

Children's play environment growing up in urban residential district of China

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[Abstract] The background of this study is the great change of urban residential environment brought by the fast economy development since reform and open-up in China. This study attempts to discuss the influence on the children's playing environment by this change, and its development direction. Firstly, based on the domestic and foreign research survey and trend about children play-ground, discusses the theory about the children's play environment in residential district, and clarifies the eco-relation among children, play behavior, and residential environment. Then, through taking the Century City community in Beijing as an investigate area, and investigating the 9-12 year old children living there, clarifies the determinative influence on the children's playing environment by the change of urban residential environment, then shows the children's reflection and demand about residential environment by their drawings. Finally, concludes that the research and practice in the field of children and residential environment, is an advance direction to make the community design in China gradually move towards maturity.

[Key words] Children's play environment, Children's play behavior, Residential district

1.Introduction

1.1Study Background

Since reform and open-up in China, the fast economy development and the urbanization have caused the urban environment having been changed greatly, the influence on children of this change should not be neglected, it causes differentiation of children's environment to a certain degree: the children living in high-rise residential districts, the countryside children living in urban fringe districts, the children living in urban renewal districts, and a few farmer-labor's children have to migrated with their parents from here to there for the city construction and so on. Especially in Beijing, this kind of differentiation is more obvious. Therefore, it needs plan of children playing space at the urban level. On the other hand, Chinese urban children's main questions on physiology are the vision drops, the sleep insufficient, fatness etc.; Main questions on psychology are lacking adaptive ability and communication barrier¹⁾. The health care experts think these problems are related to the change of housing shape, and appeal it is important that children do more outdoor playing to which can enhance children's social communication and approach the nature. However, it is a pity that the level of playing space in city is not optimistic. In many big cities, with development of high level high-rise and high-density apartment, insufficiency of outdoors play-ground becomes more and more serious: according to the investigation in 2003²⁾, 52.9% children took inside of house as the most frequent playing place, half person replied "There has no recreation ground in residential district" is the reason. On the other hand, the quality of playing park for children should be improved. It has been a serious social problem that many city children in China are abandoning themselves to net game (especially the "normal violent game" in school and suicide for net game, are worried, which reflects indirectly that establishments of urban adapted for children development are insufficient. At present, some property developer's limitation of economic capacity and humanities quality and so on, it decides that few of them can

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pay attention to the development of children play-ground. However, though the designers are puzzled, calling into question, critical with the current city children play-ground design, actually they have to submit to the housing development pressure which eager for quick success and instant benefit, and make the monotonous copy for the children play-ground pattern³⁾. Because in the space design field, theory discussion and investigate research from a view of children development are insufficient. In a word, it is necessary to refer to the experience of developed countries, and colligate knowledge of multi-discipline such as architecture, environment planning, psychology and sociology, to study deeply on the children playing environment in residential district of China,

1.2 Domestic and foreign research summary and trend

The spatial research on children play space started early in Europe, America and so on, the main background is appearances of many child crime problems and psychological problems with the fast city development. At beginning of the 20th century, "the child play ground movement" started in USA; In 1945, the first risk play-ground established in London's air raid ruins, then it rapidly imposed to other countries^[1]. Since the 1960s, Japan has drawn the lesson of European and American, and carried on the play-ground construction positively, then done lots of investigations and research related to this topic. In 1979, IPA (The International Association for the Child's Right to Play) issued "Child Played Right Manifesto", explicitly proposed that current society give bad influence on children play right, and emphasized that in the process of improving residential environment, child's need should be considered firstly^[1]. After this manifesto, positive response from other countries increased gradually, the developed countries paid more attention to the children play-ground construction, for example, in England and Germany, children play-ground association were established, Japan found "Association for Children's Environment" and " Association children and street space ". Taiwan started regular research meeting about children play space planning and safety⁴⁾. At present, the research of developed countries about children's playing environment has become mature. In recent years, the hot research topic are ecology of play environment, the child participates in urban planning and so on. The research vision become wider too, and try to solve the problem between children and city, through colligating knowledge of multi -discipline.

