

Variety of Changes in Spatial Patterns of Residential Space in Soropadan Village as an Impact of the Development of Economic Activities

Suparno^{*, a,1}, Endah Tisnawati^{b,2}, Aisha Astriecia^{c,3}

^{a, b, c} Universitas Teknologi Yogyakarta, Yogyakarta, Indonesia

¹ suparno@uty.ac.id*, ² endah.tisnawati@uty.ac.id; ³ aisha.astriecia@staff.uty.ac.id

Abstract

Reduced open land, traffic jams on the village's main road, disruption of the safety and comfort of the living environment are only a few effects that can result from the conversion of homes into student dormitories in the form of boarding houses. This also takes place in open residential neighborhoods outside of Yogyakarta, specifically in Soropadan Village, Condongcatur Village, Depok District, and Sleman. Descriptive qualitative research methodology is employed in this study. The decision is taken taking into account the occurrences that are seen in the field. Direct field observations were used to gather the primary data selection technique, which was subsequently used to collect data utilizing qualitative data techniques. In order to understand the numerous changes in the spatial pattern of residential housings discovered in the boarding house type student dormitory in Soropadan Village as a result of the development of economic activities, this study attempts to determine the tendency of the spatial pattern of settlements. The study's findings include the similarity of changes to the spatial layout of residences into boarding-type student dormitories with a linear layout, the spatial arrangement of boarding rooms and shared rooms forming a centralized layout with the shared room serving as the center of activity in student boarding houses, and the propensity to add boarding rooms. The location of the service area, including restrooms, laundry facilities, and kitchens, is always at the rear of the building, immediately before the road. Economic development, environmental changes, population increase, and the creation of local infrastructure are all reasons that can cause a home's usage to change from a residential to a dorm-style boarding house for students.

Keywords: spatial pattern, housing, boarding house, economy

I. INTRODUCTION

One of the architectural items that is essential to human life is the residential house. Residential design, including residential architecture, can represent and embody the purpose, behavior, and organization of a community of residents. The house serves as a hub for the realization of life, a cultural hub, and a location for people to engage with one another within families or communities. A building can express the demands of its residents, which are influenced by socioeconomic, psychological, and cultural factors [1]. The most fundamental aspect of human culture is the dwelling. Culture developed from these homes. Humans first learn to appreciate spatiality and human relationships within residential houses before learning about these concepts outside of these structures. The system that is created within people's homes and yards will be severely impacted when they find themselves in a transitional situation between their native culture and the new culture that moves in [2]. Sociocultural, economic, and religious considerations all have a role in influencing how an architectural design is manifested physically in a house or other structure in a community [3].

The purpose and significance of a structure might alter as it develops. The purpose of constructing a home for its occupants can serve as a springboard for tenants to modify the design of their home in accordance with their needs and life goals [1]. Changes in a residential building are primarily brought on by both internal and exterior factors, namely:

- a. Internal persuasion. The promotion of many wants in human life is what gave rise to the dwelling. The spaces will alter as needs or interests change [1].
- b. Changes in a residential environment are tied to external influences received by local residents, including through tourism, or external influences received by one's life requirements [4]. The amount, cost, nature, and nature of the items required can alter as a result of tourism [5].

Three different approaches can be used to determine the traits of residential or residential architectural types, as shown in [6]:

- a. Spatial system. Identify the type and form of space and how the relationship between these spaces.

- b. Physical systems. Identify through the characteristics of its components; the material and structure of the elements that make up the space/building.
- c. Stylistic system. Related to the appearance of the building, how the shape and arrangement of the windows and doors and ornaments on the facade of the building, and other specific elements.

Habraken and Schulz claim that there are two methods for identifying variation in the spatial layout of the house: [7], [8]:

- a. Orientation or position, which refers to the relationship, organization, hierarchy, center and connecting lines of space.
- b. Identification, which refers to the quality of the physical elements of space, the size, openness and closure of space, the type of territory and the use of space.

