
A STUDY OF THE RELATIONSHIP BETWEEN APARTMENT OCCUPANCY PATTERNS AND STUDENT BEHAVIOR PATTERNS

Case Study: Gading Icon Apartment

**Ari Widyati Purwantiasning¹, Mohammad Baskoro², Muhammad Ibnu Fachry², Rustama
Fasda Bimatukmaru²**

¹ Lecturer-Department of Architecture, Universitas Muhammadiyah Jakarta, Indonesia
² Student-Department of Architecture, Universitas Muhammadiyah Jakarta, Indonesia
Email address: ari.widyati@umj.ac.id

ABSTRACT

Apartment is a room or several rooms (rooms) that are functioned or designated as a place to live, located in a building that usually has other room or rooms. This study attempts to explore and analyze the relationship between residential space patterns and student behavior patterns in Jakarta. The behavioral patterns of students that affect the pattern of vertical residential spaces not only have an impact on the behavior and form of space but also see how student behavior shapes architecture in residential space patterns and architecture shapes student behavior. The purpose of this study is to understand the theory related to the relationship between vertical residential space patterns and student behavior patterns, to understand the characteristics of the relationship between residential space patterns and student behavior, to understand environmental factors for student behavior. The research method taken on the research approach uses a qualitative descriptive method. The data studied and obtained are physical and non-physical data obtained from interviews, observations, and mapping of student behavior patterns in residential spaces of apartment in Jakarta. The approach that will be used is the Human Behavior approach to students in apartment housing. From the analysis of behavior patterns carried out, student activities are quite dense, causing the use of furniture according to needs and has ergonomic characteristics.

© 2023 IJBESR. All rights reserved.

Keywords: Apartment, Behavioral Patterns, Space Patterns, Students

1. Introduction

An apartment is a room or several rooms (rooms) that function or are intended as residences, contained in a building that usually has rooms or other rooms and the like (Poerwadarminta, 1991).

From Poerwadarminta's understanding, an apartment is a whole vertical or horizontal building with room space, or several rooms used as residences equipped with various facilities. An *apartment* is a residence that is seen as a commodity, no longer as a community.

Space is defined as abstract and more intuitive. Space encompasses imaginary boundaries, and it appears that there are hidden dimensions of space that contribute to the formation of architectural space (Hall, 1966). Space becomes a fundamental or essential word when one talks about the fundamentals of architecture; even designers strive to make the design of a space well realized, with all technical requirements and other provisions to create comfortable and safe spaces for the creation of experiences for space users.

Space in this study has plural and different meanings and values on the level of appreciation and cognition of everyone who uses the space. This research looks at aspects of different norms, cultures, and psychology that will produce different concepts and forms of space (Rapoport, 1977). The concept of territory is part of space design, which is a development of the theory of behavioral constraints or behavioral barriers. Behavioral barriers are individuals or groups who lose control over certain situations that impact environmental design or vice versa (Fitria, 2018).

The reactions that humans have to a place, space, and environment have differences for everyone, if calculated against architecture, naturally can be determined by psychological reactions to the influence of space. Space is the most miniature built environment system that is very important because most of the time that humans spend in modern times today is in the room. Behavior in architecture is defined as a plot bounded by walls and roofs, which have permanent and non-permanent elements. Space has a relationship and influence on human behavior, on the function or use of the space.

The influence of space on the behavior of its inhabitants has clarity because users carry out certain activities in each of these spaces so that behavior that arises from the use of space can be created (Fitria, 2018).

Based on the description above, this study tries to explore and analyze the relationship between residential space patterns and student behavior patterns in Jakarta. The behavior patterns of students that affect vertical residential space patterns not only have an impact on the behavior and shape of space but see how student behavior shapes architecture in residential and architectural space patterns shape student behavior. So that it can see how the spatial pattern that provides a level of comfort and the dimensions of space formed from student behavior, and vice versa.

