

Resident's Perception on the Impact of Transitional Spaces On Safety Performance in Low-Cost High Rise Urban Housing in Kuala Lumpur, Malaysia

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Abstract: People's perception of their environment has direct impact on their behavioral response within that environment. Unfortunately, despite of Malaysia government's commitment in providing houses with satisfactory quality level for low medium income group, residence of this type of housing has expressed their dissatisfaction with transitional space in terms of safety performance. This study seeks to examine residence perception on the impact of transitional spaces on safety performance in low-cost high rise urban housing in Kuala Lumpur. Survey research method was used where firstly, direct observation was done to investigate the current situation of the transitional spaces in terms of their design layout and secondly, the questionnaire survey seeks to identify the current level of safety performance in transitional spaces base on resident's perception; Quantitative data are analyzed using statistical excel program. The result

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show that transitional spaces weather indoor or out-door such as lift lobbies, corridors, recreational floor in low-cost housing scheme in Malaysia are not responding to its basic practical means such as safety performance of the environment from the moment it's built. One of the significance of this study is to help architects to be more aware and focused on the impact of transitional spaces on safety performance of the building.

Keywords: Human Behavior, Immediate Transitional spaces, High density residential mix-development

Introduction

Today's advanced teleology's have tremendously affected our understanding on human behavior. From simple tracking, motion detection, gesture recognition to complex activity classification and frequent behavior understanding which helped shifting architects focus to human-centered paradigm where awareness of users and their behavior through experiencing the space plays the central role in the design development applications. Due to urban lifestyle in which large populations of people live in artificially constructed areas, much of their behavior is being influenced and guided by the architectural characters of space and qualities of the physical environments.

Research Background

According to Junaidi the quality of housing has affected the safe, clean and attractive built environment in community (Junaidi, 2012). Malaysian government aim is to provide good quality and affordable housing for all medium and low income levels. But many cases shown that most buildings fail to meet their objectives right from the moment they were completed. (Husin, 2014). The article focuses on Safety Performance assessment on low cost housing in Malaysia and its occupant's satisfactory level of the safety features. However, this study will focus resident's perception of the impact of transitional space on safety performance of low cost housings scheme in Kuala Lumpur.

Low cost housing scheme is more focused on lower standard of housing in order it to be affordable for lower income level of society that is carried by both private and public sectors. Public sector is more focused on public-housing which covers around 40% of the housing apartments while private sectors is more concentrated on medium and high cost housing program which cover about 60% of housing apartments of Kuala Lumpur Malaysia. Unfortunately, most of these high-rise residential buildings found were nor effectively manages dues to ignoring the sustainable agenda in housing management (Eves, 2010). The article is focused on Malaysia High-Rise Residential Property management by examining the current trend of Malaysia housing development. Therefore, my study is focused on the issues that is cause by mismanagement of the property industry in Malaysia such as maintenance failure of facilities like lift lobbies; which

based on literature review is considered as one of the transitional spaces in high-rises, which has raised dissatisfaction for residence because it compromises safety features of the building.

Base on the reviews done on safety issues in LCH, safety is generally characterized under two elements; structural and service items and base on survey study of Technology MARA University in Malaysia in 2014 on satisfactory level of occupants on safety performance in low-cost housing in Kuala Lumpur, safety aspects of these type of buildings especially in their transitional space design are compromised and it need more appropriate design layout for potential crimes (Nawawi, 2014). The article focuses on Safety Performance assessment on low cost housing in Malaysia and how the scheme failed to meet the safety requirement from preliminary stages of design development and its occupant's satisfactory level of the safety features. However, this study will focus residence perception of the impact of transitional space on safety performance of low cost housings scheme in Kuala Lumpur.

Psychological Responses determinants the related emotional needs of one's space such as visual or acoustic privacy; while physiological determinates the physical need of one's in a space such as functionality, life safety or health concerns. Human interaction towards environment characteristics are very complicated and in order to be more understandable the study divides it into three psychological stages of human behavior: perception, cognition, and spatial behavior which each is explained in detail in following paragraph (Shah, 2013).

Transitional space is a space that human processes a change from one environment to another, it can be out door or even indoor and acts as buffer space and physical link other than being functional as circulation route. Common space in residential high rise developments are spaces exist between public and private spaces. (Peter Eisenman, 2007). The article focuses on translating transitional spaces as a physical link between private and public sectors and how it acts to connect the tow domains and create buffer zone as a transitional space between different sectors. However, my study focuses on human perception on the impact of transitional spaces acting as conditioning zone that provides safety features.

Due to blurriness of these characteristics Jae-Hyun Shim redefines the definition of this territory in-terms of architectural point of view and divides them into three main bases which are territorial basis, the spatial basis and the user basis (Jae-Hyun Shim, 2004). The study focuses on is public space planning of mixed-use high rises buildings in Seoul. My study scope however focuses on Kuala Lumpur low cost housing while considering all three main basis of transitional spaces which are lift lobbies, corridors or outdoor transitional spaces such as recreational floors and their impacts on safety performance of the building.