Alterations to the construction site affect the materials' volume, composition, and structure [9]. Based on the study's findings, Marsoyo and Indrosaptono asserted that residential structures frequently undergo modifications in terms of their purpose, size, and layout in order to accommodate the family's business (economic) needs as well as their need for privacy [10], [11].

In essence, the movement of a building site's components is what causes changes to take place there. The addition, subtraction/removal, and shifting of pieces are the three fundamental displacements that collectively cause all changes on the site. When there are new elements, changes are referred to as developments or additions. If there is a drop in elements, it is referred to as a decrease or reduction. Movement is defined as the change in the element's position. Materials, space elements, and spatial components can all be considered as building elements [9].

The rise in occupancy leads to a shift in the use of land from open spaces, plantations, and rice fields, to residences or other facilities. This is in line with Bintarto that there was an increase in occupancy as a result of both an increase in city dwellers and an influx of new people from outside the city [4]. The evolution and transformation of the city can also be traced in the shift in the societal structure of its inhabitants, specifically from an agrarian to a non-agrarian structure [12]. Alternatively, it moves from primary to secondary activities. The urbanization process that a city goes through leads to shifts in agrarian livelihoods to other types as well as changes in human behavior from rural to urban [12], [13]. Finding out the history of and explaining the numerous changes in the spatial layout of the housing utilized in the boarding house-style student dormitories in Soropadan Village are the objectives of this study.

Residential houses may evolve or take on new roles as they develop. The issue of residential houses being converted into student housing in a number of residential neighborhoods in Yogyakarta's suburbs, including Soropadan Village, Condongcatur Village, and Depok District, has proven to be a significant environmental issue. Reduced open space, gridlock on the main village roads, and disruptions to the safety and comfort of the living environment are a few of them. This is possible because some of the previously described factors can induce it.

The majority of the houses in Soropadan village now double as housings and hostels for students. The equilibrium of the living environment will be impacted indirectly by turning the house into a site of service business [12]. Soropadan village will experience changes in the spatial arrangement of buildings as a result of the conversion of a residential house into a place of business.

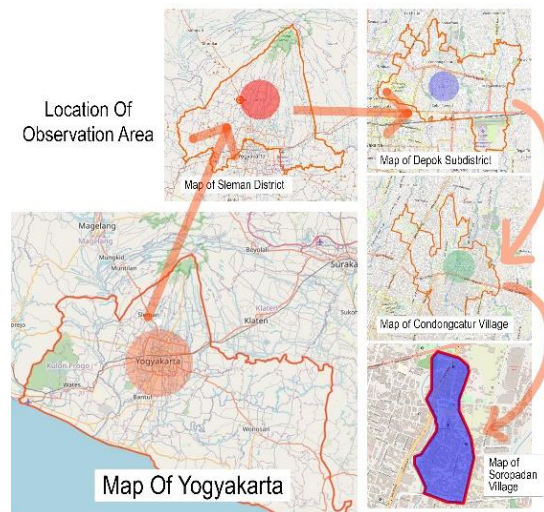


Figure 1. Location of the observation area

The purpose of houses changed in Soropadan village starting in the 1980s, when people's houses still had the appearance of traditional Javanese house. This is supported by the finding of the *senthong* function in a number of the village's residential buildings. The house's *senthong* role has been altered to a room or boarding house as of late. This drastic transformation takes place in a number of situations. Over a lengthy period of time, this transformation has occurred numerous times.