2. Material and Methods

Research methods taken against the research approach use qualitative descriptive methods. The data researched and obtained are physical and non-physical data obtained from interviews, observations, and mapping student behavior patterns in residential rooms of Jakarta apartments. The approach that will be used is the Human Behavior approach to students in apartment occupancy, to emphasize the relationship between space and humans in it. The final result of this study is in the form of an architectural description, where the data produced is in the form of narratives and an image of the form of spatial relationship patterns to student behavior using the concept of behavior mapping. Gading Icon Apartment, located on Jl. Perintis Kemerdekaan No.Kav. 99, RT.1/RW.1, Pulo Gadung, Kec. Pulo Gadung, East Jakarta, Special Capital Region of Jakarta 13210. The analysis material used *behavioral mapping* methods to record student activities in apartment unit occupancy within a specified period of time.

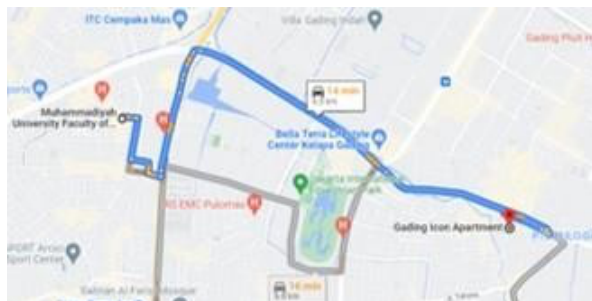


Figure 1. Apartment location route to student campus
(Source: Google Maps, 2022)



Sumber : Widyatun, 1999

Figure 2. Human behavior cycle
(Source: Widyatun, 1999)

Behavioral Architecture

According to Skinner (1938) quoted in Soekidjo Notoatmodjo (2003) states that behavior is a reaction/ response of a person to a stimulus (stimulation) from outside. So that behavior occurs through a process of stimulus to the organism, then the organism responds. Skinner's theory can be summed up this S-O-R (stimulus-organism-response).

This theory of human behavior can be concluded to discuss the observation of visible human behavior and just want to see how the pattern of human behavior towards the surrounding environment. Factors that Influence Human Behavior Factors that influence human behavior include:

1. Genetic,
2. Attitude,
3. Social norms,
4. Control of personal behavior.

Humans behave or move because of the goal to achieve one goal or global. With the need or need of one's self, motivation or mobilizer/ encouragement will arise, so that humans or individuals are active/ behaved, so that goals are achieved and individuals experience satisfaction. The circular cycle again meets the next need or another need and so on in a process of human behavior (Widyatun, 1999).

Presenting a formulation of a behavior can provide information on how the role of behavior is to the environment and the individual or organism concerned (Bandura, 1997). Bandura's formula is B: behavior, E: environment, P: person or organism. Environmental behavior and the individual himself interact with each other. This means that individual behavior can affect the individual himself, besides that behavior also affects the environment, can affect the individual, and vice versa (Walgito, 2003). Research by Barker (1968) in ecological psychology led to a breakthrough in how to identify constant or periodic behaviors that appear in a situation certain places or situations, there are several settings that are described in two terms, namely:

1. System of setting (place or spatial system). A series of physical or spatial elements that have a certain relationship so that they are used for certain activities, for example open spaces, exhibition halls, or sidewalks for street vendors.
2. System of activity (system of activities as a series of behaviors). A series of behaviors deliberately carried out by one or several people, for example a series of preparations and services at the hotel, and a series of wedding ceremonies.

According to Hendro Prabowo (1998) in his book *Architecture, Psychology and Society* there are four views related to how broad the influence of architectural design on human behavior as users, namely:

1. The free-will approach goes to the extreme of arguing that the environment does not impact behavior.
2. Architectural Determinism is one of the early concepts of architecture toward behavior. This term is called physical or environmental Determinism (Lang, 1987). Architectural Determinism means that the built environment shapes human behavior within it. Architecture and design are seen as the sole cause of behavior in its most extreme form.
3. Environmental possibilism: The environment opens vast opportunities where human behavior can occur or otherwise cannot occur. However, man is not entirely free to make his choices. Everyone has motivations and competencies that are least influenced by the natural, social, and cultural environments. According to this concept, the results we determine are determined by the environment and our choices.
4. Environmental Probabilism is a compromise. This concept assumes that organisms can choose variations in responses to various environmental situations, and at that time, probabilities arise about case examples.

