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Territoriality of Student Community Spaces Analyzed Through Fixed Elements, Semi-Fixed Elements, and Activity Patterns

Shabrina Tamimi [a,1,*], Siti Munawarah Panggabean [b,2], Syam Rachma Marcillia [c,3]

[a] Interior Design Study Program, Institut Seni Indonesia Yogyakarta, Jalan Parangtritis Km 6,5, Bantul, 55188, Indonesia
[b] Raden Intan Lampung University, Jl. Letnan Kolonel H. Endro Suratmin, Sukarame, Kota Bandar Lampung, 35131, Indonesia
[c] Architecture Department, Universitas Gadjah Mada, Jln. Grafika No. 2 Yogyakarta, 55281, Indonesia
[1] shabrinatamimi@isi.ac.id*; [2] simupa14@gmail.com; [3] syam.r.m@ugm.ac.id
* Corresponding Author

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ABSTRACT

Student community spaces are essential facilities provided by universities to support various extracurricular activities. However, these spaces often fail to fully accommodate the diverse needs and activities of students, leading to a process of adaptation where users modify the space by adding both physical and non-physical elements. This study, utilizing behavior mapping and questionnaires, aims to analyze how students use and adapt these community spaces, focusing on the territorial adjustments made through physical elements and user activities. The findings reveal that most space adaptations involve semifixed elements, particularly in areas where informal activities take place. In contrast, formal activities tend to be conducted in indoor spaces where the physical elements are predominantly fixed. These insights highlight the necessity for more flexible and adaptable design strategies in student community spaces to better meet the needs of their users.

KEYWORDS

Student Community Spaces
Territoriality
Space Adaptation

1. Introduction

Student activities on campus are not limited to classroom learning but also include various extracurricular activities organized within communities or organizations across diverse areas of interest. Examples include Student Executive Board (BEM), cultural arts communities (such as dance, theater, music, choir, and photography), sports clubs (such as diving, basketball, and mountaineering), religious groups, and many other types of activities depending on the institution. Each of these communities is provided with space to support their activities, serving as an office for meetings, discussions, storage of community items/archives, and other needs. Since these spaces are within the campus area, they are provided by the institution within specified dimensions or spatial boundaries. Generally, community activity spaces are grouped in a designated zone within the campus area, where each space becomes the territory of a particular community, with its use reserved exclusively for the members of that community.

In practice, these community spaces often face limitations, as the provided space is insufficient to accommodate all user activities. This insufficiency prompts users to make adjustments, forming new territories that extend beyond the initial boundaries. Such territorial adjustments occur because the types of activities can diversify, encompassing not only organizational activities but also more personal ones. As members feel a sense of ownership over their territory, community spaces are also used for informal activities such as resting, eating, cooking, watching together, or other family-like activities. Typically, community spaces are designed as a single limited area that only accommodates a small group of people (10-20 individuals), whereas the number of community members often exceeds the space's capacity.

This study examines the student activity spaces at the Faculty of Engineering, Universitas Gadjah Mada. Research on the personalization of student spaces is necessary to understand students' needs for

activities beyond their academic endeavors. This research aims to provide a detailed insight that can inform the design of student activity spaces.

2. Literature Review

Space is closely related to human life in both psychological-emotional (perception) and dimensional aspects (Hakim 1987; Bell et al. 2005). Territory can be defined as a self-limiting mechanism that involves personalizing or marking a place owned by an individual or group (Altman 1975). Altman further categorized territory into three types: primary, secondary, and public. Primary territory is used exclusively by its owner, secondary territory is still controlled by the owner but not as exclusively as primary territory, and public territory is owned and accessed by almost everyone. Territory can also be described as an area dominated by an organism, exhibited through specific behaviours to defend itself from attacks by members of other species or potential external intervention (Hall 1966). Laurens (2004) described territory as akin to personal space, embodying the user's 'ego' in regulating privacy or boundaries where living organisms determine their demands, mark ownership, and defend their area, especially from potential external intervention (Edney 1974; Hariyadi and Setiawan 2022). The mismatch between the initial territory conditions and the new territory, along with the addition of marking elements, has been the basis for several studies in various settings, such as in public housing (Said and Alfiah 2017), informal trade areas (Agustin, Hardiman, and Rukayah 2014), bazaar vendor spaces (Rochimah and Asriningpuri 2018), and canteen spaces (Erikha 2018).