Correlation research in China had bud in the 1950's, but only since the 1980's, good research environment began forming. Valuable researches for the playing environment in community are as follows: in 1991, architect Zhang Shouyi, through comparing the children living in high-rise apartment with the children living in one-story house, proposed that it should be paid more attention to the influence on children 's development from living in high-rise housing^[2]; In 1999, a comparative research about children play-ground in residential district in China and Japan were finished^[3], which accumulated some data about reality, it is a preliminary study in China discussing the play space related to urban planning. In 2001, urban plan researcher appealed that children play-ground should be brought into systematized pattern^[4], the research attempted to transplant the planning idea of German. In 2005, Chinese foreign student in Tokyo Yang Xiwei completed his doctoral dissertation named "A study on play space characteristic in Beijing "^[5] and published it in Japan, which mainly analyzed the relations between play behavior and play space in Beijing on physical property.

In brief, comparing with European and American Japan etc, in China, study on children's play space has weak academic base, and a multi-disciplinary exchange platform should be found, the investigation study on children's behavior in reality is still not enough.

1.3 Research purpose

Taking children's play behavior as a breakthrough, this research discusses the ecology relation between children and residential district, and expands the theoretic research for residential environment and children development in China; Meanwhile, through investigation about children's play behavior and play environment in residential district, discusses the influence on children from the change of city environment, as well as the children's own reflections and demands for city, appeals to Chinese city community designs pay more attention to viewpoint of children.

2 The theoretic research

"Playing is child's instinct", this viewpoint were already realized by Plato in B.C. Children psychologist Mary D. Sheridan's definition of play is: play is a joyful activity carried on zealously in body or spirit, in order to obtain the mood satisfying, and he pointed out that spontaneous play is an important one in four factors keeping harmonize of children development^[6]. Looking from the environment and society, play is the intercommunion tool for child individual and environment, and it is an important way to continue the social cultural vein. Play time, play partner, play space, play method are four important conditions to establish the play behavior, as well as four important factors should be discussed, when space researchers investigate play behavior and analysis the relationship between city space and children.

Anna in Canadian pointed out that child's outdoor play space outside the housing, should satisfy following three standards: easy to approach, easily to be seen, easily to be hear^[7]. This standard shows that the domain characteristic of outdoors play-ground in residential district, is convenience of environment information transmission.

Looking from the level of city development, the children's play space can be divided into "First play space": a main pattern before massive city development, refers to place where play-ground have not been planned, but actually has become play-ground naturally where children frequently to play, like rural fair, small shop, courtyard, temple in old village, (picture 1); "Second play space": main pattern during massive city development. refers to play-ground planned (picture 2); "Third play space": a pattern appears when city development become mature, refers to the space having compound function, but it is also explicitly planned to have a function of play-ground again^[8] (picture 3). Designers of our country think customarily that the play ground in community or inside of housing, is a kind of single space, representing the space resource is bald and it has limitation on satisfying children's age section. This kind of space orientation belongs to Second play space, it has not realized the potential of play-ground in residential environment. Environment architect Senda Misturu think that, for children, the play ground in or around housing can be a stage, a sport ground, a work ground, and a hiding place etc.^[9]. Therefore, the residential environment design should prepare the resource and offer the opportunity for the occurrence of children's behavior of communicating with environment.

In Africa, there has a old proverb " It takes a village to raise a child ", this "village" has dual meaning on spatial and humanities, which shows children's essential demand on external and intrinsic for the residential environment. There is eco-relation between children and city, which is

an organic circular relationship among children's spatial impression, people in environment and object^[10]. Therefore, we think residential environment just like a silkworm cocoon, where a child absorbs nutrition from environment through behavior, where child carries on self- change , then adapts to social environment finally.

3 Investigation

3.1 Summary

Through the spatial observation investigation study, we found that, the spatial resources and special attribute in high-rise residential district of Beijing have step difference by the community level^[11]. Therefore, we chose Century City community which is medium level (located in the cross area of the Northwest 4th Ring Road and YuanDa road, a residential district mixed by medium commercial housing and house for the people whose house are removed by construction, mainly composed by high-rise apartment), it is a representational example in Beijing. We investigated the 9-11 year old children living there and their parents through questionnaire and interview (number of effective questionnaires: children N=104, parents N=75). The Investigation time is from October to December in 2005.

3.2 Outline of exterior spaces of residential district

The layout of Century city community is shown in picture 4, the play space there can be divided to inside of the residential cluster and outside of it by and large. The main resources of former are lawn, equipment, slide, and basin (only has water in summer), pavilion porch, sand ground. The play resources of space outside of residential cluster are square and lawn. There are two big squares, one is a round descented square, the other is ringed square with a center sculpture. Descented square (place I in picture 4) is a main place where children spontaneously gather to play after school. Place II is a big shopping mall with indoor game center, which is a main space where children in affluent family usually go with their Parents in holiday.

