Sustainability in High Dense River Bank Kampung: the Playground as the Responsive Space Utilization

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Abstract. The growing mass migration descending upon Jakarta forced the urban lower class inhabitants to live in the dense settlement called kampungs. How the urban kampung inhabitants survive living in such densely populated place implied the hardship and their negotiation to cope with crowding. Our previous study had revealed how overcrowded houses in kampung are used and adapted as the places to live. This study attempted to explore the negotiation with crowding using the variables of the outdoor space within the context of the spatial arrangement of the whole kampung. The aim is to find out the relationship between the informal spaces’ physical characteristics and its potency to be occupied to form a playing space. We focused on how the children and teenagers utilize the available public place as a playground in high dense kampung of Bidara Cina Jakarta. We found that children and teenagers shaped the informal playing spaces at the Ciliwung riverbanks, alleys, and roads as the form of responsive space utilization. We also found that the normalization of the banks of the Ciliwung River was positively associated with a potential expansion of the playing space and playground.

Keywords: Occupancy, Playing, Suburban Settlement, Riverbank

1. Introduction
Playing is one of the most important activities experienced by humans, especially children and adolescents. It is viewed as a mean of social interaction and self-actualization at the early stages of one’s psychosocial development [1]. In big cities, especially in Indonesia, the government already provided playing spaces as its public facilities such as Ruang Terbuka Hijau: playgrounds, city forests, and Ruang Terbuka Non-Hijau: jogging tracks, courtyards, and many others. However, some citizens, mainly marginal people, still use public spaces as a playground such as streets, alleys, side of the road and riverbanks due to poor accessibility, social or economic factors [2]. Marginal people tend to live on the edge of the city, where the population immensely grows and is not being balanced by the availability of space. They cannot afford to access those formal playing spaces located in the center of the city. This issue causes those people, especially adolescents, adapt to utilize their environment in the context of playing.
Kelurahan Bidara Cina, Jakarta is located near Ciliwung River. This river provides unique playing context for adolescents. In 2013, Jakarta’s government started the river normalization program to clean the riverbanks from illegal settlements and leaving empty spaces along Ciliwung River. As there is limited vacant land designated for playing, adolescents of Kelurahan Bidara Cina made use Ciliwung’s Riverbank as their playing space. They purposefully created unique habits on utilizing spaces in the populated neighborhood for their casual playground.

2. Literature Review

2.1 Playing Factors

Playing space should be able to bring challenges to be explored unlimitedly. This potency is attracting people, especially adolescents. In term of human’s lifecycle, they are naturally at their peak of curiosity in the process of transforming from children to adults. They need to learn a lot about many things by trying and experiencing. However, not all teenagers have the same privilege due to their different personal and social conditions. Previous study had revealed how overcrowded houses in kampung are used and adapted as the places to live [3]. Three factors affecting one’s preference of playing activity are physical, individual, and social [2].

In the context of playing, one will consider the physical aspect of the place, such as the accessibility, the instrument’s quality, and the natural element [4]. Those factors will strengthen the affordance level that encourages the urge of playing. People tend to play in a place with a high level of affordance and safety. The places of playing differently exist in the context of rural, suburban and urban. In rural and suburban area, adolescents tend to play in the natural surrounding such as trees and open field. In an informal urban settlement area such as kampung, it is very hard for children and teenagers to find such condition. Therefore, they are using city facilities such as public places or even any residual spaces to afford their need for playing.

Individual factors such as gender, age, and personal needs also affect one’s preferences for playing activities. For example, parents tend to allow boys or older ones to play outside rather than girls or younger ones [4]. It generates the stereotype which says such boys or older kids tend to be trusted by their parents even without considering their kids objectively and resulting either one’s preference of playing under their parents’ supervision that could make them feel safe or going as far as possible from their parents to gain freedom [4].