Space and territory possess characteristics such as form, orientation, condition, components, and barriers that connect them with users (Heri Hermanto 2008). Territorial boundaries, in addition to being determined by physical objects, can also be defined by non-physical elements (Adisaputri and Widiastuti 2015). The flexibility of space also influences territory, marked by changes in the public and private characteristics and functions of space by users (Putri, Pangarsa, and Ernawati 2013). Territory, through personalization, can be observed by examining these changing characteristics. The marking of personal items is a feature of the personalization process in the environmental setting. Various marking methods aim to give a place an identity that is recognized and to signal to others that the place is owned by someone or a group (Altman 1975).

In any given setting, individuals feel, think, and act under various conditions (Dewi, Paramadhyaksa, and Sueca 2016). Not only are humans affected by the setting, but the setting is also influenced by the presence of humans (Laurens 2004). This aligns with the notion that personalization often occurs unconsciously (Lang 1987) in an effort to achieve security, health, comfort, and aesthetics (Turner 1976). However, consciously or unconsciously, personalizing and marking territorial boundaries beyond one's own territory has the potential to intervene in the territories of others. If such marking disrupts others, a reactive response may arise.

The flexibility of space is categorized into three types: addition, elimination, and movement of elements within the space (Habraken 1983). Concrete environmental elements can be classified into fixed, semi-fixed, and non-fixed elements (Rapoport 2005). Fixed elements include infrastructure, buildings, walls, or other elements that rarely change. Semi-fixed elements refer to movable items such as furniture. Non-fixed elements typically involve people and their behaviors. Non-fixed elements are generally not physical objects, as seen in vernacular societies, territories formed through the ritual activities of traditional communities (Adisaputri and Widiastuti 2015). These three elements can be applied to how a group of people creates their own environment, which can be considered their territory. Rapoport then added, the process of modifying semi-fixed elements by a group is often referred to as personalization. Humans create material extensions of their territory and simultaneously provide both visible and invisible territorial markers (Hall 1966). Since territorial space is relatively fixed, Hall refers to this as fixed feature space and semi-fixed feature space. Semi-fixed features can also be interpreted as symbols representing the owner of these elements, as demonstrated by Janz (1992) in his study of semi-fixed elements in front of homes in Milwaukee neighborhoods.

3. Method

The research is conducted in the student community centre within the Faculty of Engineering at Universitas Gadjah Mada, focusing on four spaces belonging to different communities with various sizes (see Figure 1). These four spaces are divided into two categories: three are located on the ground floor and one is on the upper floor.

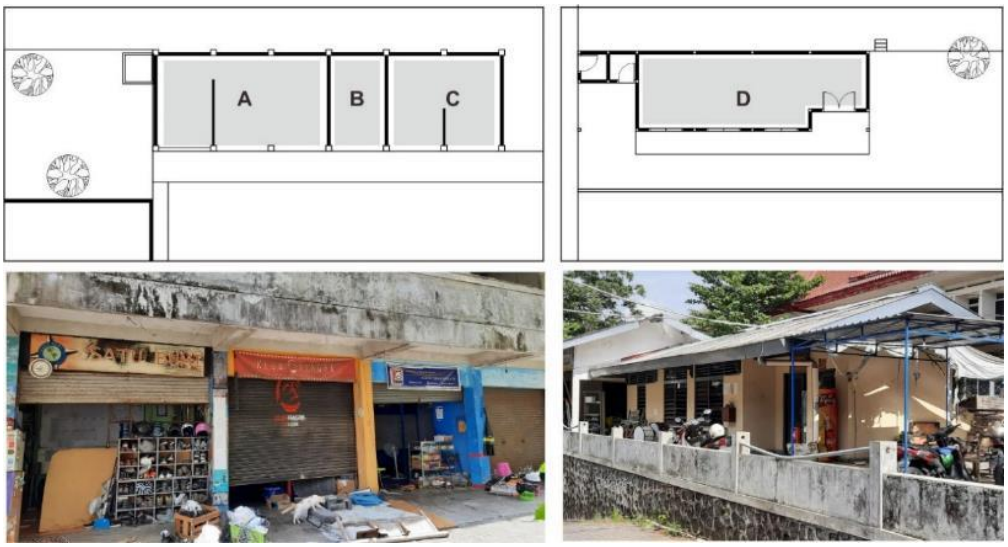

Fig. 1. Layout and picture of student community rooms

Data collection was carried out using behaviour mapping and interviews in November 2019. Behaviour mapping was used to understand the interaction between users and their spaces. Physical setting elements, which serve as territorial markers, were documented through direct observation. Non-physical elements, such as user activities, were gathered from interviews with community members who had used the space for at least two years to gain a deeper understanding of the activity cycles.