Design with specific behavior. This probability reflects the influence of non-architectural factors, as well as the influence of design and behavior. Physical variables that affect human behavior according to Haryadi and Setiawan (1995), among others:

1. Room. The most important thing about the influence of space on human behavior is the function and use of space. The physical

design of space has variables that affect the behavior of its wearer.

2. Size and shape. The size and shape of the space must be adjusted to the function to be occupied, sizes that are too large or small will affect the psychological wearer.
3. Furniture and its arrangement. The form of arrangement must be adjusted to the nature of the activities in the space. The symmetrical arrangement gives a rigid, and official feel. While asymmetrical arrangements are more memorable, dynamic, and less official.
4. Color. Color has an important role in creating the atmosphere and realizing the realization of certain behaviors. In space, the influence of color not only causes a hot or cold atmosphere, but color can also affect the quality of the space.
5. Sound, Temperature and Lighting. Sound is measured by decibels; it will adversely affect if it is too loud. Similarly, temperature and lighting can affect a person's psychology. According to Sobur (2003), adolescence is the period or transition period from childhood to adulthood. Currently so rapidly experienced growth and development both physically and mentally. Elderly adolescents at age (17-20 or 21 years), want to be the center of attention; he wants to stand out himself; It's another way with early adolescence. He is idealistic, has high ideals, is passionate and has great energy. He seeks to establish his identity and wants to achieve emotional independence.

Meanwhile, according to Hurlock (2003), late adolescence (Late adolescence) ranges from the age of 18-22 years currently the individual begins to stabilize and begin to understand the direction of life and realize the purpose of life. Have a certain stance based on a clear pattern. Behavior is all human activities or activities, both those that can be directly observed and those that cannot be

observed by outsiders. Change can be created by changing the events in the behavioral environment that led to that behavior. Learning behavior is all activities or activities to acquire things, understanding, behavior of new individuals. Learning behavior is closely related to the learning activities carried out by a person. Learning activities are all activities of students in the learning process, ranging from physical to psychological activities (Syah, 2004). Regarding eating behavior in adolescents (18-22 years), although none of the subjects obtained scores indicating eating disorders, we saw that men tend to have behaviors characterized by difficulties in controlling impulses associated with food (they increase concerns about overeating) (Settineri, Rizzo, Ottanà, Liotta, & Mento, 2015). According to Monk, et al (2003) cited by Fischer, et al (2008), irregular sleep and wake patterns in adolescence (18-22 years) can be caused by behavioral alignment of the circadian system and may also be the result of chronic sleep deprivation, where sleep and wake time schedules change throughout the week. The study clearly shows that for working students, work is a powerful alignment of sleep and wake schedules. Adolescents exhibit behavior manifested through worship behavior in the context of Islam. Such as the implementation of congregational prayers, remembrance, reading the Qur'an. However, from the observations, it is still seen that students are lacking in the implementation of religiosity in the form of worship behavior (Reza, 2013). According to Priayudana (2014), behavioral independence is an ability to make decisions freely and their choices. Independence is independence in action and free to act alone without relying too much on the guidance of others. Independence begins at the age of the child and develops very sharply throughout his age. Adolescents in vulnerable age 18-22 years have

responsibility and independence for everyone, especially in terms of cleanliness and metabolic needs such as environmental cleanliness, shelter, and limb hygiene.

