Spatial territoriality in the Semanggi embankment area

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Abstract. This paper focuses on the issues of territoriality in densely populated settlements in the Semanggi embankment area. Semanggi is one of the slums in Surakarta which has territoriality issues caused by uneven spatial growth. This location has a high population density, yet it also attempts to accommodate the growth of people’s activities. This issue occurs because of the environment’s failure to reach or provide the residents with the desired level of privacy. The territoriality in the Semanggi embankment area sometimes creates conflicts stemming from spatial issues, particularly encroachment; an outcome which indicates there is a practice of territoriality in this area which this research aims to explore. To gather data a descriptive qualitative method was used in this study, with information collected by observation and interviews. After that, the data that demonstrated the practice of territoriality via spatial activities was analyzed. The results show that there are practices of territoriality in the area, particularly by marking and personalization. These practices, which are mainly caused by residents’ economic needs, might affect one another. The forms of territoriality practiced can also be affected by gender, physical factors, and cultural aspects.

1. Introduction

Territoriality in humans is behavior related to control of personalization, physical space, ideology, and object [1]. It is also defined related to physical space, defense, place ownership, personalization and signs [2]. This form of territory is classified as a defense and is used as a response to violations of personal or claimed territory [3]. High population density can cause overcrowding which leads to a lack of territorial or personal space [4]. The relationship between personal space and territoriality can be inefficient, often resulting in excessive and undesirable social contact. Such conditions are created by population density [5]. So, the basic meaning of territoriality is ‘an activity related to privacy, personal space, and density’. Territorial issues occur because of an environment’s failure to provide the desired level of people’s privacy. So maintaining personal space and showing territorial behavior are two mechanisms used to achieve the desired level of privacy, whilst also attempting to avoid unnecessary stress [6]. Based on previous studies, territoriality has diverse definitions from different perspective. Laurens [2] suggested territoriality from people’s activities, while Lang [6] stressed the desired level of privacy.

The territoriality issues in urban society stem from the phenomenon of privacy, personal space, and density [7]. This phenomenon is often related to the spatial location of community settlements. Spatial concepts occur because of behavior related to living-space requirements. Physical space is organized to solve problems in urban society [7]. Specific areas are physically owned, or at least claimed, through marking or via non-physical means such as regulations or norms [8]. One of the aims of a community is to create a comfortable living space for its members. Human interaction has
its own message in life [9]. The scope of this research is to focus on dense settlements in urban areas in order to explain the activities and factors causing them to pursue territoriality in the social environment. The explanation of the example, with an emphasis on housing, will be discussed in more detail below.

Semanggi settlement is located in the southeast of the city of Surakarta. Semanggi is an area in the Pasar Kliwon district. The name Semanggi comes from the Semanggi plant (Marsilea drummondii) because many of these plants grew and are growing in that area, located near the Solo River. The study area is located in an embankment settlement that has been created without building permits. The situation at the research site is the community housing, which is located close to one another. This situation presents a spatial territorial problem. Such arguments are supported by spatial territorial discussions which should be able to explain how we inhabit, interpret, relate, and interact with other humans. This research will focus on social spatial factors influencing the opportunity to use public space together [10]. High population density in restricted areas was the major factor which decided the researchers to choose the Semanggi embankment area.

Space is classified into non-physical space and physical space. Non-physical space refers to non-physical images or non-physical representations of duration of time, the place, or expansion. Physical space refers to physical form [11]. The location of this research object is made up of dwellings that are close together. Spatial conflicts start from the power and ownership of the Semanggi embankment area; those conflicts coming from private groups or communities. Domestic activities occur outside residents’ homes. Spatial activities are carried out in shared spaces or outdoor spaces. The purpose of this study is to determine the territoriality of settlements and their constituent factors in Semanggi. Territory-forming factors are found based on activities carried out by the community.

2. Theoretical review
Space is used for each individual's interaction. Interaction is a relationship between people who have distance when moving and behaving. Architecture involves a space enabling human activities to move to another room, and is designed according to social conditions. When spatial density or pressure has exceeded tolerance limits, humans will tend to withdraw from their environment [2]. The tendency to withdraw from the environment is a response to encroaching spatial boundaries. Based on this explanation, humans make spatial plans in the form of buildings for human needs and behavior. Residents’ behavior shows ownership of space, with the tendency of space ownership shaping human attitudes to the utilization of space in buildings.