The collected data were then classified based on the three types of elements identified by Hall (1966) and Rapoport (2005): fixed, semi-fixed, and non-fixed (behavioural). Fixed elements include parts of the building that shelter the activity spaces, categorized into roof, walls, and floors. Semi-fixed elements refer to physical objects owned by community members that can be moved or relocated. Fixed and semi-fixed elements, which are physical in nature, were documented through direct observation and detailed location photographs. Non-fixed elements, in this case, are the activities of community members within the space and its surroundings (outdoor space) that mark territorial expansion. The boundary for outdoor activity space was set within a 20-meter radius. Data on non-fixed elements/activities were obtained through interviews with space users, covering all regular activities performed on daily, monthly, or yearly cycles. The data analysis was conducted in two stages. The first stage involved correlating the physical setting data with the activity data, with notable findings being discussed in greater detail. The second stage consisted of converting the physical and activity data into visual maps that illustrate the territorial coverage within student organization spaces.

4. Results and Discussion

The observation focuses on spaces provided by the institution to four student communities as venues for their activities. Each community has a different number of members, and the size of the provided spaces varies, although not by a large margin. Community A, with 30 members, has a space of 41.4 m^2; Community B, with 25 members, has a space of 13.8 m^2; Community C, with 35 members, has a space of 27.6 m^2; and Community D, with the largest membership of 100 members, has a space of 45 m^2 (see Figure 1).

The boundaries of space usage can be observed from the physical settings where users engage in activities. These physical settings include both the designated spaces and areas resulting from activity adjustments, marked by physical elements extending beyond the provided spaces. In addition to observing the physical conditions of the spaces, the area of use can also be assessed by examining the location or

distribution of activities. If these activities were absent, it would be impossible to determine which areas are used. In other words, some activities have physical markers, while others do not, meaning that information about space usage can only be obtained through activity data.

4.1 Physical Setting

The physical settings discussed in this study involve the placement of physical elements within the observed area including the outdoor area around the interior space that is also used for activities. The data on physical settings as territorial markers within the observed area exhibit a variety of types and are categorized into two groups: fixed (objects that are relatively permanent and immovable) and semi-fixed (objects that are relatively easy to move). The elements contained within these categories are detailed in Table 1.

Table 1. List of Physical Territorial Marker Elements

Physical Element		Community Room			
		A	B	C	D
Fixed	Roof	main roof terrace roof trees	main roof terrace roof trees	main roof terrace roof trees	main roof terrace roof -
	Wall	brick wall	brick wall	brick wall	brick wall
	Floor	cement floor paving block grass	cement floor paving block -	cement floor paving block -	tile floor paving block grass
Semi Fixed		table seating cabinet trash bin mat fridge motorbike Plants Dish rack	table - cabinet trash bin - - motorbike - -	table seating cabinet trash bin mat fridge motorbike - -	table seating cabinet trash bin mat fridge motorbike - -

Based on the data above, differences in territorial markers between communities are evident. These differences arise because each space user has unique needs. This is particularly noticeable with semi-fixed elements, as they offer greater flexibility compared to fixed elements, which are the spaces provided by the institution. Semi-fixed elements primarily consist of movable furniture, which can be repositioned more easily, allowing for the addition of such elements to accommodate extra needs in activities.

In addition to the type of elements, physical settings can also be examined based on the type of space used. Spaces can be categorized into indoor and outdoor types. Indoor spaces are those provided by the campus, while outdoor spaces encompass all areas outside these provided rooms used for activities. Indoor spaces represent the initial territorial boundaries of the community space. Thus, when the physical territorial elements extend into the outdoor space, it indicates the creation of a new territorial adjustment. The outdoor space is limited to a radius that remains close to the indoor space (20 meters).

4.2 The Activities

Based on daily observations, the four community spaces under study exhibit many similar activities. To facilitate analysis, the activities observed and their types are categorized into two groups: formal and informal. Formal activities are those officially related to the organization's or community's operations, while informal activities are unofficial and tend to be more free-form outside of organizational contexts. The formal and informal activities identified at the observation sites are detailed in Table 2. The data in Table 2 can be further examined for detailed percentages in Figure 3 to determine the most dominant types of activities.