Apartment Residential Building Typology

Apartments are defined as "*several dwelling units a common (usually an indoor) access and area enclosed by a common structural envelope*", which means residential units that share the same access and are covered by the same building skin structure (Lynch, 1984). An apartment is several family residential units and not a stand-alone residential house, an apartment is a building consisting of three or more residential units in which is a form of shared living in a limited space environment. There are several principles of apartment typology that are used as case studies, including:

1. Apartments based on building height according to (Paul Samuel, 1967) there are several types of apartments based on height, namely:
 - *Low - Rise Apartment*, this apartment has 2 - 4 floors.
 - *Row houses, townhouses, and maisonettes*. This apartment has 1-2 floors, between the mass of buildings one with another building close together or even sharing the same boundary wall.
 - *Mid-rise* apartment, this apartment has 4-8 floors.
 - *High rise* apartment, this apartment has a height above 8 floors.
2. Apartments based on the floor arrangement system, according to Chiara (2001) apartments are divided into two types based on the floor arrangement system, namely:
 - *Simplex apartment (one level)*. This apartment has 1 apartment unit and totals 1 floor.
 - *Penthouse (two level)*. This apartment is at the top of the apartment building and has the largest residential area than the occupancy below.

Triplex (three levels). This apartment consists of 1 unit available in 3 floors. The large number of floors makes each floor can be defined its activities and can be separated.

7. Fitness center
8. Swimming pool
9. Culinary places
10. Access card

Table 1. Student activities of apartment residents

Waktu	Kegiatan
05.00 – 06.00	Cuci muka & shalat subuh
06.00 – 07.00	Mandi
07.01 – 08.00	Bersih – bersih rumah
08.01 – 10.00	Sarapan & Berangkat ke kampus
10.10 – 15.00	Belajar di kampus
15.01 – 17.00	Pulang dari kampus & Siap – siap pergi main
17.01 – 17.30	Pergi main keluar
17.45 – 20.00	Pulang ke rumah & makan malam
20.01 – 21.00	Mandi & istirahat
21.01 – 22.00	Mengerjakan tugas kampus
22.01 – 23.00	Menonton TV
23.01 – 05.00	Istirahat & tidur

Gading Icon Apartment has a very strategic location. This apartment is surrounded by several public facilities, such as shopping centers. Some shopping centers that are close to The Gading Icon Apartment are for example Kelapa Gading Mall (approximately 2 km from the Gading Icon Apartment), Cempaka Mas Mall the distance is also approximately 2 km, the last is Artha Gading Mall is 2 km from the Gading Icon Apartment. Besides being close to shopping centers, The GadingIcon Apartment is also close to other public facilities such as hospitals and Pulo Gadung Terminal. Gading Icon Apartment can be passed by various majors of public transportation. In addition, in front of the Gading Icon Apartment complex, there is also a busway stop, making it easier for residents to access. The Gading Icon Apartment also has various facilities, namely:

1. ATM
2. Club house
3. Jogging track
4. Restaurant
5. Children's playground
6. Mini mart

3. Results and Discussions

3.1. Activity Analysis

During the analysis there were activities carried out by students in their apartment unit rooms, these activities were carried out for a full day. The most dominating activities carried out in the unit room are breaks and doing coursework which is done mostly at the study desk. These activities are analyzed based on activities that are often carried out in apartment residential units, such as studying, resting, eating, hygiene, and worship.

3.2. Analysis of Student Behavior in Gading Icon Apartment Unit

The analysis was conducted by identifying and comparing the behavior of students who died in the Gading Icon type 1 bedroom apartment unit, against behavioral theories with vulnerable ages 18-22 years. Theories obtained on adolescent behavior towards adulthood with an age range of 18-22 years, namely:

1. Learning behavior,
2. Sleep behavior (rest),
3. Feeding behavior,
4. Hygiene behavior of the dwelling,
5. Worship behavior,
6. Bathing behavior,

3.3. Analysis of Space Settings

The activities that occur in the Gading Icon apartment unit are in accordance with observations made in the room in the type 21 residential unit, which has a bed, sink sink, study room, bathroom, and balcony. Every day this apartment is only occupied by 2 people. Very rarely this apartment is

inhabited by more than two people. This residence serves as the residence of the two residents. After returning home from college, this apartment is used as a place to rest and do lecture assignments.

