I would like to audio record the interviews and focus group. This will be used to create transcripts for further analysis.

14. What will happen to the results of the research project?

Results of the research will be used in the researcher' s thesis and possibly in publications, conferences and seminars. You will not be identified in any report, publication or presentation.

15. Who is organising the research?

The research is supervised under Helen Woolley from the Landscape department of the University of Sheffield and Dr. Mark Blades from the Psychology department of the University of Sheffield.

16. Who has ethically reviewed the project?

This project has been ethically approved by the University of Sheffield' s Research Ethics Committee monitors the application and delivery of the University' s Ethics Review Procedure across the University.

17. Contacts for further information

Researcher:

Wenyun Liu, Landscape Department, Arts Tower, University of Sheffield, UK.

Tel: +44 (0)7704214486/, email: wyliu1@sheffield.ac.uk

Supervisors:

Helen Woolley, The department of Landscape, University of Sheffield, ,S10 2TN, UK

Tel: +44 (0)114 222 0608/ , email: h.woolley@sheffield.ac.uk

Dr. Mark Blades, The department of Psychology. The University of Sheffield, S10 2TP, UK

Tel: (+44) 0114 222 6549 / Email M.Blades@sheffield.ac.uk

Thank you for taking part in this research.

The University Of Sheffield.

Participant Information Sheet (child)

Invitation

You are being invited to take part in this research. We want to ask you to join in the research.

We want to know how you play outdoor and how you feel during the play. This may help us figure out whether we all together can create a better play environment. If you like, we would more than happy to welcome you join us, but if you are not interested you can refuse the invitation.

What will happen?

I will give you a watch and when you wear it we will know where you have been and understand where you like to play.

You can also lead me to the places you like to play outdoors.

Then, we will talk in group about your play, you can share your play experience and stories.

Do I have to answer all the questions?

You don' t. You can refuse to answer questions during the research. You also can withdraw the research anytime you want if you feel uncomfortable.

Our talk will be recorded but your name will not be included in any material. Our research information will be keep in a safe place and will not passed to anyone

Participant family identification Code _____

Participant Consent Form (Adult)

Title of Research Project:

Growing up in rural China : the outdoor play experience of the left-behind children

Name of the researcher: Wenyun Liu

- I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline.
- I understand that my responses will be kept strictly confidential. I give permission for members of the research team to have access to my anonymised responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research.
- I am willing to and allow my children to participate following agreed research items (explained in information sheet):

Participant (Signature)_____ _____/_____/ 2017_

(Leave blank if oral consent applys) Date dd / mm / yyyy

Researcher (Signature)_____

_____/_____/ 2017_

Date dd / mm / yyyy

Third person witness_____

(*Needed if oral consent applys*)

_____/_____/ 2017

Date dd / mm / yyyy

Copies:

Once this has been signed the participant should receive a copy of the signed and dated participant consent form and information sheet. A copy of the signed and dated consent form should be placed in the project's main record and it will be kept in a secure location.

Participant family identification Code _____

Participant Consent Form (Child)

I know what I wil be asked to do as shown below and I want to participate.

What will happen: Tick if you agreed to participate

Child-Led walks
(Lead me to where you play
Watch you play, take pictures
and may join and talk to you) ☐

Play Diary ☐

Focus group
(Group discussion) ☐

GPS Tracking
(Wearing a trackable watch
to record your activity and pattern) ☐

I allow to collect and use my information and I know they will be safe in the researcher's hand. I know my identity will not be shown. I know don't need to answer all questions and I can ask questions or quit anytime I want.
I confirm that I have understand above statements and the information sheet explaining and I would like to take part in and no one force me.

Participant (Signature)_____ _____/_____/2018
(Leave blank if oral consent applys) Date dd/ mm / yyyy

Researcher (Signature)_____ _____/_____/2018
Date dd/ mm / yyyy

Third person witness_____ _____/_____/2018
(Needed if oral consent applys) Date dd/ mm / yyyy

Copies(Same as the parent consent form)

Appendix D. Consent forms and information sheet for the main study

Participant identification Code _____

Participant Consent Form (Adult)

Research title:

Growing up in rural China: the outdoor play experience of the left-behind children

I have read and understood the project information sheet already provided. (If **NOT** please **DON'T** proceed with this consent form until you are fully aware of what your participation in the project will mean.)