Table 2. List of Student Activities

Type of Activities	Categories	Detail of Activities
Formal	Discussion/meeting	executive board meeting general board meeting small program meeting for each division general program meeting per division general members meeting major program meeting small discussion large discussion workshop for internal members workshop for external participants briefing program evaluation meeting
	Regular gathering	weekly gathering monthly gathering annual gathering
Non-formal	entertainment	hanging out/chatting watching movies music jamming playing card/chess
	household	sleeping eating cooking barbecuing cleaning washing dishes washing and drying camping equipment watering plants parking motorbike
	religious activities	small-scale iftar large-scale iftar praying
	skill	bouldering physical exercise studying/doing assignments creating prototypes
	economy	selling food/items

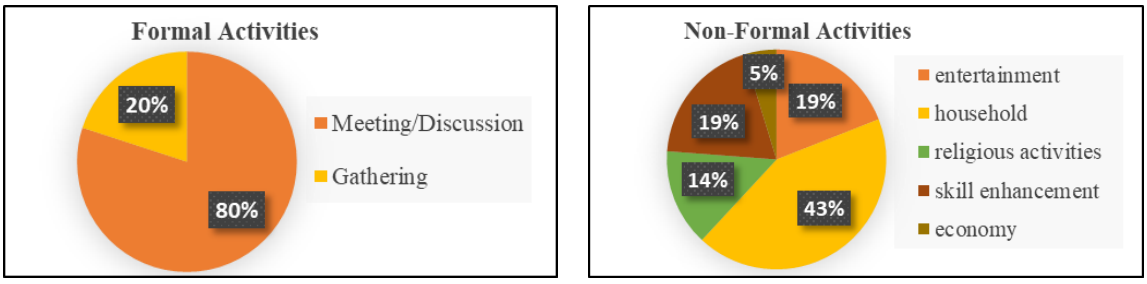

Fig. 2. Formal and Informal Activity Types Diagram

Based on Table 2 and the diagram (Figure 2) above, it is evident that formal activities in the observed areas are predominantly meetings or discussions, while informal activities are mainly household tasks, which include daily routines. This result indirectly indicates that the activity spaces provided to each community serve as important venues for members to utilize their free time. These spaces are used not only for their intended purposes but also for various household activities and services such as washing dishes, cooking, and even sleeping.

When examining the types of activities within each community, there is a noticeable tendency for differences in how each community conducts its activities (see Figure 3). Community A engages predominantly in informal activities, while Organization D maintains a more balanced distribution between formal and informal activities. However, when observing the overall trend across all four communities, the data presented in the diagram indicate that informal activities are more prevalent than formal ones. This suggests that the community spaces are predominantly utilized for activities typically associated with private spaces, such as those found in residential homes.

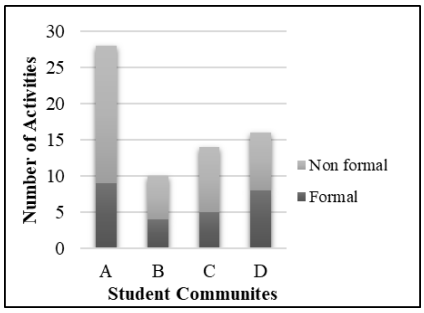

Fig. 3. The number of activity types within the community

4.3 Relationship Between Activities and Physical Setting

4.3.1 Position of Activities within the Space and Surroundings

Community members engage in various activities not only within the indoor spaces but also in the surrounding outdoor areas. Numerous activities require space beyond the confines of the provided rooms. The outdoor areas utilized extend within a radius of approximately 20 meters. The distribution of community members' activities, both in the indoor and outdoor areas, is illustrated in Figure 4.

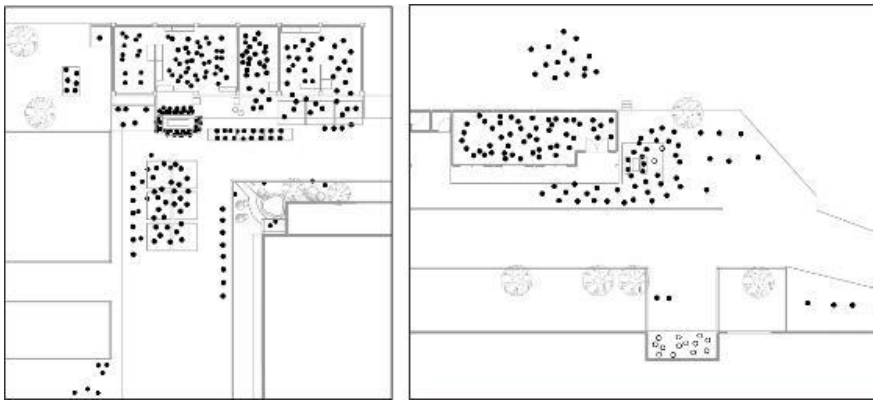

Fig. 4. The distribution of activities within the student community spaces and the surrounding area.

4.3.2 Relationship Between Types of Activities and Types of Spaces

Various types of activities, classified as formal and informal, can be associated with the spaces used. Both formal and informal activities utilize indoor and outdoor spaces (see Figure 5).