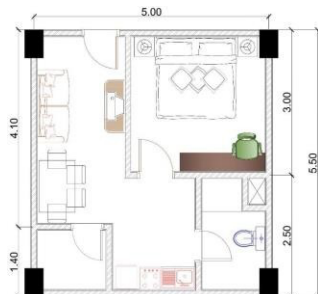


Figure 3. Gading Icon Apartment Plan

Over time, there are additional ornaments in the apartment occupancy. There is no furniture specifically designed to meet the needs of the activities of the residents of this apartment. This participant is an architecture student, although he has special activity needs such as drawing and others but there are not specially designed furniture. Tables for drawing only use tables in general sold on the market.

3.4. Behavioral Mapping

Behavior setting or commonly called (Behavior Setting) is an interaction between activities with a specific place (Barker, 1968). Contains elements of a group of people who carry out certain activities or activities in a place at a specific time. Behavior mapping data using a case study of one of the students visiting the Green Pramuka apartment unit. The residential unit is inhabited by one student and sometimes inhabited by 3 family members, consisting of Father, Mother, and a Child.

Observations are made during lecture days on students. Routine activities carried out in the residential room in the form of studying, resting (sleeping), eating, and

metabolic needs carried out in the bathroom such as bathing, defecating, and urinating. Activities that are routinely carried out by students are studying, on college days students usually study on a bed (if they need a large place to draw) and a study table (if they do not need a large place for note-taking activities). Students do eating activities, usually only eat in the afternoon and evening. This dining activity is usually done on the bed and on the learning table, because there is no dining table, students are more comfortable eating on the bed. Other supporting activities carried out are usually such as praying, preparing meals, storing cutlery, drying wet towels, and so on. From some of these activities, the spaces needed by students are beds, study rooms, kitchens (sinks), balconies, and toilets.

1. Motion mapping in learning activities

Learning activities carried out by students are usually after returning from lecture activities with a conditional time, between 15.30 WIB or 20.00 WIB. Different times when returning home from college due to the schedule of lecture activities that students do on campus. As well as usually Students go out to play after finishing their studies on campus

Table 2. Motion mapping in learning activities

No	Time	Activities
1	15.00	Opening the door
2	15.00 - 15.10	Putting lecture equipment on the table
3	15.10 - 21.00	Eat & Rest
4	21.00 - 22.00	Work on tasks

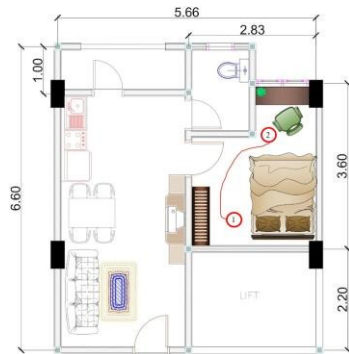


Figure 4. Analysis of the flow of motion in learning activities

2. Motion mapping in break activities Rest activities carried out by students after returning from lecture activities.

Tabel 3. Motion mapping in rest activities

No	Time	Activities
1	15.0 -20.00	Opening doors &; Tidying things up
2	20.00-21.00	Shower & Rest
3	21.00-23.00	Watch TV

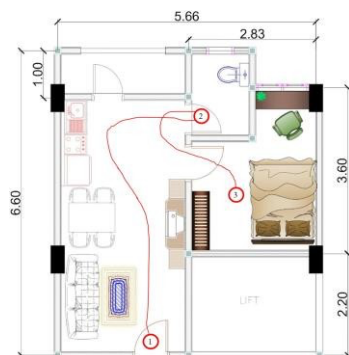


Figure 5. Analysis of the flow of motion in resting activities

3. Motion mapping in eating activities Eating activities carried out by students Monday-Friday when returning home from lectures are carried out at certain hours between 08.01-10.00 WIB. Students in their daily lives always buy fast food, because in their daily lives students rarely cook their own dishes in their apartment residences.