Settings are formed because of space, time and reason. Territory is a place that is restricted or reserved to show ownership of space or objects in it [12]. Territory is defined as an area that is considered a person’s right [2]. The situation shows spatial activity indicating both strength and defense, reflecting a territoriality that is owned and maintained physically through marking, or non-physically through regulations or norms [8]. The word ‘territoriality’ comes from ‘territorial’. Territoriality can be seen as a manifestation of the ego of someone who does not want to be disturbed [2].

Hussein El-Sharkawy [13] identified four types of territories: i) attached territory is a "baloon room" like a personal space, ii) central territory is a room with a little personalization, iii) supporting territories are semi-private and semi-public spaces, and iv) peripheral territory is a public space that is used by individuals or groups but who can neither own it, nor demand it. Meanwhile, Altman [3] divided territory into three: i) primary territory is the territory that is owned by, and used specifically for, the owner. Violation of the main area produces defense from the owner; the inability to maintain the main area will cause problems in the psychological aspects of the owner. ii) Secondary territory is a region with more flexible use and control. This territory can be used by other people who are part of the group and is therefore semi-public. iii) Public territory is an area that can be used by anyone / everyone by following the rules of the community. Public areas are used temporarily in the short or long term.

Based on the above explanations, it is evident there are different categories of territory. First, the attached territory can be compared to the primary territory, because this area is formed principally
from individuals in private spaces and in spaces that have personal properties. Second, central territory and supporting territory can be compared to secondary territory. This area possesses semi-private and semi-public characteristics, weak personalization, weak control, and can be used by others. Third, peripheral territory can be equated with public territory, as this area is used principally by a group of people in an open space. The categories of territories based on this explanation are as follows:

a. Primary territory is a place that someone has permanently. The territory is private and is entered by people who are familiar. Territoriality is an activity in the territorial area that is considered correctly [3]. This territory has a very high level of psychological ownership.

b. Secondary territory is associated with a place used by people who know each other, and share that territory’s use with each other. Territorial control by individuals or groups is low. This territory is divided into two [14], namely: a) home territory, for example, areas played in by a group of children who actively discourage others from using the area; b) interaction territories which are where social interactions occur spontaneously in public places.

c. Public territory reflects a place that is used and regulated by anyone, but must obey the norms and rules that apply in the area [8]. Examples of this territory are the theater and hotel lobby. This area is controlled by certain individuals and groups. This area needs conditions to govern or control people who want to enter it.

In addition to the above mentioned classifications, territoriality can be divided into 2 types, namely: a) objects territory and b) ideas territory [3]. The territoriality of objects and ideas is not a type of physical territory. Territorial objects have the right to be the personalization of a human being in his space; marked, and controlled. Examples of such objects are flowerpots and cars. Territoriality of ideas is copyrighted; for example, the name the owner has given to his boarding house. Territoriality is something related to ownership, defense, physicality, signs, exclusive use, personalization, identity, domination, control, conflict, security, and defense [15].

Territoriality is categorized into the territory of: a) interaction and b) body territory [2]. The territory of interaction is temporary and controlled by a group of people who interact. Body territory is an area bounded by the human body, such as the skin. In addition, there are the issues of territorial violation and defense [2]. Forms of territorial violation consist of: i) invasion, ii) violence, and iii) contamination, whereas territorial defense consists of: a) preventive measures, b) signs, and c) social constraints. Territories are influenced by many factors, including: a) personal issues, b) situational conditions and c) culture.

Socialization is a component in providing experience; one part of that socialization component being spatial perception. The component of spatial perception functions as a translation of cultural interaction. Cultural differences cause different perceptions of space, giving rise to various community interactions [16,17]. Territorial diversity occurs due to personal factors, situational differences and socio-cultural situations and circumstances [18], with such factors affecting the issue of territoriality. A person's territorial behavior affects their space and environment; therefore forming one's territory triggers disputes and affects other individuals and groups. Territoriality is influenced by:

a. Personal factors: gender, age, and personality. For example, the area men require is much bigger than women. For example, at work men will claim a greater ‘personal area’ than women [2].

b. Territorial situations: two aspects, namely: a) the physical and b) the socio-cultural. Invasion is a symptom that arises as a result of crime and fear [19]. Urban society needs physical order as a symbol of the ability to maintain the separation of public and private territories. Territories to clarify privacy will reduce crime; whereas territoriality is influenced by cultural issues.

c. Culture have an effect one's territory. The variety and level of privacy depends on: i) the pattern of behavior in the cultural context, ii) one’s personality and iii) the aspirations of individuals [14]. One's territorial differences are due to differences in people’s culture and cultural diversity [2].
A person practices ‘personalization’ to clarify their territory, so that different individuals will understand each other. An example of such behavior is participating in joint activities programs [20]. Personalization is used to distinguish between bona fide community members and outsiders. Personalization will make others safe, as when an empty house is monitored and guarded by neighbors. Personalization often results in place attachment, which occurs because relationships with others will increase feelings of comfort ‘as in his own room’ [20].