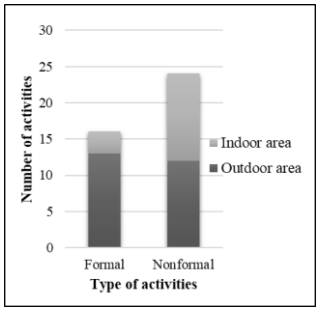

Fig. 5. Types of activities in indoor and outdoor spaces

Formal activities are predominantly conducted indoors, with only a small proportion of these activities occurring outdoors. In contrast, informal or less structured activities take place both indoors and outdoors in roughly equal proportions. When comparing formal and informal activities, informal activities utilize outdoor spaces more frequently than formal activities do. Formal activities, which are often organizational in nature or part of the organization's program, require spaces with more comprehensive facilities that offer protection from the elements, such as roofs and walls. For instance, meetings and discussions are primarily held indoors (see Figure 6). Meetings, in particular, necessitate proximity to administrative resources like documents and organizational supplies that are located indoors. Other formal activities, such as routine gatherings, often take place outdoors. These gatherings typically do not require the facilities available indoors, making outdoor spaces a viable alternative, especially when accommodating large groups that exceed the indoor space capacity.

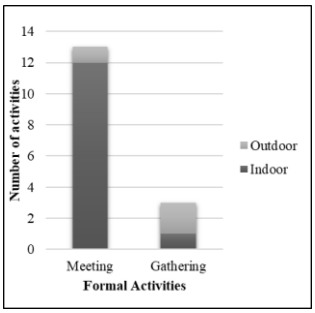

Fig. 6. The relationship between formal activities and types of spaces

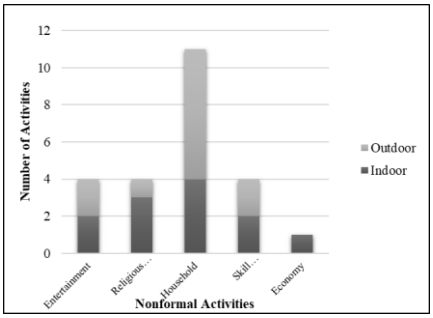

Fig. 7. The relationship between non-formal activities and types of spaces

Informal activities related to household tasks are more frequently conducted outdoors compared to other types of informal activities (see Figure 7). Household-related activities, such as watering plants, cooking, washing, drying camping equipment, and parking motorcycles, are carried out outside. Although some household activities, such as sleeping and eating, take place indoors, their proportion is smaller compared to those done outdoors. Entertainment activities are equally distributed between indoor and outdoor spaces. Similarly, skill-enhancing activities occur both indoors and outdoors without a clear preference for either setting.

4.3.3 Relationship Between Types of Activities and Physical Elements

Both formal and informal activities can be related to the types of physical elements that define the boundaries of the areas used. Both formal and informal activities predominantly utilize fixed physical elements rather than semi-fixed ones (see Figure 8). The main physical elements shaping activity spaces are permanent structural features, such as roofs, walls, and floors, which constitute a larger portion of fixed elements in the main spaces. Formal organizational activities tend to use more permanent spaces, which are characterized by fixed elements. Nonetheless, all activities conducted by group members, whether formal or informal, will continue to use the primary spaces dominated by fixed elements as their main territory, resulting in a greater proportion of fixed element usage.

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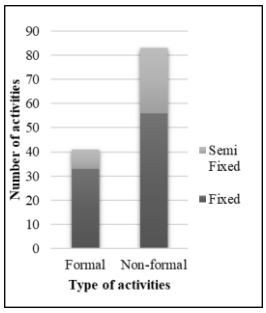

Fig. 8. The relationship between activity types and the physical elements

Details of formal activities, such as meetings and discussions, require more permanent and enclosed spaces (see Figure 9 left). Meetings need a quiet environment free from external disturbances, making the use of permanent or fixed physical elements essential for maintaining privacy. Routine gatherings, which are less frequent than discussions, do not show a strong preference for fixed elements. Annual gatherings, attended by a large number of people, may require more space than what is available in permanent rooms, sometimes necessitating additional semi-fixed elements such as mats to expand the activity area. Informal activities demonstrate a greater use of fixed physical elements (see Figure 9 right). Despite their more flexible nature and lesser need for privacy, informal activities still rely on primary territories dominated by fixed elements.

