The Characteristics of User, Activities and Spaces of Playground for Children in Kampong Ngemplak Simongan Semarang

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Abstract. Children are identical to playing in the context of cognitive development. Children can do physical activities, interact socially and connect with nature. One of them is when it is located in a village. The condition of a dense and narrow village makes it difficult for children to play. Kampung Ngemplak Simongan Semarang has been design as a child-friendly thematic village in the direction of the Semarang Child-Friendly City. However, the existing playground is still difficult to reach and has not been able to accommodate children. So, there needs to be a process of identifying characteristics that the design of the playground is in accordance with the user needed. Therefore, a research question appears "What are the characteristics of users, activities and spaces for children in Kampong Ngemplak Simongan?". The aim of this research is to identify the characteristics of users, activities and playground space for children in realizing the accessible design and meet their needs. The research used a quantitative method. The output of this research is to formulate the characteristics of users, activities and spaces of playgrounds for children in the village which all of them are male teenagers who are more likely to engage in physical activity.

Keywords: user, activities, spaces, playground, children

1. Introduction
Public space should be able to support the activities of users ranging from interaction, gathering and socializing and not restricted in its use [1–3]. One of them is children's activities [4], starting from physical activities also non-physical activities such as connections with nature and social interactions [5]. Children's playroom is identical to an arena or space that is equipped with facilities for children's play. The environment around settlements is an example of a place that is often used by children to play [6]. In the context of the urban village, this play space is identical to some unused or unused space such as a plot of land on a street corner or vacant lots and untapped open space [7].

In fact, in crowded urban villages or villages, children's play spaces are very difficult to realize so the tendency is for children to play in makeshift spaces such as on the streets and sidewalks [8]. For safety reason, these spaces are not very safe for children to play. This certainly has an impact on children's opportunities to gain experience and learning about life and make decisions very low especially in spaces outside the home [9]. This has reduced the opportunity to increase physical activity among the wider population including children. Though playing has a positive value in the growth and development of children's health through physical activities [10]. In addition, because of
the high density also causes children rarely enjoy the outside environment, although a lot the benefits that can be given for playing and learning in this context. In fact, children love to play using natural elements [11]. Playing is also useful in the cultivation of children's social interactions. Children can mingle with peers or in the development of children's decision making. This social interaction is created by having an open and spacious playroom so as to enable children to interact and mingle [12].

In Indonesia, an award has been issued regarding child-friendly cities/districts in accordance with the mandate of the Minister of Women's Empowerment and Child Protection Number 12 of 2011 concerning indicators of districts or cities that are child-friendly. The Semarang City Government has ideas through the Great Gate in poverty alleviation through the development of thematic villages. Thematic village in the context of child-friendly cities is realized with the development of Child Friendly Villages. One of them is Ngemplak Simongan Village in West Semarang sub-district which was promoted in 2018. However, various problems still arise in its realization, namely in the provision of children's play spaces in the form of public spaces due to limited land and narrow roads. Therefore, the research question arises "What are the characteristics of users, activities and spaces in the Ngemplak Simongan Children's Friendly Garden?"

2. Children's Activity in Urban Public Space

Activities of children in public spaces have several characteristics [13]. Therefore, in carrying out their activities they need a container and time to play[14]. This is related to the development of children where children need the experience that can be obtained through play activities, especially those done outside the room such as in public spaces. The experience gained by children is closely related to the interaction it has with the surroundings. Children who play outdoors will learn how he builds his identity and surroundings, builds his emotions through interactions with others, builds friendships and builds relationships with the communities around him [5,14].

Play is a right for children contained in the UN Convention on the Rights of the Child [15], where the play activity offers certain benefits for children's development. These benefits are obtained through activities carried out namely through social interaction activities, physical activities and activities related to nature [14].

Physical activity is needed by children to support the sustainability of children's physical and mental health. Physical activity supports active movement in children so that children can maintain a healthy body [16]. Usually children who are actively playing in the playroom are of growing age or are in the category of children who are already in school (teenagers) [17]. They also usually play in groups and actively move from one place to another [18]. In children, especially those aged five years and older, smoother muscle movements increase. Thus, a higher skill level causes them to play games that require greater control over limbs [14,18].

Social interaction is one of the activities in the playroom which gives a good advantage on the development of children's social abilities [12]. Because without actually interacting, humans will never know how to build relationships with others [13,14]. Therefore, introducing children to activities in the public playroom will be able to introduce them to the environment and new people who will build their ability to interact socially [14].