Population density is a factor that needs attention as the issue can result in psychological or psychosomatic stress in the population. The density component includes: a) the number of people occupying the room, b) the number of rooms in a house, c) the number of houses occupied in one block, and d) the number of block in one district. The experience of overcrowding, such as in slums or refugee camps, causes patterns of human relations involving individual privacy; as witnessed in conflicts in recent years [17, 21]. So discussions regarding territoriality are often focused on the base data of the number of people occupying the room. The study reported here aims to produce in-depth and detailed results.

Territoriality creates owners who maintain their space. Territoriality is the boundary of human who own, marking and defend their territory from others [8]. Territorial defense behaviors are designed to mark the owner’s things / territories; territorial images are shaped by marking them [8]. Personalization and marking occurs everywhere; an example common to people at the bus terminal who leave their belongings to prevent others from occupying his territory, such as suit case and bags in situ: the words “this place is taken” are not needed as the situation is understood. Human territory is defined as higher needs, such as self-image and self-recognition [20].

Marking is divided into two forms, namely: i) the verbal form (speech) that represents ownership of a place or goods and ii) the nonverbal form. The latter nonverbal form is divided into 3 elements [22]:
1. Fixed-feature elements, a form that rarely changes. This element is related to architectural matters such as fence, beam, roof, and stairs.
2. Semi-fixed-feature elements (constituent form elements), such as sofa chair, sunshade, and plant’s pot.
3. Non-fixed-feature elements are forms related to humans as residents, such as body posture, hand and arm movements, face and other body expressions. Marking of the space will improve the quality of one's territory.

Territories with restrictions, such as barriers, will protect the homeowner's territory. This territory maintains others intervention in other house in the one block. Examples such as hand movements aimed at clarifying the territory. Spatial owner interventions can shape the quality of spatial planning. Territorial activities will minimize space owner intervention.

3. Methods
This research uses a descriptive qualitative approach for information gathering. Descriptive data analysis is focused on the written words resulting from interviews and evaluations [23]. The data analysis techniques of this study focused on the analysis of human activities, and the mapping of the residents’ and other persons’ behavior patterns. Observations provide motionless visuals, as if they were photographs, with the behavior and position of people in each sector [24]. First, the place-centered mapping method is a technique to find out the behavior of a person, or group of people, at a certain place and time. Second, the person-centered mapping method is a technique of observing and recording human movement over a certain period of time. Researchers do the mapping based on a person's behavior and movements [8].

The purpose of this study was to explain the territoriality, and its forming factors, in the Surakarta Semanggi embankment area. Data was collected by: a) observation to identify the form of territorial space and b) interviews to find out the forms of territoriality and the factors that shape community territoriality. The discussion uses visual results from the research location and is divided into several sectors which are elaborated based on the responses from the interviewees. The results of the study
demonstrate the form of territoriality and its constituent factors; explained by identifying in-depth experiences of real situations.

Figure 1. Research Sites
Source : Kotaku in Central Java

Semanggi is one of the regions in Surakarta. This area is a densely populated location. The Semanggi area is the location of the ‘City without Slums Program’ (Kotaku). Semanggi area has become the choice of settlement in urban areas. Urban areas become dense settlements so that several important issues must be considered, including the population density of the suburban areas. Land limitations and environmental problems (conditions on the banks of the river) become reference points in the area’s management. Population density is a critical issue because there is no other place for the slum dwellers to live. The community uses the land of Semanggi as a place to live.

The flooding in the Surakarta area was anticipated, as well as limited, by making an embankment in 1900 on the Pepe River. In 1915, flooding occurred in part of the Kliwon Market because it was close to the Bengawan Solo River. In that year, forest damage occurred in the hinterland due to exploitation of private estates. Environmental damage is the main cause of flooding in the city of Solo. Kasuanan Surakarta, Mangkunegara, and the colonial government, combined to build an embankment but still the flooding has not been appropriately managed or controlled [25]. The river will experience flooding because of the overflowing water coming from the north.