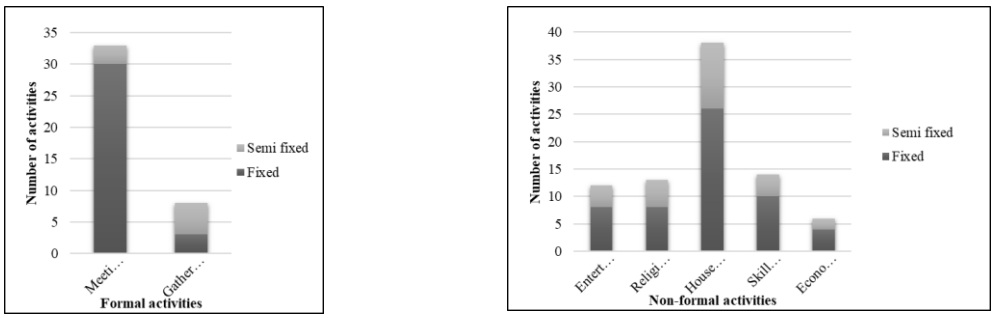

Fig. 9. The relationship between formal/non-formal activities and types of physical elements

4.4 Occupied Territory

The area utilized by students for their activities can be observed through the physical elements employed. Physical elements serve as markers that define territorial boundaries. The placement of physical elements, whether fixed or semi-fixed, can be examined through the layout diagrams (Figure 10). In outdoor areas, semi-fixed elements are predominantly used to delineate activity territories.