Activities related to nature teach the child how he feels related to the surrounding environment [14]. Children will learn about the comfort and beauty provided by nature. By playing with small animals such as insects, or by enjoying the trees and wind to help children appreciate the importance of the environment for their lives [14]. Indirectly, this will also help maintain the child's mental condition because of the calm and comfort provided by nature for him. In addition, interactions with nature created by children will make these children think critically by exploring something they might not have known that directly enhances children's cognitive [19].

3. Children's Playground Environment

Childhood, according to [17] is a human who has an age range between 0 to 13 years for girls and up to 14 years for boys. Childhood is then divided into several stages, and each stage has different
development targets [9]. In this time span it is a group age, a play age, and a creative age that can be sharpened by providing appropriate play spaces. A playroom suitable for children can be seen in Figure 1 that they like to explore new knowledge in that space.

![Playroom Examples](image)

(a) (b) (c) (d)

Information:

a) Animal habitat as an example of a child-friendly environment in a sustainable way
b) Children's adventure in playing on adventure play space
c) Ancient dwellings become play features such as museum outdoor
d) The rocky coastline gives children unlimited possibilities to feel space and light geologically

**Figure 1. Forms of Children's Playroom Design (Source: [14])**

The location of the children's playroom development must be based on the ease of accessibility in reaching that location. The requirements for developing a child's playroom environment can be seen in Table 1. However, it is highly avoided that locations that have too high accessibility such as being on a collector road with high vehicle density to congestion due to lack of safety factors [13,20].

| Description | Stages |
|-------------|--------|
| Understanding the space | Identify locations that might be developed as children's play spaces, then understand what the catalysts of the chosen place are and find information to design by involving children. Spaces that can be developed for children's playgrounds are: Playgrounds at school, can be developed for extra-curricular activities for children. 
  - A piece of vacant land overgrown with grass can be developed into a hazard-free space without compromising its adventurous function for children. 
  - Green fields, which are monotonous but broad expanses of grass without any shelter, so they require planting protection and providing focal points. 
  - Temporary huts are boring, then designed to be attractive and safe, 
  - Tread in the form of land, which can be converted into an adventure playground. 
  - Areas that can create play spaces that are more stimulating physical activity, inclusive and flexible for children. 
  - Spaces that can be developed for children's playgrounds are: 
    - Playgrounds at school can be developed for extra-curricular activities for children. 
    - A piece of vacant land overgrown with grass can be developed into a hazard-free space without compromising its adventurous function for children. |
### Description

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| Tread in the form of land, which can be converted into an adventure playground. |  |
| Areas that can create play spaces that are more stimulating physical activity, inclusive and flexible for children. |  |
| Small spaces on a local scale, can be connected with each other so that encourages children to explore these spaces with play experience. |  |
| Children's playroom characters are: |  |
| Season and weather |  |
| Physical features |  |
| Lighting |  |
| Culture and history |  |
| Children as objects |  |
| Settings |  |

Source: [14]

The safety factor is the most important factor in determining the right environment to be developed as a children's playroom. According to [14] with the characteristics of children it is more appropriate to create indoor children's play spaces in buildings to reduce the risk of harm that can be received from outside. Children's playroom must be a place that can stimulate sensory and motor children that can be a children's playroom design that can arouse children's imagination and fantasy [14]. In other word, it can also be in the form of additional facilities and children's play equipment that stimulate the sensory and motoric children, which can facilitate the physical activity of children to run, jump, and try new things.

### Methodology

The research method used is quantitative methods. Quantitative method was used because the method is in accordance with its characteristics which are a method that establishes causal relations. The quantitative method in this study was used to identify and map the typology of user characters, characteristics of user activities and the selection of alternative locations for children's play space in Ngemplak Simongan Village. The technique used is descriptive quantitative by observing the tendency of users and the existing space so that the use of these trends can be seen. The sampling technique used is accidental sampling. The sampling used has an age group classification of 0-14 years where 0-5 years is a toddler and over 5 years to 14 years are teenagers. Data was collected using observation techniques to determine the condition of the playroom itself and open questionnaires to determine the tendency of activities and users in the Ngemplak Simongan playroom.