The research location is the embankment of Semanggi area, Pasar Kliwon district, Surakarta. The research sites are in Gang Cempaka 2 and Gang Cempaka 3. The area is the embankment area in Semanggi. Both research sites are in a small alley of Sampangan Street. The alleyway has a width of about 1.8 m. Limited spaces and community activities are often the case in dense settlements. Researchers wanted to know the spatial activities of the community because of its population density. Spatial discussion is based on community activities outside and inside the houses.

4. Results and discussion
Based on observations and interviews, spatial activities have a significant influence on people’s behavior. Data indicates the local community interacts every day in several places within the neighborhood. Using behavioral mapping, we can see how participants use the space by recording their behavior. The mapping is divided into two different types: i) place-centered and ii) person-centered. Both explained the form of territoriality based on people’s behavior and movements towards a certain place over a particular period of time.
Figure 3. Semanggi Embankment Area

The road on the Semanggi embankment is narrow. Based on interviews, the embankment consists of two levels and is built on land that used to be covered by a lot of Semanggi plants. Over time the Semanggi plants were removed and houses were built. At this time, the area became one of the residential areas in Semanggi. Houses in the area are small and narrow. Given the situation, the community was forced to build houses around the embankment because they did not have money to buy adequate plots of land. Some of them confirmed that they just copied the houses that had been built before. So, they followed the construction of the houses around their ‘site’.

Observation results show the area that allows the community to interact with each other, indicating obvious signs of primary territoriality [3]. Primary territory is the main form of territory that shows a space the owner uses exclusively, because of the clear marking of such a space or location. The territorial control in this case would be very strong. Territorial behavior shows secondary territoriality [14], which is the area of control of individuals or groups. Secondary territory is the second form of territory, which demonstrates weaker control than the primary territory. This territory shows people’s activities happening in a shared space. It is an area that has clear ownership but other people can also enter. Examples at this ‘secondary’ level of territory are small shops in the house and food stalls in certain places. Territorial behavior shows public territoriality [8], which is an area that can be used and entered by any person, providing that person follows the accepted norms and rules. Public territory is the third form of territory. Public territoriality has the weakest control because of its shared spaces. For example, public spaces and vegetable sellers’ stalls are areas where people frequently gather.

Figure 4. Stall of Society

Figure 5. Greengrocery

Based on the first non-verbal form, fixed-feature elements are a form that rarely changes [22]. Primary territoriality has fixed-feature elements markers to clearly indicate such an area is privately owned; the obvious example being a home. Fixed-feature elements have very clear shapes, such as columns, beams, walls and floors that can all function as barriers. Secondary territoriality uses fixed-shaped elements in the ownership of stalls at home. The second non-verbal form territoriality
markers is semi-fixed feature elements [22]. Semi-fixed feature elements have a combination of boundary shapes and non-permanent items, such as bamboo and/or wooden boards as walls. The third non-verbal form is non-fixed feature elements [22], specifically non-permanent elements such as behavior or movement. Public territoriality involves non-permanent elements because this territory is between people, such as when they are talking in public spaces and places using self-limitations indicated by body language and gesture.

Figure 5 shows the form of territoriality at specific places and times. People utilize the streets to do shopping activities. This happened when the mobile vegetable-seller came to the neighborhood, resulting in territory being formed between seller and buyer. Usually, this activity only occurred at a certain time, which was every morning. People met and interacted with other people when they bought the vegetables. When asked about this, the buyers said that they feel comfortable interacting in the streets. Thus, it seems that people make temporary territories in public spaces because in the morning the road is used by vegetable sellers to sell in certain places at certain times. After the mobile-vegetable-seller leaves, the location will return to the alley lane as before.

Figure 6 shows the territory that was formed from the physical aspects. This situation is built from two aspects: i) the physical and ii) the socio-cultural order. The physical and socio-cultural situation is carried out by the community to defend public and private territories, so that no invasion of territory emerges [19]. The picture shows the territorial shape based on physical aspects. People gather and talk at the crossroads. When the people meet they create a sense of mutual comfort and support for each other. So there are social relationships that show opportunities to see the relationship environment between communities. Another benefit of the physical and socio-cultural situation is that there is supervision between the community and the Semanggi embankment environment. Temporary territoriality occurs by community members meeting and interacting with each other. The situation of a ‘closed’ house makes you feel uncomfortable if you do not gather and interact. Therefore, a sense of comfort generated by individuals interacting is the main factor to support the level of security in the Semanggi embankment area, Pasar Kliwon, Surakarta.