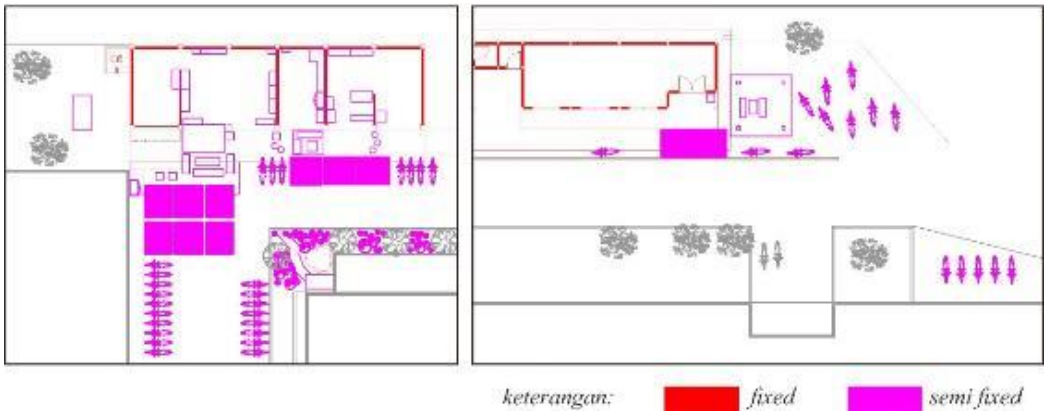

Fig. 10. Territory based on physical elements

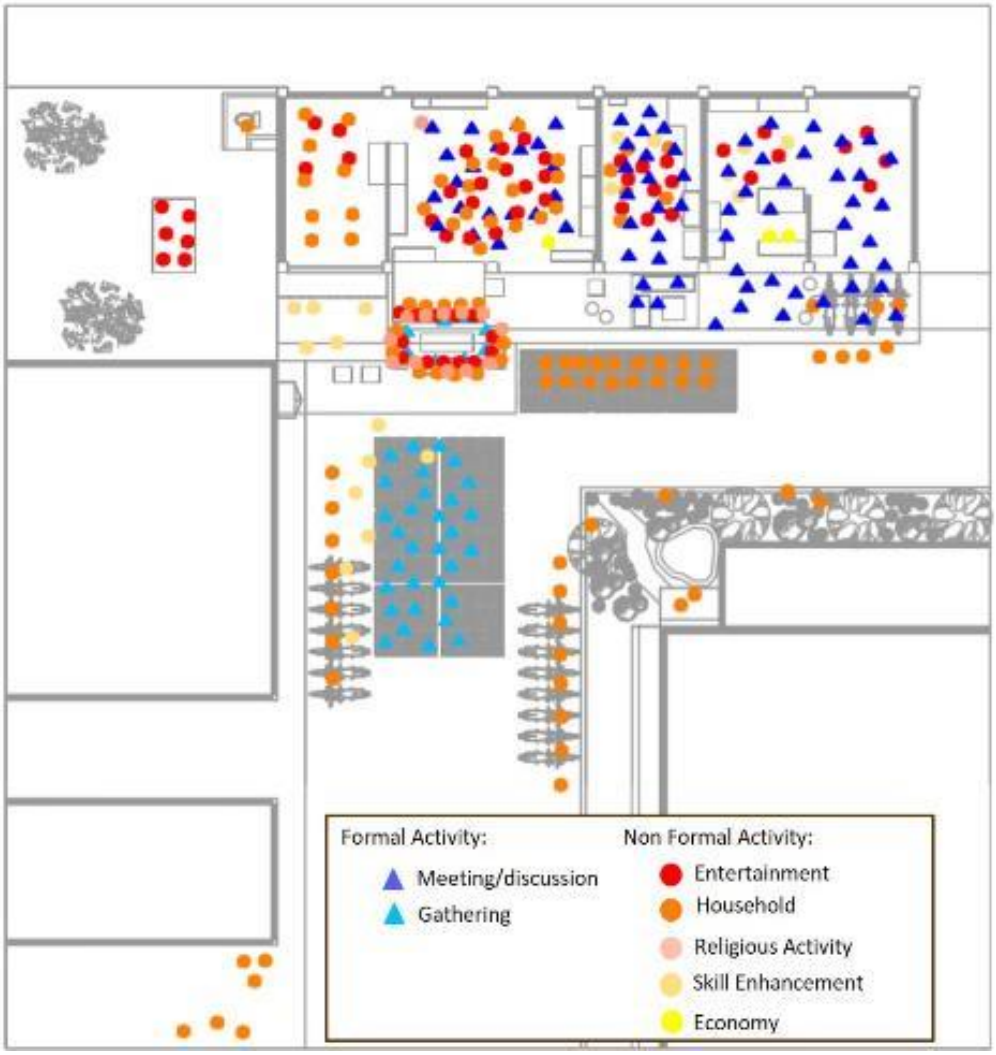

Fig. 11. Territory utilized in indoor and outdoor spaces (communities A, B, C)

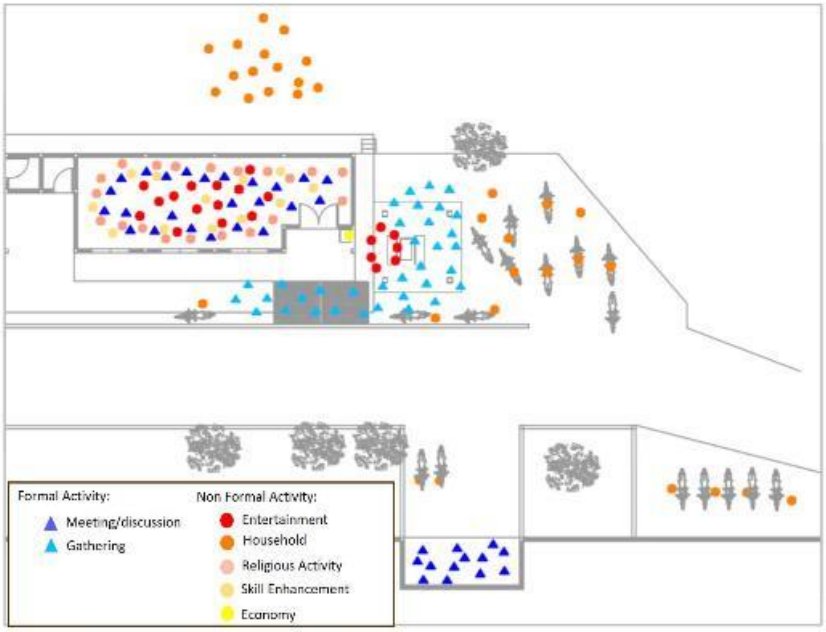

Fig. 12. Territory utilized in indoor and outdoor spaces (community D)

Both formal and informal activities are conducted in both indoor and outdoor spaces (Figure 11&12). The territory used for activities extends beyond the physical elements that mark it. Some activities are not constrained by physical semi-fixed elements, as they are temporary and infrequent, occurring only at specific times. The area used for informal activities outdoors extends further than the outdoor area designated for formal activities.

The extent of the utilized territory can be assessed based on the percentage of area covered. The area used, considering the combination of physical elements and activities, can indicate whether the territory extends beyond the provided spaces (Figure 14).