Problem Statement

In general, based on citations presented in background studies (1.1) most of the studies on transitional spaces are referenced from foreign articles that is due to lack of such a study in Malaysia high-rise context. Also, those studies presented in Malaysian context are mostly focused on satisfactory level of residence of low cost housings in general or how transitional spaces affects social interactions between neighbors.

According to Pynoos, from social point of view, housing is more than a dwelling unit and its objective characteristics provides security, privacy, neighborhood and social relations which are the elements that have direct impact on residence therefore it is safe to say that housing satisfactory play an important role in one's life quality and cannot be ignored (Pynoos, 1973).

But unfortunately base on study done by faculty of architecture in University Technology Mara in Malaysia 80.8% of residents of low cost housing in Kuala Lumpur have expressed their dissatisfaction of transitional spaces in terms of safety performance of the space (H.N Husin, 2014).

Therefore, despite of Malaysia's government commitment in providing houses with satisfactory quality level for low medium income group, number of space planning characteristics been ignored. i.e., thespace design of transitional spaces has responded to physical functional needs but it did not full fil their psychological functional needs such as feeling safe.

Research Question

In view of the research aims and objectives, the following research questions were formulated;

1. What are the current design characteristics of transitional spaces in low-cost high rise housing in Kuala Lumpur?
2. What is the current level of safety performance in transitional spaces base on resident's perception in low-cost high-rise housing in Kuala Lumpur?

Aim and Objectives

The aim of this study is to examine residence perception on the impact of transitional spaces on safety performance in low-cost high rise urban housing in Kuala Lumpur.

The objectives of this study areas follow:

- To investigate and describe current situation of the transitional spaces in terms of their design layout.
- Identify the current level of safety performance in transitional spaces base on resident's perception in low-cost high rise housing in Kuala Lumpur.

Literature Review

This Chapter studies on four main areas, first on aspects of low cost high-rise housing in Kuala Lumpur. Second, on human perception and his behavioral responses toward built environment. Later on comprehensive study been presented on transitional spaces and its categories and lastly back ground studies on safety performance of high rises.

Malaysia low cost high-rise housing

According to economics and public policy of London Low cost housing is the “quantity of housing that is required to provide accommodation of an agreed minimum standard and above for a population given its size, household composition, age distribution, etc without taking into account the individual household’s ability to pay for the housing assigned to it.” (Robinson, 1979).

However, MorshidiSirat defines low cost housing in Malaysia differently. He mentioned “In Malaysia, conventional low cost housing is provided by the public and private sectors. Low cost housing is generally defined as the appropriate housing units of which the construction is in accordance with identified minimum standard complying with a code of practice specially created for low cost house.” (Sirat, 1999).

Low cost housing scheme is more focused on lower standard of housing in order it to be affordable for lower income level of society that is carried by both private and public sectors. Public sector is more focused on public-housing which covers around 40% of the housing apartments while private sectors is more concentrated on medium and high cost housing program which cover about 60% of housing apartments of Kuala Lumpur Malaysia (Eves, 2010).

According to Junaidi the quality of housing has affected the safe, clean and attractive built environment in community (A.B. Junaidi, 2012). Malaysian government aim is to provide good quality and affordable housing for all medium and low income levels. But many cases shown that most buildings fail to meet their objectives right from the moment they were completed. (H.N Husin, 2014).

Human Behavior and Responses

Each aspect of an environment such as size of a space or its color, temperature, humidity or furniture and its arrangement have an impact on human behavior and needs to be assessed in terms of its harmony to one another. The challenge is to design and plan the space, furniture’s and its finishes for intended activities that are suitable for the purpose of the space. Ergonomic design recognizes the influence of these design characteristics and elements on human behavior and his perception of the space. Human perception and his reponses to a space-setting can be characterized into anthropometrics, physiology, psychology responses & Sociological responses in relation to the needs of the user within that environment (Shah, 2013).

- I. Physiology Responses to the environment include the spatial occupation representing the “dimensional manifestation of human-body and its “task functionality”. The impact of such respond depends on controlling the stability and mobility for achieving comfort and increasing the efficiency and productivity. Physiological responses depend on each individual characteristic such as age, sex or level of adoption (Shah, 2013).
- II. Psychological Responses determinants the related emotional needs of one’s space such as visual or acoustic privacy; while physiological determinates the physical need of one’s in a space such as functionality, life safety or health concerns. Human interaction towards environment characteristics are very complicated and in order to be more understandable the study divides it into three psychological stages of human behavior: perception, cognition, and spatial behavior which each is explained in detail in following paragraph.