Table 4. Motion mapping in eating activities

No	Time	Activities
1	06.00 - 07.00	Shower
2	07.01 - 08.00	Tidying things up
3	08.01 - 10.00	Breakfast

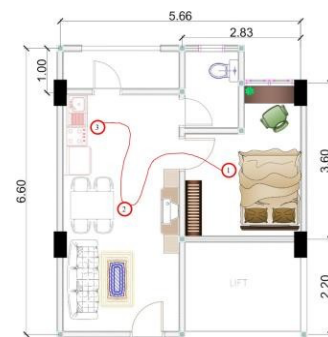


Figure 6. Analysis of the flow of motion in eating activities

4. Mapping in cleaning activities Hygiene activities carried out by students are bathing and changing clothes as well as room cleaning activities. This cleaning activity is carried out by students when leaving for lectures starting at 05.00 WIB until they finish cleaning the room at 08.00 WIB.

Table 5. Motion mapping in cleaning activities

No	Time	Activities
1	05.00 - 06.00	Wash your face & Dawn Shalat
2	06.00 - 07.00	Mandi
3	07.00 - 08.00	Clean - clean room

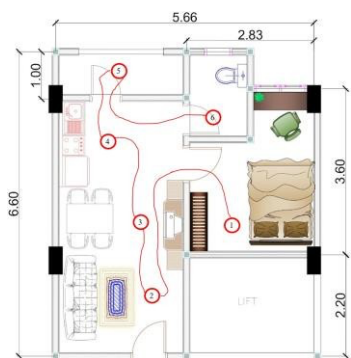


Figure 7. Analysis of the flow of motion in cleaning activities

5. Motion mapping in praying activities
 Praying activities carried out by students on Monday-Friday are carried out after college, namely Asr, Magrib, Isya, and Fajr prayers. Meanwhile, during holidays such as Saturday-Sunday, the entire prayer time is carried out. In the table below are student activities carried out before college.

Table 6. Motion mapping in praying activities

No	Time	Activities
1	05.00 - 06.00	Wash your face & Dawn Shalat



Figure 8. Analysis of the flow of motion in praying activities

4. Conclusion

Based on the analysis that has been carried out on the residential space pattern of the Gading Icon apartment with student behavior patterns. Such behavior learning activities are carried out at the study table located in the bedroom. Limited space and learning activities that require large spaces require students to study and do assignments at the study table. While resting and eating activities, students carry out their activities and behaviors also on the bed and dining table.

The limited condition of apartment unit space does not make obstacles in activities to the behavior of students living in their apartment occupancy. From the analysis of behavior patterns carried out, student activities are quite dense so that it causes the use of furniture according to needs and has ergonomic properties. Excessive use of furniture can narrow the circulation of motion from student behavior patterns. This type of activity is mostly done and spent in bed. These limitations do not hamper overall activities, but can generate new ideas because students utilize and maximize existing space.

References

- Chiara, J. D. (2001). Time-saver standards for building types. McGraw-Hill Professional Publishing.
- Skinner. (1938). Dalam: Notoatmodjo S., (2003). Ilmu Kesehatan Masyarakat. Bab V, Pendidikan dan Perilaku. Halaman 118.
- Poerwadarminta, W. (1991). Kamus Umum Bahasa Indonesia. Jakarta: Balai Pustaka.
- Fitria, T. (2018). Pengaruh Seting Ruang Terhadap Perilaku Pengguna Dengan Pendekatan Behavioral Mapping. *Jurnal Arsitektur dan Perencanaan*, 1(2), 183-206.
- Samuel, P. (1967). Apartment : Their Design and Development. Reinhold.
- Widyatun, T. (1999). Ilmu Perilaku MA 104: Buku Pegangan Mahasiswa Akper. Jakarta: CV. Sagung Seto.
- Rapoport, A. (1977). Human Aspects of Urban Form: Towards a Man-Environment Approach to Urban Form and Design (15 ed., Vol. Urban and Regional Planning Series). Elsevier: Oxford: Pergamon Publishing.
- Lynch, K. (1984). The Image of the City. MIT Press.
- Notoatmodjo, S. (2003). Pendidikan dan Perilaku Kesehatan. Jakarta: PT. Rineka Cipta.
- Bandura, A. (1977). Tinjauan psikologis. *Self-efficacy: menuju teori pemersatu perubahan perilaku*, 84(2), 191. <https://psycnet.apa.org/record/1977-25733-001site/article/view/478/270>.