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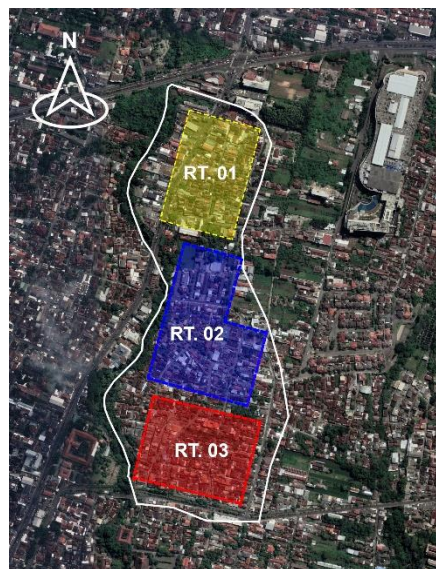


Figure 2. Residential area of Soropadan village
Source: Field observations, 2021

II. RESEARCH METHOD

A. Research Methods and Approach

This study employs a qualitative descriptive method. This study aims to explore the situations, conditions, or other items that have been discussed is referred to as descriptive research, and the findings are provided in the form of a research report [14]. Descriptive study is a type of research that focuses on exposing different social and environmental events that occur in people's daily lives. The particular mentioned in this instance are more in line with the connections, effects, and solutions given [15]. Through a qualitative descriptive research method, information is gathered using words, images, and other non-numerical formats. These facts can be discovered through interviews, field notes, photographs, videotapes, personal records, notes, or other records [16].

Qualitative research methods, such as in-depth exploration and analysis of social phenomena to obtain configurations of spatial patterns and interpret them, are used to analyze the various spatial patterns of residential houses that have changed their function into boarding houses for students as a result of the effects of economic changes.

Furthermore, the methodology utilized for the study is qualitative rationalistic, specifically the methodology using the theoretical foundation used to guide the research. Qualitative rationalistic research departs from a theoretical framework that is based on the interpretation of prior research findings, established theories, or the opinions of experts that have been developed into something problematic that requires additional study [17].

Direct field observations were used to gather the data for this investigation. Later, secondary information gathered through institutional surveys enhanced the original findings. Verification, or the analysis model by verifying, is the analytical model applied in this work (communicating between the existing theory and the findings in the field).

B. Identification of Research Objects

Based on the findings of a field study conducted in Soropadan village, it was discovered that residential house have changed in function as a consequence of the influence of changes in economic development, including the construction of shopping malls, hotels, and retail establishments nearby. According to the findings of the field observations, 19 homes had undergone a change in function. These homes had previously only served as a residence, but they now serve as both a home and a place of business, including homes and boarding houses, homes, boarding houses, and shops, as well as shelters. With a total of 120 houses, Soropadan village is made up of three RT, namely RT. 01, RT. 02, and RT. There were 7 houses with a change in function from RT. 01, 7 houses with a change in function from RT. 02, and 5 houses with a change in function from RT. 3.

The demands of business (economic) development to fulfill their daily needs are the root cause of the shift in the function of space that occurs in residential houses into houses and boarding houses as well as residences and places of business in houses in Soropadan village. As a result, many new enterprises try to alter the level of income and the family's economy by turning the home into both a place of home and business.

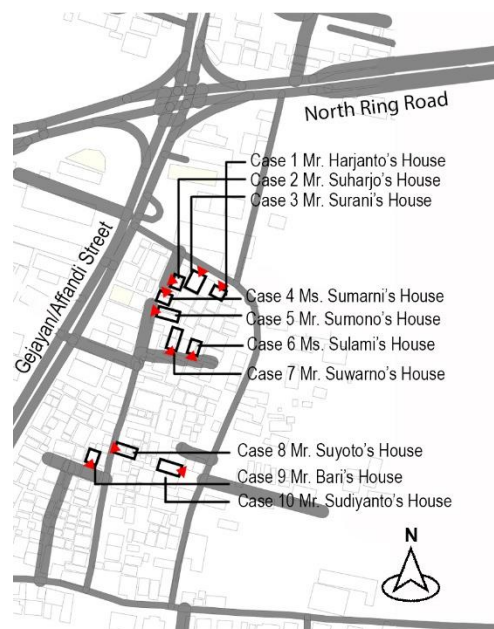


Figure 3. Map of the distribution of houses that have changed functions in the Soropadan hamlet
Source: Field observations, 2021