### Discussion

#### 5.1 Ngemplak Kampong Simongan as A Child Friendly Village In Semarang

The Child Friendly Thematic Village is located at RW 01 Ngemplak Simongan Village. One form of the manifestation of the Great Gate program with the aim of poverty alleviation through Child-Friendly Thematic Villages is the construction of a Child-Friendly Thematic Park in 2018 located in RT 05 / RW 01. Previously, the community proposed Taman RT 03 as a child-friendly thematic park plan, however, with consideration of land ownership, a child-friendly thematic park was realized in RT 05 Park. The location of RT 05 and RT 03 Park is approximately 200 m as shown in Figure 2.
In addition, after the park program has been running for about 6 months, there are significant differences starting from the condition and the use itself. In Figure 3 you can see the difference before and after the program is implemented. In addition, there is a residual space next to the park because it is blocked by the garden fence and the back wall of the people's homes. Thus, this has become one of the negative impacts which according to local residents is detrimental.

5.2 User Characteristics of Children in Ngemplak Simongan village

Users of Child Friendly Parks in Ngemplak Simongan are depicted in Figure 4. The results of field observations illustrate that most even all child friendly playroom users of Ngemplak Simongan are male, amounting to 100% of respondents as seen on Table 2.

| Age (Male) | Total | Percentage |
|-----------|-------|------------|
| 5         | 1     | 4%         |
| 8         | 3     | 11%        |
| 9         | 2     | 7%         |
| 10        | 3     | 11%        |
| 11        | 4     | 15%        |
| 12        | 5     | 19%        |
| 13        | 8     | 30%        |
| 14        | 1     | 4%         |

Table 2. Users by Age In Child-Friendly Playground Ngemplak Simongan
In addition, other trends illustrate that the user is included in the category of adolescents between the ages of 5-14 years and is dominated by the age of 13 years by more than 35% of respondents because there is no activity at all toddlers in the room. That is because the distance between the playroom and the RT that has a large number of children under five is RT 3 far enough.

5.3 Characteristics of children's activities in the Ngemplak Simongan village

5.3.1 Physical Activity

**Table 3.** Number and Percentage of Physical Activity of Children in Ngemplak Simongan Village

| Physical Activity     | Amount | Percentage |
|-----------------------|--------|------------|
| Run                   | 50     | 100%       |
| Playing soccer        | 35     | 70%        |
| Jump Around           | 36     | 72%        |
| Playing With Sand     | 2      | 4%         |

**Figure 5.** Physical activity of children in Ngemplak Simongan Village

Based on field findings, it is known that of the 50 child respondents in Ngemplak Simongan (RW 1) Child Friendly Village, there are variations in physical activities carried out namely running, playing football, jumping around and playing sand. Where running activities can be seen in Figure 5 is an activity that is recognized to be carried out by all respondents and all respondents are boys. Then, it is followed by jumping activities with 36 respondents and 35 children playing soccer. So that the tendency of physical activity carried out in child-friendly parks is physical activity in the form of sports, namely soccer.

5.3.2 Activities with Nature

**Table 4.** Number and Percentage of Activities Playing with Children Nature in Ngemplak Simongan Village

| Activity with Nature       | Amount | Percentage |
|-----------------------------|--------|------------|
| Hear wind blows             | 50     | 100%       |
| Seeing flying birds         | 31     | 62%        |
| Lay see the sky at dusk     | 14     | 28%        |
| Lying see the stars         | 24     | 48%        |
| Play musical instruments    | 10     | 20%        |

**Figure 6.** Interaction Activities with children’s Nature in Ngemplak Simongan Village

Based on field findings. It is known that of the 50 child respondents in Ngemplak Simongan Child Friendly Village (RW 1) there are variations in playing activities with nature that are performed when seen in Table 3 and Figure 6, namely playing musical instruments, lying looking at the stars, lying see the twilight sky, see a bird fly and hear the breeze. The activity of hearing the wind is an activity that is recognized by all respondents. Then followed by the activity of seeing birds flying with the number of respondents as many as 31 children and the activity of looking at stars as many as 24 children.
5.3.3 Social Interaction Activities

Table 5. Number and Percentage of Children's Social Interaction Activities in Ngemplak Simongan Village

| Social Interaction Activities | Amount | Percentage |
|-------------------------------|--------|------------|
| Chat                          | 50     | 100%       |
| Discussion                    | 33     | 66%        |
| Relax                         | 35     | 70%        |
| Say Hello each other          | 50     | 100%       |
| Learn Together                | 5      | 10%        |

Based on the results of the field meeting, it is known that of the 50 child respondents in the Ngemplak Simongan Child Friendly Village (RW 1) there are variations in social interaction activities that are carried out if seen in Table 4 and Figure 7 namely chatting, discussion, relaxing, learning together and mutual greet. The activity of chatting and greeting each other is an activity that is recognized to be carried out by all respondents. Then, it is followed by leisure activities with the number of respondents as many as 35 children and discussion activities as many as 33 children.