Social factors such as low-income family, the presence of friends or enemies also become a consideration. Adolescents from low-income family tend to play near their home because of the high cost and difficult access to the playing space [5]. Playing space consists of territorial range, pathway, and place [6] begun with the identification of territorial range as the scope of playing spaces. Adolescents start to expand their playing environment from their houses. This expansion occurs because of the existence of the pathway which link those places resulting in the occupancy behavior as a claim to
organize social interaction by transforming, manipulating, and modifying the surrounding.

There are three main destinations where adolescents spend their time daily: home, school, and recreational places [7]. It is due to daily activities pattern that made adolescents should go to school every morning until afternoon and usually fill up their spare time after school by doing recreational activities such as playing or doing sports. This habit created a sequential route and familiarities between places. This kind of familiarities also contributes to constructing the idea of playing spaces [8]. Some people tend to do playing activities at places where they feel familiar and safe.

2.2 Occupancy
Occupancy is a form of action to claim and defend a territory using various signs indicated to the occupants. In the playing context, occupying is a process of the spatial claim as a place for doing playing activities that could include manipulating, transforming, and modifying the environment. There are requirements for some condition that identified as occupancy. They are a range of control, occupant, and territorial sign [9]. Range of control is indicated by signs placed by occupants. As an example, in the playground, kids will defend their territory by placing their belonging in a particular area as a border or sign to make the others aware that the area is currently used or claimed. In the book Environment and culture, Altman, Rapoport, and Wohlwill mentioned that there are four kinds of occupancy: personal, community, social, and free [9]. A personal occupancy is a form of occupancy done by a group of people with a strong bond or family traits, such as house cluster owned by a family, hotel room, or family's villa. The family members usually use their specific items as a sign of territory, for example, self-portrait, favorite bags, or even perfume. Community occupancy is a form of occupancy done by a group of people under some institutions or specific group at certain spaces, such as school, church, or community office. Students who are playing in the schoolyard are considered doing community occupancy as they are claiming school territory under their rights as a member of the school community. A social occupancy is a form of occupancy done by the public in certain public places, such as hospital waiting room, city forest, jogging area, and others. They are usually using common understanding as a rule, such as not littering, smoking, or doing things that disturb others since that is a public space accessible for anyone. The last form of occupancy is free occupancy. This type of occupancy usually occurs in nobody place and does not have rule sets such as unspoiled beach, mountain and empty land. This kind of “mystery” often leads people to explore things.

3. Method
In this study, we examined the relevant theories on adolescences and playing before conducted a detail observation in Ciliwung’s Riverbank and other informal spaces that are used by adolescents for playing. We took Kelurahan Bidara Cina, a high dense kampung located at the bank of Ciliwung River. We documented the condition of playing spaces and interviewing some of the adolescents to identify the physical factors of space and to understand the correlation of our observation on the behavior of the adolescents towards their playing places.

4. Discussions

4.1 Playing Activities in Kelurahan Bidara Cina
Kelurahan Bidara Cina has three layers of the pathway: large, medium, and small according to the width of the street. Large pathways are streets that are wide enough to be accessed by cars. This type of pathway found on the edge of Kelurahan Bidara Cina that is utilized by the inhabitants as the border for entrance and exit. Medium pathways are streets that are wide enough to be accessed by motorcycles and usually located in the residential. They locate near public spaces such as mosque and school. Small pathways are streets that only possible to access by walking. This kind of pathway usually located deep inside the denseness of the living area.
Figure 2 shows how pathways are connecting all possible places that are used by adolescents for playing. Starting from small pathways adjacent to their houses, they are moving forward to the wide streets, to the riverbank, or vice versa. Due to the limitation of land availability of formal playing spaces in their neighborhood, those places are the possible areas for teenagers to play.