A typology of alterations in the residential spatial pattern into boarding house-style student housing in Soropadan village is how the issue that might be presented by this study is formulated. In Soropadan Village and Jalan Gejayan Yogyakarta, this study seeks to identify the types of changes in spatial patterns that result from the expansion of commercial activity from residential houses into boarding houses for students. In Soropadan Village and Gejayan Street Yogyakarta, there is a boarding house-style student residence that serves as the research hub.

The study's findings are anticipated to enhance architectural concepts, particularly the idea of converting a residential home's use into boarding-style student housing in response to the influence of the growth of economic activities.

III. ANALYSIS AND DISCUSSION

There were 8 examples total in the data that were discussed in this academic research. The cases were chosen based on how the growth of the local economy had an impact on the housing in Soropadan Village. The eight cases are Case 1 (Mr. Harjanto's house), Case 2 (Mr. Suharjo's house), Case 3 (Mr. Surani's house), Case 4 (Mr. Sumarni's house), Case 5 (Mr. Sumono's house), and Case 6 (Mr. Sulami's house). Case 7 (Mr. Suwarno's house), Case 8 (Mr. Suyoto's house), Case 9 (Mr. Bari's house), and Case 10 (Mr. Sudiyanto's house).



Figure 4. Diversity of cases in research
Source: The results of the author's team analysis, 2022

The analysis of spatial changes found in this study is about changes in the spatial pattern of boarding rooms, spatial patterns of service rooms in buildings, spatial access patterns of buildings and spatial patterns of buildings on regional spatial patterns. Changes that occur are observed based on the spatial location of the function and spatial of the building's spatial, as well as the changes contained in the spatial of the building to the spatial area.

A. Changes in the Spatial Pattern of the Boarding Room

The changes seen in the building are the addition of rooms that function as bedrooms for rent (boarding rooms). The average size of the new room is 3x3 m². The size of the room is adjusted to the needs of the tenants, namely resting, sleeping and storing basic personal needs. Homeowners provide a shared room to accommodate activities other than resting and sleeping, such as receiving guests or a shared interaction room, cooking, or storing the tenant's motorized vehicle.

The addition of the new boarding house is closer to the road than the old boarding house. Even though the addition of a new room is closer to the road, the orientation of the entrance still leads to the living room as a common room. This addition occurred in all cases studied. The addition of new boarding houses was also found to be carried out not only on the old building parcels, but also increased the area of land parcels. This condition occurs in Case 2, Case 9, and Case 10.

The addition of rented bedrooms always forms a linear pattern. The new bedroom is always next to the old bedroom. All bedrooms for rent have the same pattern, which is facing the common room in the middle of the building. This pattern is seen in Case 3, Case 4, Case 5, Case 6, Case 8 and Case 9.



Figure 5. Spatial changes in the addition of boarding rooms
 Source: The results of the author's team analysis, 2022

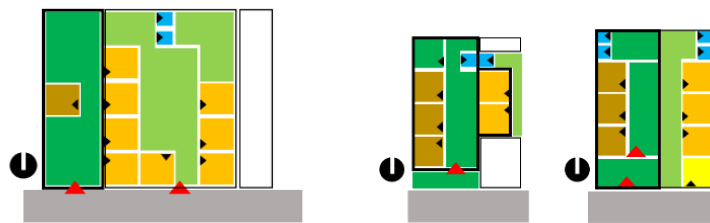


Figure 6. Pattern of spatial changes in the addition of boarding rooms on additional land
 Source: The results of the author's team analysis, 2022