5.3.4 Description of Existing Children's Activities in Playgrounds. In Figure 8, it can be seen the activities of children in the playroom both in the Child Friendly Park and in the RT playroom 3. Activities in the Child Friendly Park are dominated by teenage sports games that time at night. The RT 3 room is dominated by toddlers with activities such as running and playing with sand and other natural facilities.

Figure 7. Children's Social Interaction Activities in Ngemplak Simongan Village

Figure 8. Children Play Activities in Child Friendly Parks (a) and RT 3 (b) Ngemplak Simongan
5.4 Characteristics of Children's Playroom in Ngemplak Simongan Village

5.4.1 Current Playroom Condition

The condition of the footprint of a child-friendly village park in Ngeplak Simongan can be seen in Figure 9 and in detail is explained in each room in Table 6. The condition is divided into several areas including the entrance; the field, sitting chairs, game facilities, and the camping post facing back to the field.

Table 6. Playroom Conditions in Ngemplak Simongan Children's Friendly Garden

| No | Design Element | Descriptions |
|----|----------------|--------------|
| 1  | Entrance       | The condition of the entrance itself is made of permanent doors using iron railings and walls. However, for the iron fence itself was damaged so that the fence is missing one. |
| 2  | Field          | Volleyball conditions are also illustrated as volleyball fields in general. However, from the results of observations and interviews, the users are all teenagers. So teenagers often use this field from evening to night. The lighting in this field is very lacking because it only gets light from street lights at night. In addition, there are no other sports facilities such as what respondents want, namely playing soccer facilities such as goalposts and nets beside them. |
| 3  | Bench          | The seated chairs themselves are arranged on the sides of the field and there are about 4 long chairs made permanently using cement. In addition to the seat there is a trash bin but it is not maintained. |
| 4  | Game and sports facilities | The condition of the game facilities in this park is quite attentive. Because many children's play facilities have been damaged, such as seesaw and very small conditions. In addition, in the corner of the park there is a toilet. However, the toilet could not be used at all because there was no running water and no lights inside. In addition, there are additional sports facilities, namely pull-ups. |
| 5  | Security Posts | This room is an additional space that backs to the Ngemplak Simongan Child Friendly Park because it is a RT 5. Kamling Post Room. |
This child friendly park is located in RT 5 so that the users themselves are dominated by RT 5 adolescents and several other teenagers from RT 11 and 12. However, for the users, there are no toddlers at all but only the teenagers. That is because the population of RT 5 is mostly teenagers. Whereas residents of RT 11 and 12 sometimes abuse the space into negative space.

5.4.2 Possible Playroom Development

Field conditions in RT 03 can be seen in Figure 9. There are a lot of vacant and dry land areas. This field is wider than the field that is the Child Friendly program. Explanation of each spatial element can be seen in Table 7.

Table 7. Conditions of the Playroom in RT 3 Ngemplak Simongan Village

| No | Element                                           | Information                                                                                                                                 |
|----|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Entrance Path                                     | There are stairs to enter this field on several sides, namely the north, south and west. The stairs are useful for the entry point of the field users and they feel safe to access the park. |
| 2  | Toga and Tegalan Parks                            | This toga park was created by RT 3 residents who functioned to add reforestation in the field. While the existing fields are planned as local RT community buildings. |
| 3  | Security Posts                                    | There is a security post facing exactly to the field with a position in the middle of the field. The camping post is commonly used by children to discuss, play and learn or even just to enjoy the natural atmosphere. |
| 4  | Sports Facilities (Fields and Equipment)          | In addition, this field is a multipurpose field so that it can be used in anything, such as soccer, volleyball and badminton. Quiet road conditions make toddlers here with agile playing around this field from running around, jumping around and others. So that the use of this field is more maximized by toddlers to play. |
| 5  | Bench                                             | In RT 3 are made permanently made of walls and shaped so that they are comfortable to use. Plus there are trees that make the chair shadier. |
| 6  | Well                                              | There are also community bore wells which are used when the water is dry. Located in a public space, the well is given security in the form of strong iron on it to prevent undesirable things. |

