Neighborhood and Occupant Interaction Space

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Abstract. Often occupants gather and interact in the space that is not specifically designated as a gathering space as if the area has formed a public space as a place to gather and interact. This qualitative research aims to determine how occupants form interaction spaces in a residential environment and the type of interaction space formed. The results showed that each individual has an idea to decide how they get together and interact with fellow occupants. The forming of the interaction space occurs gradually and unplanned. The types of interaction spaces are moving space, impermanent space, unexpected space, and unbounded space, which causes temporary changes in the area. The results of this study will be used for further research and can become the basis for designing sustainable housing and human social environments.

Keywords: Neighborhood, Occupants, interaction Space, Housing Environment.

1. Introduction
A Neighborhood is a community that includes human attitudes and behavior [1] that there are formal and informal ties, lifestyle, behavior, and interactions [2]. A Neighborhood is a system of living [3], has a quality that is determined by the characteristics and conditions of its attributes, including behavior and physical environment [4]. A Neighborhood is a living environment that has function arrangement that determines the quality of life for its inhabitants to live and interact [5]. These opinions indicate that the neighborhood is closely related to the living space formed by the community with its interaction behavior and the physical environment with its constituent elements. Therefore, the community and the physical environment will influence each other. However, is the neighborhood only limited to the physical environment and the community?

In terminology, the neighborhood consists of two main words, neighbor and hood. Neighbor means a near fellow-dweller and can also mean together [6]. The fellow means a partnership [6] that has interpretation as a relationship. The word hood means helmet, hat, and parasol [6], where the three words are objects that function to protect the human body so that it feels safe, calm, and protected. So the hood is closely related to the human psyche. Therefore, the interpretation of neighborhood is a psychological relationship between occupants who live together in a residential environment. This
understanding shows that it is not only related to physical elements but also closely related to the human mind that can form an idea [6].

2. Research problem and methodology
Open space has an essential role in building a community environment [7]. Public spaces that have quality will be able to meet the needs of social interaction [8], and settings that have green open spaces will be more able to increase social interaction than those without green open spaces [9]. These opinions show that the quality of public spaces or green open spaces affects the level of social interaction. But on the other hand, there is a phenomenon that interaction often occurs in areas that are not designed as gathering spaces, such as roads, sidewalks, drainage [10]. Also, there is a phenomenon of changing semi-private spaces such as home yards into public spaces [11]. What makes them feel comfortable and always wants to interact there? Is it because they think they fit in with their community [12] or other factors?

The human desire to have relationships with other humans begins with the process of adjusting each other's behavior, then there is a decision-making process whether to continue the relationship or not [13]. The decision to continue the relationship or not, related to each individual's memory, is shaped by what has been encountered before, thus supporting adaptive behavior [14] [15]. Therefore, when occupants decide to reunite in the same place, the occupants are successful in adapting to their environment. But what causes occupants to adapt successfully and always want to come to the same space? Therefore, this research aims to determine how occupants form interaction spaces in a residential environment and the type of interaction space formed. The study used a qualitative method, with the research location in Bukit Golf housing, Bogor Regency. The interviews are aimed at children, adolescents, and adults, while observation focuses on spaces that were not designed as gathering spaces.

3. Result
3.1. The process of forming interaction space
Observations were made on the interaction activities in spaces that were not designed and not intended as gathering spaces. Therefore, based on observations and interview results, there are four types of interaction activities formed, namely interaction I, interaction II, interaction III, and interaction IV, as shown in Table 1. Each kind of interaction represents a phenomenon that occurs in a different space. The process of forming an interaction space explains how interactions occur and the stages of interaction activities, starting when residents have ideas until interactions occur. Explanation of the stages of the interaction process using the initials of the occupant's name (H, A, M, etc.).

| Type of Interaction Activity | Occupant       | Interaction Activity | Interaction Space Area | The Process of Forming Interaction Space                                                                 |
|------------------------------|----------------|----------------------|------------------------|----------------------------------------------------------------------------------------------------------|
| Interaction I                | Adult male     | Having coffee together, chatting, having dinner together | Home yard and street space | Gradually, starting from one of the occupant (H) coming to the house of the occupant (A), then followed by several others (M, Re, etc.) to the house (A). Unplanned, because of the invitation to gather and the desire to fill spare time. |
| Interaction II               | Adult female   | Greeting each        | Terrace/               | Gradually, starting from one of the occupant (H) coming to the house of the occupant (A), then followed by several others (M, Re, etc.) to the house (A). Unplanned, because of the invitation to gather and the desire to fill spare time. |
other, chatting | home yard | the occupant (I) doing activities on the terrace/yard, then being greeted by (J), and then (N) participating. Unplanned, because the presence of one of the occupants in the yard of the house attracted other occupants to say hello and chat.

| Interaction III | Girls | Chatting, cooking together, dressing up together | Inside the house (bedroom and kitchen) | Gradually, it begins with one of the occupants (I) coming to the house (D), followed by (M) and the other occupants. Unplanned specifically and only based on sudden agreement. |
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| Interaction IV | Children, boys and girls | Playing soccer | Street space | Gradually, some occupants play ball, then other occupants are attracted to play. Unplanned, because one of the occupants invited the other occupants to play, then the other occupants were interested in playing. |

3.2. Type of interaction space
The types of interaction space show the grouping of spaces based on the phenomenon of spatial situations or the nature of space, as a result of interaction activity and the process of forming the interaction space. The interaction space type consists of moving space, impermanent space, unplanned space, and unbounded space.