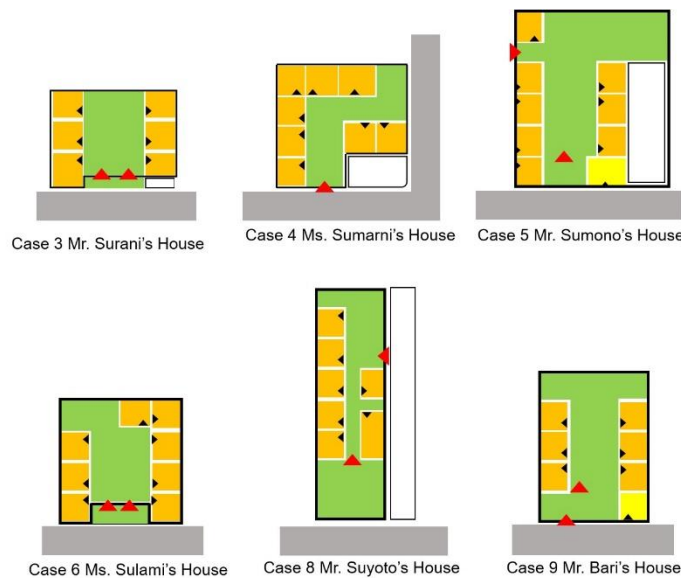


Figure 7. Spatial pattern of boarding rooms to common spaces
 Source: The results of the author's team analysis, 2022

The main area for user interaction in the building is the common room in the middle of it. In addition to maintaining the privacy of boarding room users, the size and style of shared room furnishings demonstrates the community among boarding room users in the building.

B. Spatial Pattern of Service Room in Building

There is always a portion of a home that serves as a service room, whether the home is utilized privately or communally, such in boarding houses. Usually a bathroom, toilet, laundry room, and drying area make up this service room. The service room may also take the shape of a garage in certain building operations, serving as a place to store motorized vehicles used by boarding room customers (boarding room tenants).

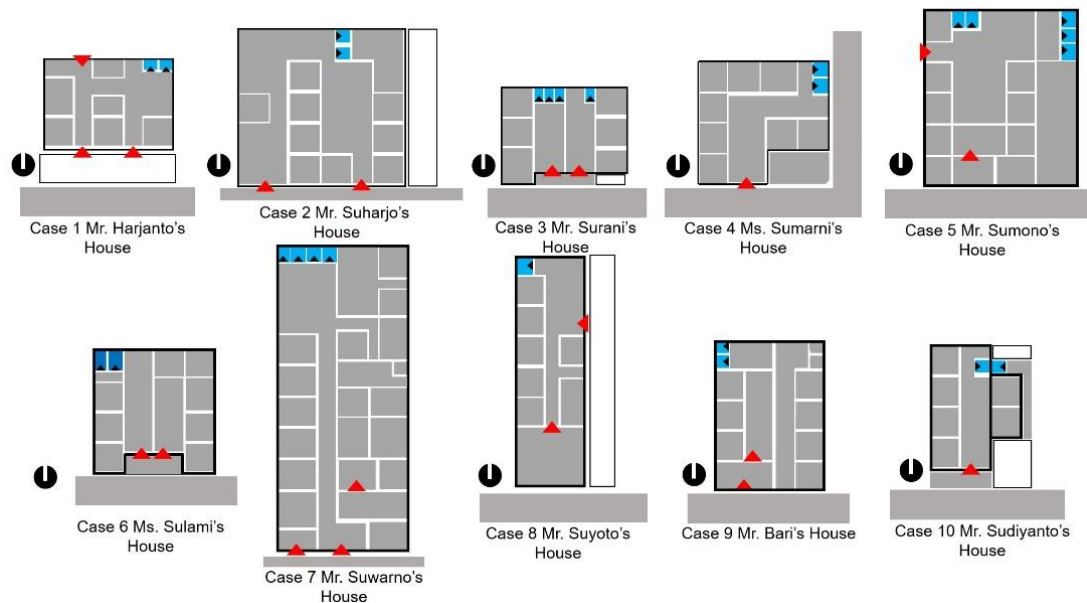


Figure 8. Spatial pattern of service room position to house building
 Source: The results of the author's team analysis, 2022

The spatial pattern of the position of the service room to the house building occupies the deepest position of the house boundary. This position is usually referred to as the back of the house.