Adjacent houses show that people have weak levels of privacy because the distance between the road to the house is only 1 to 1.5 meters. If the door is open then the activities of the house residents will be in full view from the outside. This situation shows a very weak level of privacy and security. Based on interviews, each house is close to another from the initial community setting. When first building a house on the embankment some people put up a stake as an initial sign of their ‘home claim’. Next, a new community builds a house from the rest of its neighboring pegs. This progression occurs until there are many houses crowded together and only limited or even no building land is available. This situation is one of the economic limitations of the community and does not pay attention to housing needs, so they live in densely populated environments.

Figure 7 shows the type and level of privacy depending on behavior patterns in the cultural context, personality and individual aspirations [15]. Territorial forms are shown based on cultural aspects. This activity shows the existence of different spatial territories. Washing activities are
carried out in public areas because of limited land, spatial density and differences in cultural diversity. Some people eliminate the need for privacy in some spatial activities, because they consider the public domain as part of private ownership; public areas are not perceived as part of shared ownership. Although this is not wrong, spatial activity is an important concern regarding the existence and ownership of individual things, such as buckets and washing machines. Based on interviews, this situation occurs because of limited land and a high sense of togetherness, and so it happens in public areas and becomes part of private activities, such as washing. The community considers this situation not an important issue, because the family and close community culture makes them feel safe.

The results of observations and interviews with one of the study resident’s in their house are now offered. P’s house is in Semanggi; P is a 55 year old woman who works as a food seller. She lives with one child and her husband. P’s house consists of five rooms: a kitchen, bathroom, living room, and two bedrooms. The kitchen and washing areas are together in one room; the situation shows an effort to maintain privacy, such as laundry. Some chairs are used every morning for buyers to sit when P is selling food placed in front of the house. After that, at night the chairs are placed in the kitchen. There is room for circulation at home in the living room. At night, the living room circulation becomes a parking lot for a motorcycle and bicycles. Forms of temporary spatial activities are mostly carried out at home. Based on the interview, the tenant explained that the situation occurred because of limited space at home. P still shows behavior such as gathering and interacting with the community in daily life. But it turns out, based on the results of the discussion, this form of territoriality is not only formed and seen outside, but also inside the house. Forming territoriality and the issues that cause territoriality are based on social and cultural factors; influences which could have caused the behavior displayed of P.

5. Conclusion
The embankment area shows various types of territorial behavior: a) primary territoriality, b) secondary territoriality, and c) public territoriality. Primary territoriality is formed because of permanent ownership or personal form. Secondary territoriality is formed due to activities carried out by humans in spaces where ownership is clear but which can be entered by others. Public territoriality is formed because the area can be entered and made use of by anyone; although the user must follow the established norms and rules. The form of marking based on this territory is two-fold: the verbal form and the non-verbal form. Verbal forms are based on speech, whereas non-verbal forms are based on forming elements. The marking of non-verbal forms involves: a) fixed-feature elements, b) semi-fixed feature elements, and c) non-fixed feature elements. The situation depends on the supporting components of each territorial area.

Spatial territoriality is based on gender aspects, physical aspects, and cultural aspects. Overall the formation of space and the cited aspects cannot be separated, because they are interrelated. These activities include motorized vegetable sellers, intersections as gathering places, and laundry activities carried out in public areas. Other factors discussed in this study include initial factors such as
informal land marking such as stakes that causes adjacent community houses, temporary community spatial activity factors, and familiarity factors. In addition to territorial discussions in general, there are territorial discussions in detail relating to homes. The results show that the territoriality area is not only outside but also inside the houses, due to its territorial and privacy forms. This activity like motorized vegetable sellers, intersections as gathering places, and laundry shows territoriality based on human behavior and movements in a certain place and time period. The most important factor of spatial territoriality is the limited land in Gang Cempaka 2 and 3, causing particularly high population density. Such a high density results in the formation of various spatial activities, which can and do influence people's behavior including sharing other impacts that can occur. Further research is needed to understand and develop knowledge about the issue of territoriality, in order for that information to become a basis for consideration of government policy in handling various cases of spatial activities in Indonesia.

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