3.2.1. The moving interaction space. This type of space indicates a gathering space that is always moving, from one occupant's house to another, or from one street space to another. However, this movement remains in the spaces that previously formed. This movement occurs unplanned, only based on the result of spontaneous discussions between occupants, or also because of the presence of an occupant in the space, and then it gives interest to another occupant to join together. This type of interaction space is formed by the kinds of interaction activities I and III (Table 1).

Figures 1 and 2 show the forming of interaction spaces in several areas at different times. The green circles show the interaction movement from one place to another. The letters in the green circles are the initial names of the occupants whose houses using for interaction spaces. Figure 2 shows that interaction space forming in the occupant's house (D) or (M), then on the next time, it can return to (D) or to (I).
3.2.2. The impermanent interaction space. This type indicates the forming of a temporary interaction space because the interaction activity uses space that is not designing as a gathering place, such as the home page and street space. So when occupants no longer use it as a gathering space, it will return to its original function. This interaction space is forming by all kinds of interaction, namely interactions I, II, III, and IV (Table 1).

Figure 3 shows the occupants doing interaction activities at night in the street space near one of the occupants' houses. The situation when the interaction occurs shows that the occupants who are interacting and several vehicles have filled part of the road space. Figure 4 shows a street space that temporarily turns into a playing soccer place. When it finishes, the area will return to its primary function.

3.2.3. The unexpected interaction space. The gathering activity in a place without going through the previous planning process will form an unexpected space. Starting with greeting each other, through chat on social media, or preceded by a visit by one of the occupants to another occupant's house, it caused the interest of several other occupants to participate in gathering. This type of interaction space is formed by the types of interaction II and III (Table 1).

Figure 5 shows the forming of an unexpected interaction space, that is between occupants with adjacent and opposite house positions. The process of forming this interaction space begins with the
activity of one of the occupants in his yard, which encourages other occupants to say hello and chat together. Even though the occupants in this interaction space are already close to each other, occupants cannot predict when the interaction will occur.

Figure 5. The unexpected interaction space, formed by the type of interaction II. 
Source: Author (2020)

3.2.4. The unbounded interaction space. The forming of this interaction space because the number of occupants who gather exceeds the space capacity, so some occupants place themselves outside the boundaries of space. This space is also formed by children's soccer activity that requires a large area that causes the interaction space has no clear boundaries. This Unbounded space is formed by interaction activities I and IV (Table 1).

Figure 6. The unbounded interaction space, formed by the type of interaction I on the activity of having coffee together. 
Source: Author (2020)

Figure 7. The position of the occupants in the unbounded interaction space, formed by the type of interaction I. 
Source: Author (2020)

Figures 6, 7, 8, 9 show the activities of occupants at night in one of the occupants' homes. The images show several people sitting in the yard area of the house and some others sitting on vehicles in the street space. Then the interaction space looks to widen to the street space. This kind of situation occurs most nights and escalates by the end of the week.
4. Discussion
The results show that occupants form interaction spaces gradually and unplanned. The Gradually process creating an activity interaction space that is initiated by the presence of one occupant in a particular place, then followed by other occupants gradually. Meanwhile, an unplanned process is the formation of interaction spaces because of the occupants 'wishes or other occupants' invitations to gather, such as the desire to fill free time, sudden agreements, and interest in greeting and chatting with other occupants (Table 1). The results of this study indicate that each individual has an idea to determine how they get together and interact. The interaction activities of occupants and the process of forming the interaction space lead to the formation of types of interaction spaces, namely moving space, impermanent space, unplanned space, and unbounded space. Each type of interaction activity can form some or all of the interaction space types. The forming of interaction space types can cause temporary changes in the function of space and the conditions of the housing environment, especially the interaction in road space that can affect the circulation of vehicles and occupant safety when interacting.

The results also indicate that most of the occupants who are present in each interaction space are the same people. So following the opinion of [14] Murty et al. (2020) that the forming of an interaction space is due to an initial meeting, then undergoes an adaptation process, and stores memory activities to makes the decision to continue the relationship. By the findings that interaction activities and the process of forming interaction spaces have led to several types of interaction space in the residential environment. So this finding becomes new and is a phenomenon that needs to be known more deeply, why each individual has the idea of getting together and interacting again with the same people and in the same interaction space. Is it only because each individual has successfully adapted [14] [15]? or is it because of a sense of community [16] [17] or a sense of place [18]? or it turns out that there are other things behind it?

5. Conclusion
Interaction occurs in spaces that are not designed as gathering spaces because each individual has an idea of determining how they get together and interact. The forming of the interaction space occurs gradually and unplanned. The types of interaction space created include moving space, impermanent space, unexpected space, and unbounded space. The results of this study can be the basis for designing a housing environment that is more flexible but safe to use. It also can be the basis for developing a green area in housing that is not only limited to garden areas, so that each place is comfortable to use for gathering and interacting, in supporting sustainable housing and human social environments.
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