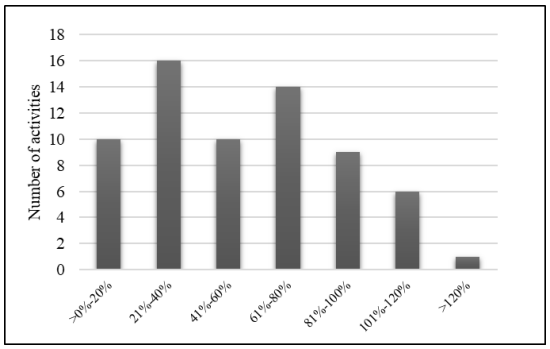

Fig. 13. Percentage of Area Utilized Based on Activity and Physical Elements

The graphic data in Figure 13 indicates a range of percentages for the area utilized to accommodate activities. The 100% benchmark is based on the total area available to each organization; therefore, if the percentage is less than 100%, the space used for activities is still within the available area. Conversely, if it exceeds 100%, the utilized area surpasses the available space. Figure 14 shows that the majority of activities occupy approximately 21% to 40% of the available space. Only a small part of activities uses areas exceeding the space provided (101%-120% and >120%). This suggests that the capacity of the provided spaces is generally sufficient to accommodate the activities of the occupants.

However, even when the percentage of space used is within limits, areas outside the designated spaces are still utilized due to the need for activities that require additional space. As illustrated in Figure 14, there are instances where activities occur outside the provided areas, even when the percentage of space used is less than 100%. When the area used exceeds 100%, it indicates that some activities take place both indoors and outdoors simultaneously.

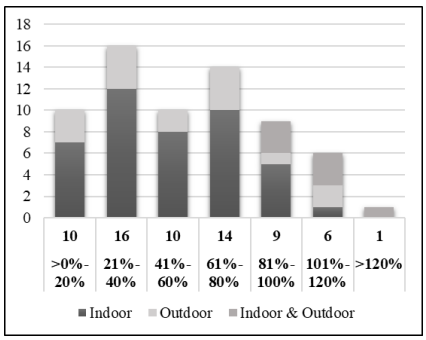

Fig. 14. The categorization of spaces based on the percentage of area utilized

The use of space where occupants adjust their needs by utilizing designated areas or expanding their territory reflects a form of personalization that involves marking a place. This condition exemplifies one of the mechanisms of territorial formation, as noted by Altman (1975) and Hall (1966), who describe territory as a mechanism of self-regulation involving personalization or marking of a place owned by an individual or group. According to Altman, marking territorial boundaries beyond one's own territory has the potential to interfere with the territory of others, potentially causing issues. However, in the activity spaces observed in this study, no problems arose from territorial expansion. Each organization's personalization has not yet reached the point of interfering with others, remaining within permissible limits. This situation may be due to the fact that the environment where the student activity spaces are

located is part of the campus, where most areas are shared/public, except for spaces designated for specific activities. In relation to the type of territory defined by Altman, the student activity spaces are considered primary territories, while the surrounding areas represent public territory. The student spaces in this study are not designed to include secondary territories, thus the function of secondary territories tends to merge with primary territories or users create their own secondary territories by adding semi-fixed elements in front of their spaces.

Hall (1966) asserts that in creating an extension of their territory, individuals simultaneously provide territorial markers, both visible and invisible. This means that territorial markers are not only physical but can also include non-physical, invisible elements. This is supported by the research of Adisaputri and Widiastuti (2015), where ritual activities, which do not involve physical elements, also form their own territory. In this context, student activities that do not involve physical elements and use outdoor settings but remain around the main space can be considered an extension of their territory.

5. Conclusion

The relationship between activities and the physical setting of student organizations in the Faculty of Engineering at UGM reveals that the provided indoor spaces do not accommodate all student activities. As a result, adjustments are made by adding physical elements to areas outside the designated spaces. Personalization of the extended territory for activity spaces is more commonly seen in informal activities, as formal activities are mostly accommodated within the fixed spaces provided by the institution. The inability of the provided spaces to accommodate all student activities is more due to the nature of the activities requiring areas beyond the confines of the indoor spaces, rather than the size limitations of the spaces themselves. The need for outdoor space arises because extracurricular activities are typically informal. The expansion of physical settings is predominantly realized using semi-fixed physical markers, which can be moved as needed in certain situations. Although there is an expansion of physical settings, the proportion of activities using the provided spaces or fixed elements is higher, indicating that the personalization of spaces outside does not significantly disturb others or lead to many interventions. The extended area used based on activities covers a broader scope than the physical markers. However, this extensive use of space is generally temporary or situational, thus avoiding issues of interference.

The relationship between student activities and physical spaces, as revealed in this paper's findings, demonstrates the dynamics that emerge in accommodating unmet needs within student-owned spaces. These findings could be valuable for future design projects, where student organization spaces should consider a range of activities that encompass not only formal but also informal activities. The design of student organization spaces must take into account the flexibility of room functions to align with the characteristics of student group activities. Given the diverse characteristics of student group activities, further research on student spaces is necessary to enrich the discourse on the design of student organization spaces.

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