Figure 3 is an axonometric view of places and pathways where adolescents are playing in different places in Kelurahan Bidara Cina. The different condition of each place has created differences in playing activities. These pathways are connecting various places that stimulated the playing activities to occur around the area of the houses, schools and the river.
Figure 4. Illustration (a) School yard SDN 03 Bidara Cina (b) Sensus street (Source: author, 2019)

Figure (4) shows that adolescents usually played soccer at the schoolyard. The spacious space of the yard fulfills the certain rules of soccer game; such as space should be large enough for ten persons to play and meet the minimum width standard and the position of goal post. In Sensus Alley, there was nobody playing soccer. Instead, they were playing toys, hit and run, and some traditional games. They tried to fit the character of its linear layout with appropriate games. Some parents prohibited their children from playing far from home. It resulted many kids choose to play in the alleys or the third layer of the street.

Table 1. Interview on adolescents’ playing activities preferences

| Name | Gender | Age | Favorite Playing Space | Reasons | Type of Playing Activities | Avoid Control Parents | Distance from Home |
|------|--------|-----|------------------------|---------|----------------------------|------------------------|--------------------|
| Alam | M      | 9   | Riverbank’s yard       | The weather is breezy | Soccer                    | Yes                    | Near               |
| Abi  | M      | 9   | Ciliwung Street        | Lot of friends       | Soccer                    | Yes                    | Near               |
| Putra| M      | 9   | Riverbank’s yard       | The softness of      | Soccer                    | No                     | Far                |
In addition to our exploration of the places of playing, we conducted the interviews to 9 (nine) adolescents from various ages between 9-15 years old. We tried to identify their preferences by marking the least answer, as shown in Table 1. For example, in the category of 9 years old, Abi and Alam like to play in Ciliwung Street and Ciliwung riverbank. Since it is located at the furthest place from their houses, they needed some effort to reach the place. When asking about the reason to choose the place, they expressed the different reasons. Abi liked the place because he enjoyed meeting many friends, while Alam enjoyed the comforting weather. Both Abi and Alam have the same possibility and opportunity to play in the area near their house. However, since they are frequently sought by their parents, they preferred to play far from their houses. It is interesting to find that the place of playing similar to the place of avoiding their parent’s control. On the other hand, Aska from the category of 14 years old liked to play in the Riverbank’s open space because he was getting used to it. He found that the place was very familiar, and he felt a sense of comfort to play there. Like Abi and Alam, Aska’s preference is also supported by the fact that his parents did not frequently seek him there. He said he loved to play far away from his house.

Table 1 indicated that most adolescents like to play around the riverbank in large pathways, and far from their houses. They were trying to find places for playing that was either outside of their parents' supervision or provided such environment that fulfilled their needs of playing. Riverbank had unique physical characteristics that can be playfully explored. The riverbank provided the needs of playing spaces for those adolescents.

4.1.1 Riverbank Occupancy. Adolescents in Kelurahan Bidara Cina uses space in the Ciliwung riverbank as a place for playing such as bird racing, fish hunting, and sightseeing. We found the tendency that adolescents transformed the unused space at the Ciliwung riverbank as a way to claim their territory. The first was the place to park their motorbikes and the second was the place for pets.
The teenagers had seen the residual open space as the side product of river normalization program as a potency. It answered the problem of the limited space and the absence of place for playing in their neighborhood.

Figure 5. Illustration of riverbank occupation (Source: author, 2019)

Figure 5 shows how adolescents used Riverbank as a place to put their pets and motorcycle. The riverbank and the closest house are only separated by one street with only 7 (seven) meters width. The perception of proximity created a sense of safety. It also encouraged the adolescent to associate the riverbank as a part of their territory. As a result, it produces the habit of adolescent to play in the area near the river.