Table 1. Comparison of the addition of a dormitory bedroom and the addition of a toilet

	Number of New Boarding Rooms	Number of New Toilets
Case 1	3 bedrooms	Not available
Case 2	8 bedrooms	1 toilet
Case 3	2 bedrooms	3 toilets
Case 4	2 bedrooms	Not available
Case 5	2 bedrooms	2 toilets
Case 6	5 bedrooms	Not available
Case 7	10 bedrooms	4 toilets
Case 8	2 bedrooms	Not available
Case 9	3 bedrooms	2 toilets
Case 10	2 bedrooms	1 toilet

Source: The results of the author's team analysis, 2022

Cases 1, 4, 6, and 8 did not have an additional toilet space. The average adds 2 rooms when compared to the increase in new boarding house bedrooms. Due to the installation of 5 dormitory bedrooms in Case 6, there was an exception, although there were not also more restrooms added.

C. Building Spatial Patterns to Regional Spatial Patterns

The spatial organization of the buildings on the spatial area is also impacted by changes in the local economy around the Soropadan settlement. This is evident in the shift in the house's orientation and the growth of the boarding rooms, which are constantly moving closer to the road.

In situation 6, the approach to the house first results in a narrow road to the east of the house. The direction of the house then changes to face the village road towards the south after it is converted from a residential to a

boarding house. The house's main entrance has also received renovations based on the building's orientation. This circumstance also exists in case 10.

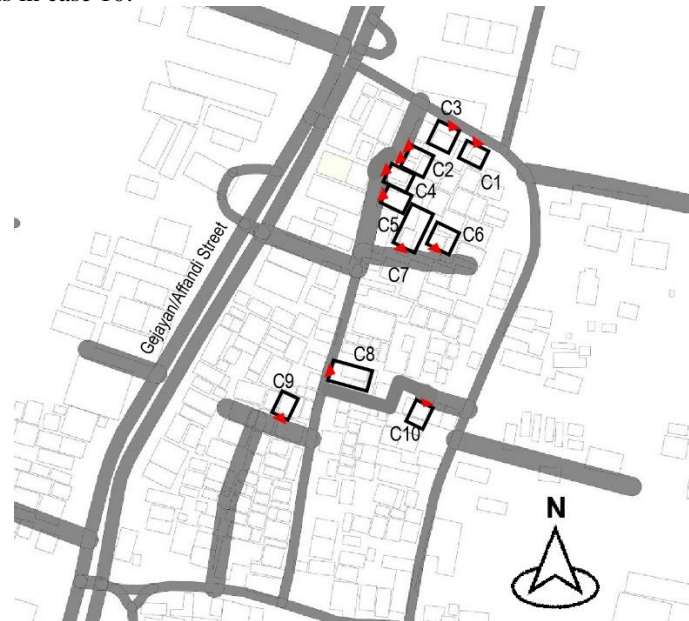


Figure 9. Spatial pattern of buildings against regional spatial patterns
Source: The results of the author's team analysis, 2022

IV. CONCLUSION

According to the findings of the analysis and discussion above, it can be inferred that the changes of spatial pattern in the spatial layout of residential homes into boarding houses for students in the study region share certain characteristics. The specific similar patterns are as follows:

- a. The boarding house's spatial layout has similar linear design.
- b. The shared room serves as the hub of activity in the student boarding house due to the spatial arrangement of the boarding rooms and shared rooms which forms a concentrated pattern.
- c. The practice of building new boarding houses is about to become commonplace.
- d. The location of the service area which includes restrooms, laundry facilities, and kitchens is always at the rear of the structure.

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