Please tick the appropriate box	YES	NO
I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline.	☐	☐
I understood and agreed to participate and allow my child (children) to be involved in following agreed research activities.***(if you don't want to participate in certain item(s) you can cross out the item that you don't want to give consent for)***		
Activity 1: GPS tracking for children	☐	☐
Activity 2: Children-led walk (allows photo taken)	☐	☐
Activity 3: Focus group for children (with audio recording)	☐	☐
Activity 4: Interview for caregivers (with audio recording)	☐	☐
How my information will be used during and after the project		
I understand my personal details such as name, phone number, address etc. will not be revealed to people outside the project. My name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research.	☐	☐
I understand and agree that my words may be quoted in publications, reports, web pages, and other research outputs. I understand that I will not be named in these outputs unless I specifically request this.	☐	☐
I understand and agree that other authorised researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.	☐	☐
I understand and agree that other authorised researchers may use my data in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form.	☐	☐
I give permission for the data which may include photos, audio recordings, GPS data and researcher's note recording (only the data of the corresponding activities as agreed above).Data I provided will be stored in researcher's site apartment and digital form will be stored a passwords protected and managed in an encrypted computer. **After the field research** they will be deposited in the researcher's office in the University of Sheffield. **After the project finished**, this would be stored in the University of Sheffield's library data storage, called ORDA, with a link to the National Play Collection held at the University of Sheffield. The anonymised data will be destroyed 10 years after the completion of thesis assessment so it can be used for other researches.	☐	☐
So that the information you provide can be used legally by the researchers		
I agree to assign the copyright I hold in any materials generated as part of this project to The University of Sheffield.	☐	☐

Participant (Signature)_____ _____/_____/2018

(Leave blank if oral consent applies) Date dd/ mm /yyyy

Researcher (Signature)_____ _____/_____/2018

Date dd/ mm /yyyy

Third person witness_____ _____/_____/2018

(Needed if oral consent applies) Date dd/ mm /yyyy

Project contact details for further information:

Researcher: Wenyun Liu **Email:** wyliu1@sheffield.ac.uk Phone Number: +4407704214486

Supervisor: Helen Woolley **Email:** h.woolley@sheffield.ac.uk / Mark Blades **Email:** M.Blades@sheffield.ac.uk

Address: The University of Sheffield Sheffield S10 2TP, UK

Participant identification Code _____

Copies: 1 paper copy for you to keep and 1 copy for the research data file.

Participant Consent Form (Child)

I know what I will be asked to do as shown below and I want to participate.

What will happen?	YES	NO
Child-Led walks (Lead me to where you play Watch you play, take pictures and may join and talk to you)	☐	☐
GPS Tracking (Wearing a trackable watch to record your location and activity pattern)	☐	☐
Focus group (Group discussion)	☐	☐

- I have freely allowed to ask any questions and I know don't need to answer questions if I don't want to and I can quit anytime I want.
- I confirm that I have understood above statements and the information sheet explaining and I would like to take part in and no one forces me.
- I allow collecting and using my information and I know they will be kept safe in the researcher's site apartment and password protected and encrypted computer. I know my identity will not be shown. **After the field research** they will be deposited in the researcher's office in the University of Sheffield. **After the project finished,** the data will be stored in the University of Sheffield's library data storage, called ORDA, with a link to the National Play Collection held at the University of Sheffield. The anonymised data will be destroyed 10 years after the completion of thesis assessment so it can be used for other publications, presentations at conferences, seminars.

Participant (Signature)_____ _____/_____/2018

(Leave blank if oral consent applies) Date dd/ mm /yyyy

Researcher (Signature)_____ _____/_____/2018

Date dd/ mm /yyyy

Third person witness_____

(Needed if oral consent applies) _____/_____/2018

Date dd/ mm /yyyy

Appendix E. Interview questions for the pilot study

Pilot Interview Questions for child:

1. What games do you usually play?
2. Where do you play? Why do you like this place? Is there anything to play in the venue? What kind of place do you want to play in and what type of play?
3. What kind of play do you usually like? What kind of toys do you play with and Who (bought) made it? And do you like it?
4. Who usually play with you? Who do you want to play with? (Friends, brothers and sisters) are you happy? Are your parents living with you?
5. Do you usually have time or no time to play outside? why?
6. Will you help farm work, housework? Do you think that doing housework or farm work is playing?
7. Do you think that, you can learn or get something by outdoor playing?

Interview Questions for caregivers in pilot research

1. How old are you? How many children are you taking care of? What is the relationship between you and your kids?
2. Does your children usually go out to play, what is your attitude?
3. What games do they usually play?
4. Where do they play in general? Do you play with them? What is the place for him to play? Why did he (they) like this place?
5. What do they like to play? What kind of toys do they play with and Who (buy) made it? And do they like it?
6. Who usually play with them? Who do you want them to play with? (Friends, brothers and sisters)? Is he (she) happy? Are their parents at home?
7. Do you usually have time to play? How long? Do you allow the children play outside? why?
8. Will they help farm work, housework? Do you think that doing housework or farm work is playing?
9. Do you think that, children can learn or get something by outdoor playing?