Figure 6. Illustration of riverbank modification (Source: author, 2019)
Figure 6 shows that the habit of playing near the river made the adolescent started to associate the Riverbank as their playing space. They started to put the territorial signs such as mattress and wooden cantilever to hold more bird cages. They attached them to the riverbank. Furthermore, they also utilized another place as a space for playing such as a schoolyard, street, alley, and the courtyard naturally formed along the river. Every place had its own uniqueness that was different from the other places. For example, the Ciliwung riverbank had direct access to the water that enabled the adolescent to enjoy swimming or hunting some fish. The schoolyard with the configuration of the spacious square layout enabled the teenagers to enjoy many activities in multidirectional ways that the narrow alleys cannot accommodate. On the other hand, as the narrow alley was located near the houses, it was considered as a familiar place and the safest place to play since the parents could let their children play under their control. Those were the examples of how different factors give different impact and consideration.

![Figure 6. Illustration of playing activities at the riverbank (Source: author, 2019)](image)

Figure 7 shows that riverbank offered many natural elements such as bushes, puddle, flowing water, trees, and grass to amplify the potency of affordance for adolescents to explore ways of playing. The adolescents preferred to play near the water of Ciliwung River to hunt fish or swim. In the middle of the yard, we observed people were playing soccer by using the trees or the stone as the goal posts. It was an example of affordance using the natural element to generate playing activities. At the edge of the street, we encountered teenagers who prefer to enjoy sightseeing or to watch their friends play. The differences in the physical element of the Ciliwung riverbank created different kinds of activities. For example, adolescents enjoyed sightseeing and watch their friends playing because the position level where they stand was higher than their friends. Some teenagers were unable to play soccer because the open field had a particular configuration of trees and sizes. The other could do fish hunting. These are affordances that were provided by physical characteristics of a riverbank impossible to appear in other playing spaces in the formal neighborhood.

5. Conclusion
The lack of designated place for playing encouraged some of the people, especially adolescents of marginal people, utilized unoccupied space as a playground. They identified the potency of space as an affordable place for playing. They generated a different kind of playing in different places that are connected through pathways in their highly dense neighborhood. All places had their own uniqueness. In deciding the place to play, teenagers considered their individual and social factors. The four factors namely personal, community, social, and freedom are combined to form some spatial preferences. This kind of preferences was unique and different for every person, even though they generally come from the same background.

Riverbank provided various kinds of natural elements that cannot be founded in another place. Its characteristics were used to amplify the affordance potential that could encourage someone to enjoy explorations of playing activities that cannot be founded in other places. They were using natural elements to identify the territorial sign and the range of occupancy as a claim of their territories in the riverbank area. Riverbank is considered as the buffer, and unused zone which could be altered to
accommodate certain kind of activities depending on the ability of how the people identify the potency and the affordance level of the place. This kind of phenomenon could change the perception of human place.

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References
[1] Erikson E H 1994 Identity: Youth and crisis. Number 7
[2] Aziz N F and Said I 2012 The Trends and Influential Factors of Children’s Use of Outdoor Environments: A Review Procedia - Soc. Behav. Sci. 38 204–12 [crossref]
[3] Ellisa E 2016 COPING WITH CROWDING IN HIGH-DENSITY KAMPUNG HOUSING OF JAKARTA Int. J. Archit. Res. ArchNet-IJAR 10 195 [crossref]
[4] Yatiman N A and Said I 2011 A review on children’s favorite place in the context of rural, suburban and urban environments 12th International Seminar on Environment and Architecture, Malang, Indonesia
[5] Veitch J, Bagley S, Ball K and Salmon J 2006 Where do children usually play? A qualitative study of parents’ perceptions of influences on children’s active free-play Health Place 12 383–93 [crossref]
[6] Moore R and Young D 1978 Childhood Outdoors: Toward a Social Ecology of the Landscape Childhood and the Environment (Springer {US}) pp 83–130 [crossref]
[7] Rasmussen K 2004 Places for Children – Children’s Places Childhood 11 155–73 [crossref]
[8] Castonguay G and Jutras S 2010 Children’s use of the outdoor environment in a low-income Montreal neighborhood Child. Youth Environ. 20 200–30
[9] Altman I, Rapoport A and Wohlwill J F 1980 Environment and culture (Springer)