3.3 Analysis of investigation result

(1) Play time: 92% Parent realize that compared to their childhoods ,the play time of modern children has reduced, and 81% Parent think this kind of reduction is a little related or very related to live in high-rise apartment. The concrete data of play frequency and opportunity are shown by table 1;

(2) Play space: From the contrasts of children and their parent (table 2), it is clear that children's play space type has changed from "the natural environment" to "the artificial environment", and the quantity of ground type has relatively reduced. In addition, 74% child reply that they are "worry about having no interesting place nearby home" .

(3) Play partner: From the contrast (table 3), it is clear that comparing with the generation of Parent, children's play partner circle has a tendency of reduce now, and the ratio of children lacking same age plays partner is increased.

(4) Play method: From table 4, it is obvious that outdoor play method which request for a certain nature resource, like hide-and-peek, swarming. The new fond play methods appear, such as playing instrument, computer game, consumptive indoor play machine, this play methods are little or no request for outdoor space.

(5) Degree of satisfaction about play ground: Table 5 shows play ground design has a certain distance to residents ' satisfaction, which should be promoted.

(6) Parent 's opinion: 74% Parent are worried about the safety of children, the main reasons are crossing bad man's path and the traffic safety.³⁹ Parents wrote their opinions about play

ground:27 pieces of opinion reflect the request for "quantity" of space and facility , 24 pieces reflect the request for "quality", the latter is mainly manifested in safety (9 pieces),the multiplicity of space resources (8 pieces),and the compatibility to children's age (7 pieces).

(7) Living height and children's development: In Europe, America and Japan, there are lots of research for influence on children's development from living in high-rise apartment, but in China, empirical research about it is scarce. This research also attempt to discuss about it with analysis of the variable quantity, but due to length limits, here just show the result as follows to discuss: ① living in high-rise(above 7th floor) enables children' play frequency to drop obviously, but looking from the comprehensive situation of play time, partner, and place, difference it is not obvious; ② In the group living over 7th floor, the boys' suppressive emotions about outdoor play are more intense than the girls, but in the group living under 7th floor, there no obvious difference. we can deduces that maybe boys are not suit for living in high floor than girls.③When we discuss the influence on Chinese children from living in high floor separately, it is not obvious, but when we discuss the influence from multi variables correlation, the influence becomes obvious.

3.4 The children's mental scenery of residential environment

Child is the barometer of city health ^[15], their impression and feedback of environment are sensitive and honest, the connection between their behavior and environment can be divided into two levels, the shallow one, the deep one. The shallow connection can be observed directly, that means we can see lots of resources which the child's behavior needs. The deep connection can not be observed directly, that means how a behavior is induced, and what kind of mental scenery is formed after the behavior, this mental scenery is a space image having a certain significance and value to children^[16]. Analyzing the children's demand for city space through mental scenery is a new research topic drawing attention in recent years.

At the end of questionnaire for children, we let children draw freely about "fond space", "dislike space" , " the change in city felt" they think of, 98 children's drawings were gathered (such as picture 5).From these drawings, we can see the decisive influence on children's lives from big change of city environment too, we can understand children's demands for environment in city now.

4 Conclusions

Raising a child is the most essential and important activity for human's subsistence and multiply. Walt Whitman's poem saying " the child who went forth every day, and the first object he looked upon, that object he became" ,children are changing with the change of city, we should know their change, then make progress on our urban plan. Through this studying on theory and investigation, we also realizes deeply that, children are the future of city, to community designers and researchers in China, a wide research field of vision about children's play environment should be formed, and it is important to do effective practice it in community design, this is a progress direction of city community design in China to become mature.

Annotate:

- 1) From China population net http://www.chinapop.gov.cn/rkx/ztd/t20050617_23367.htm and China net : <http://russian.china.org.cn/chinese/zhuanqi/2004fnfz/660804.htm> (The research report of children psychology development situation of Beijing)
- 2) From <http://society.people.com.cn/GB/41158/3148283.html> (The research for children and juvenile' s living habit in Chinese cities: from Dem. 2003 they investigated 2617 children of 8-13 years old and 2573 parents or other fathers, in ChangChun, Shanhai, Guangzhou, Lanzhou, Chengdu.
- 3) From abbs.com.cn -2003-Landscape and environment forum →Theory and history → Children play environment (Elite part) .
- 4) From children' s play and safety resource net <http://playground.archi.com.tw/index.htm>

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Table 1-1. How often play outdoor every week?