6. Conclusion

The results of this study indicate that the characteristics of Ngemplak Simongan Child Friendly Parks are male adolescents aged over 5 years to 14 years but dominant in middle school age is 12-14 years. Because of the tendency of the characteristics of these users who are male and the average is a junior high school teenager, then for the activities or activities that they do in the playroom are physical
activities such as playing ball, cycling and running. As for activities related to nature and social interaction, not much is done. This can be seen from the percentage of physical activity more varied than others. Thus, the characteristics of the space that they should and need to play with are play spaces that support physical activities such as open fields that can make them play more freely.

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References

[1] Kara E K 2016 Public vs. Private: The Evaluation of Different Space Types in Terms of Publicness Dimension Eur. J. Sustain. Dev. 6 51–8 [crossref]
[2] Hou J 2010 Insurgent Public Space (Routledge) [crossref]
[3] Johnson A J and Glover T D 2013 Understanding Urban Public Space in a Leisure Context Leis. Sci. 35 190–7 [crossref]
[4] Wu K and Wang H 2018 Inclusive Design Thinking for Accessible Signage in Urban Parks in Taiwan Inclusive Design Thinking for Accessible Signage in Urban Parks in Taiwan [crossref]
[5] Gleeson B and Sipe N 2006 Creating Child Friendly Cities (London and New York: Routledge London) [crossref]
[6] Dong N, Chen J and Zhang S 2017 Safety research of children’s recreational space in Shanghai urban parks Procedia Eng. 198 612–21 [crossref]
[7] Darmawan E 2009 Ruang Publik dalam Arsitektur Kota (Badan Penerbit Universitas Diponegoro)
[8] Moulay A, Ujang N, Maulan S and Ismail S 2018 Understanding the process of parks’ attachment: Interrelation between place attachment, behavioural tendencies, and the use of public place City, Cult. Soc. 14 28–36 [crossref]
[9] Setiawan B 2006 Ruang Bermain untuk Anak di Kampung Kota: Studi Persepsi Lingkungan, Seting, dan Perilaku Anak di Kampung Code Utara, Yogyakarta J. Mns. dan Lingkung. 13 60–70
[10] Zieff S G, Chaudhuri A and Musselman E 2016 Creating neighborhood recreational space for youth and children in the urban environment: Play(ing in the) Streets in San Francisco Child. Youth Serv. Rev. 70 95–101 [crossref]
[11] Wang X, Woolley H, Tang Y, Liu H and Luo Y 2018 Young children’s and adults’ perceptions of natural play spaces: A case study of Chengdu, southwestern China Cities 72 173–80 [crossref]
[12] Stanton-Chapman T L, Toraman S, Morrison A, Dariotis J K and Schmidt E L 2018 An observational study of children’s behaviors across two playgrounds: Similarities and differences Early Child. Res. Q. 44 114–23 [crossref]
[13] Sipe N and Gleeson B 2006 Creating Child Friendly Cities (Routledge London) [crossref]
[14] Casey T 2007 Environments for outdoor play: A practical guide to making space for children (Sage) [crossref]
[15] Unicef 1989 Convention on the Rights of the Child
[16] Dong N, Chen J and Zhang S 2017 Safety Research of Children’s Recreational Space in Shanghai Urban Parks Procedia Eng. 198 612–21 [crossref]
[17] Gelman S A and Meyer M 2011 Child categorization Wiley Interdiscip. Rev. Cogn. Sci. 2 95–105 [crossref]
[18] Amouzegar Z, Naeini H S and Jafari R 2010 Design principle of playgrounds’ equipments and spaces for children: An interaction education approach Procedia - Soc. Behav. Sci. 2 1968–71 [crossref]
[19] Sarkar A, Dutta A, Dhingra U, Dhingra P, Verma P, Juyal R, Black R E, Menon V P, Kumar J and Sazawal S 2006 Development and use of behavior and social interaction software installed on Palm handheld for observation of a child’s social interactions with the environment 38 407–15 [crossref]
[20] Christensen P and O’Brien M 2003 *Children in the city: Home neighbourhood and community* (Routledge) [crossref]