Appendix F. Interview questions and focus groups questions for main study

Interview Questions for caregivers:

1. How old are you? How many children are you looking after? What is the relationship between you and your kids?
2. Do your children usually go out to play?
3. Where do they usually play outside?
4. When and how long do they play outside?
5. What do they do play outdoor?
6. Where do they play outdoors in general?
7. What kind of spaces do they play outdoors?
8. Why did they like to play in this place?
9. Do you play with them outdoor? And why?
10. Who else usually plays with your child/children outdoor? If peers, are their parents at home?
11. What is your attitude to children's play outside?
12. Do you allow children play outdoors? If yes, how long do you allow them play outside?
13. Will they help farm work, housework or other things (washing car)? Do you think that doing housework or farm work is playing?
14. Where or what type of places did you play outdoor when you were a child?
15. What did you play outdoor when you were a child?
16. How long did you spend on play outside when you were a child?
17. With whom did you usually play when you were a child?
18. When did you stop playing outdoor? Why?
19. Do you think children can learn through outdoor playing?

Focus group Questions for the child:
Where do you like to play (showing maps)?
1. How do you feel about playing in this place?
If so, why?
If not why?
2. What do you do in this place?
3. What do you play there?
Do you bring anything play in this place?
4. Why do you play there?
5. Whom do you usually play with?
6. Do you play with friends?
Did they enjoy themselves when they play?
Whom do they live with?
Snack break ----------
7. Do you like to play outside?
If so, why?
If not, why?
8. When do you usually play outside?
Do you want more time or less time to play outside?
9. Is there anywhere else you like to play in?
10. Why you like to play there?
11. How far are these places?
12. What's your caregivers' attitude on your play outside?
Do they support your play?
How do they support you?
Do they forbid your play?
Why they forbid you?
13. Do you help farm work or house work?
If so, how often and how long usually?
14. Do you think doing farm work or house work is playing?
If so, why?
If not why?

Quantitative Content Analysis Coding Overview [sample]

This simple form keeps me on track and reminds me what to code in when reviewing the raw data.

Dimensions	**K**(Children)/**G**(Caregivers)	Descriptions
RQ related		
SUP	-K/G	Space children usually plays in
SLP	-K/G	Space children like to play in (self-reported)
SAP	-K/G	Space children allowed to play in
PTW	-K/G	Play time (when)
PTL	-K/G	Play time (length)
PMN	-K/G	Playmate numbers
PMG	-K/G	Playmate genders
PMR	-K/G	Playmate relations
PMA	-K/G	Playmate Age
DTH	-K/G	Distance to Home
PAE	-K/G	Play activities and events
Actors		
AIP		Actors that I the play activities to be possible
AFP		Actors that Fulfill play activities
Word		
OWF	-C/G	Overall Word Frequency
WFG	-C/G	Word frequency by gender
WFCG	-C/G	Word frequency by children groups
WFA	-C/G	Word frequency by Age
WFR	-C/G	Word frequency by
WFHL	-C/G	Word frequency by Home Location

This document ends here----------

Quantitative Content Analysis - Coding Schedule [sample]

Case Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
RQ related																															
SUP-K																															
SLP-K																															
SAP-K																															
PTW-K																															
PTL-K																															
PM-K																															
PMN-K																															
DTH-K																															
PAE-K																															
SUP-G																															
SLP-G																															
SAP-G																															
PTW-G																															
PTL-G																															
PM-G																															
DTH-G																															
PAE-G																															
Actors																															
AIP																															
AFP																															
Word																															
OWF																															
WFG																															
WFCG																															
WFA																															
WFR																															
WFHL																															

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Quantitative Content Analysis - Coding Manual [sample]

Dimensions	Codes	Categories description	Dimensions Description used to create multi-response sets
Places usually plays in	Record Numbers	The extracted is recorded under this categories when participants use words such as **usually/always/often/normally/generally/just** to describe the place as the place for play. If the place is mentioned with phrase such as **usually/always/often/normally/generally** but followed with participants additional statements such as **"but they don't go out", "but they rarely play out".** The instance of place will be recorded in the sub-category of "No outdoor play"	1= Valid for this case (no matter how many instances there are within in 1 case) 0= Not valid for this case (no instances was found within in 1 case)