	1-2 times	3-4 times	5-6 times	every day
People	57	32	5	8
Ratio	56%	31%	5%	8%

Table 1-2. How long to play outdoor every time?

Approximately time	30 minutes	An hour	2 hours	3 hours
People	37	45	12	12
Ration	34%	42%	11%	11%

Table 1-3 When play in housing estate usually?

Occasion	Weekend and festival	After schoolwork	Date play together with fellows	others	when there are many children playing outdoor	leave school
People	60	33	20	4	4	3
Ration	49%	27%	16%	3%	3%	2%

Table 2. The comparison of Children and parents' fun playground

Term *	Children number	Term *	Parent number
The place with play instrument	31	An open space	45
Public plaza	28	Fellow's home	30
Fellow's home	26	Courtyard of own home	26
Pool	25	School	26
Place with lots of flowers and trees	21	Bystreet	19
Lawn	13	Street	15
An open space	11	Farmland	14
Others	7	Pond and lake	14
Street	6	Lawn	11
None	6	Mountain	10
		Temple	5
		Park	5
		Others	3
		Temple	5

* We provided for some answers collected from preliminary investigation, but free writing was encouraged too.

Table 3. The comparison of Children and parents' play partner circle

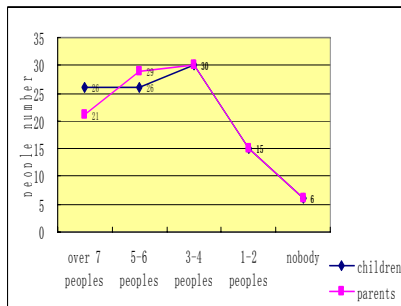
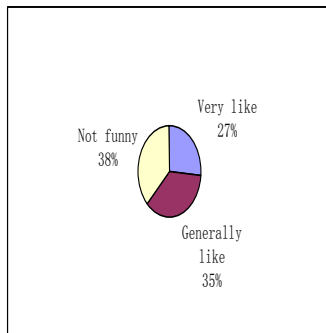


Table 5 The degree of satisfaction about play ground

a) Do you like the playground?
 (question for children)



b) Are you satisfied with the play ground?
 (question for parents)

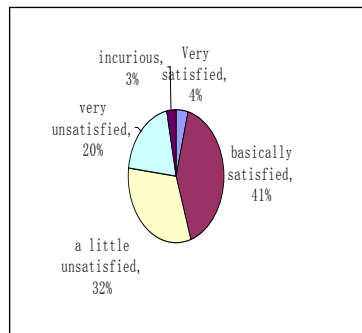


Table 4. The comparison of Children and parents' fun play method

Term	Children number	term	Children number
Ride on bicycle	44	Rope skipping	51
Ball game	37	Riding on a swing	42
Play instrument in the housing estate	27	Kicking shuttlecock	41
Talk with fellow	24	Jumping grid	40
Toys	22	Chuck sand bags	39
Catch people	18	Catch people	38
Play with pets	16	Play home	30
Hide-and-seek	14	Stay with fellow	29
Play in game center of shopping mall	11	Ride on bicycle	23
Others	11	Swarm	21
Ride on a swing	9	Rolling hoop	19
Computer game or internet game	8	Ping pong	18
catch fish in the pool	6	Flying kites	14
Roller skating.	5	Cricket (Qu qu)	9
Play house	2	Others	9



a) 云南明清民居中的集市 b) 桂北民居中的小摊铺 c) 湘西民居的送客亭

图1 传统村落中的各游戏场所

Fig.1 Children playing ground in nearby of traditional community

图片来源: 依次来自参考文献[12]、[13]、[14]



概况(Outline):
 占地面积(Total Area): 1.8km²
 建筑面积(Total Floor Space): 3.7 km²
 居住户数(Number of Households): 170000 户
 入住时间(Time start living): 一、二期(First and second moment)-2002 年, 三期(Third moment)-2004 年



图4 北京世纪城居住区空间概况图

Fig 4 The general situation of Century City community in Beijing



图2 北京新科祥园小区游戏场

Fig 2 Play ground of XinKeXianYuan Community



图3 日本千叶县海滨幕张居住区附近的游戏空间

Fig.3 Playing space nearby Makuhari Seaside New Town in Tiba province of Japan



a 喜欢的地方 fond place



c 理想的游戏场 dreamy play-ground



b 讨厌的地方 unlike place



d 正在变化的城市环境

Changing City environment

图5 儿童对居住环境的印象图

Fig 5 Children's image drawing about residential environment