Perception: Perception of an environment, in its most restrict condition is about the process of becoming aware of a space by gaining information through the five senses of human such as sight, hearing, smell, touch or taste.

Cognition however is a mental process of these information which may involve thinking about memories or evaluating of the information for the first time.

Spatial behavior refers to the response and reaction towards this environmental information from perception and cognition process (Gautam, 2013).

- III. Sociological responses of human behavior relate to the social needs of the residence and awareness of their implications. People’s perception of their environment influences their social interaction within that environment. Social interaction can be divided in terms of four concepts: Privacy, Interaction Level, Territoriality and crowding.

Privacy is a central regulatory human process by which Human determine the level of his/her accessibility to others, While Interaction levels is one strategy used in achieving a desire level of privacy without needing enough space to move about. Edward T. Hall defines four distinct distance at which interpersonal transactions normally take place. These are categorized as: Intimate Spaces, Personal Spaces, Social Spaces, and Public Spaces. Intimate spaces is the area surrounding the individual’s body which is the most private area. While personal area is the area that the person allows only friends and families. Social space is which individual expected to make social contact on temporary basis and lastly Public space is the space person does not expect any direct contacts.

Territoriality is about achieving desired level of privacy. It involves being in control of the space and being secure. However, Crowding happens when personal space and

territoriality mechanism doesn't work efficiently which causes unwanted direct contacts which is not desirable (Gautam, 2013).

Transitional Spaces

There have been so many attempts over defining transitional space. Transitional space is a space that human processes a change from one environment to another, it can be out door or even indoor and acts as buffer space and physical link other than being functional as circulation route. Common space in residential high rise developments are spaces exist between public and private spaces. It acts to connect the tow domains and create buffer zone as a transitional space between different sectors (Eisenman, 2007).

Newman divided this territory in 2 two different main areas which are public and private sectors (Newman, 1996). But according to Altman transitional space has three territories which come in progressive order from Private to public sector which are called primary, secondary and public. She added, in-between public and private spaces can have different characteristics which shows the progressive order and functional differences (Altman, 1977).

But due to blurriness of these characteristics Jae-Hyun Shim redefines the definition of this territory in-terms of architectural point of view and divides them into three main bases which are territorial basis, the spatial basis and the user basis (Jae-Hyun Shim, 2004).

- Division by territorial space: transitional spaces are an intermediate and common space as whole but with dividable and sub-territorial boundaries within it that each can affect the human psychological responses differently.

	Function	Uses
Other Public Spaces	Space for general public outside the property	Outside streets parking lots Etc.
Property Line		
External Semi-Public Spaces	Space for entering the property, Making the transition between the outside and the inside and providing communal interaction outdoor	Open plaza, Stairs, Ramps, Gardens Parks, Playgrounds, Walkways and Etc.
Building Exterior Wall		
Internal Semi-Public spaces	Space for internal communities and their	Entrance Lobby, Lift lobby, Stairs, Corridors,

	communal activities more or less secured from the outside of the building	Services and Etc.
Entrance to Private Space		
Inner Private Space	Space for Private Activities	Office Space, Resident Space

Table 1. Division by Territorial Basis (Source: Public Space Planning of Mix-Used High-rise Building by Jae-Hyun Shim, Professor, Sejong University-2004)

- Division by Spatial Basis: Spatial basis is more focused on architectural and its physical characteristics for each sub-territory in relevance to its function.

	Configuration	Uses
Open Space	Opened to natural surroundings to promote outdoor activities	Streets outdoor plaza , Roof plaza, Garden, Play Ground, Etc.
Semi-Open Space	Half Opened and Half Closed with more Territorial boundary	Entry Way, Lobby, Hall, Corridor, Covered Walkway, Pavilion, Etc.
Enclosed Space	Enclosed for internal activities and Privacy	Gym, Community room, Etc.

Table 2. Division by Spatial Basis (Source: Public Space Planning of Mix-Used High-rise Building by Jae-Hyun Shim, Professor, Sejong University-2004)

- Division by User Basis: User basis is defined by user groups and their perception whether a space is public, semi public or private in relation to the space function.

	Function	Uses
Common Space	Space open to general public	Outdoor plaza, Stairs, Ramps, Etc.
Limited Group Space	Space for interests groups or community members	Apartment lobby, Community rooms, Etc.
Personal/ Individual Space	Space for individual private use	residential unit

Table 3. Division by User Basis (Source: Public Space Planning of Mix-Used High-rise Building by Jae-Hyun Shim, Professor, Sejong University-2004)

• **Impact of Transitional Spaces on Human Psychological Responses (Perception):**

As Alexandra C, once said; “the transition must, in effect, destroy the momentum of the closed-ness, tension and distance ...” (Alexandra C, 1977). Men’s experience and perception of space in relation to a building would be totally different from one to another, their reaction towards the change depends upon their level of appreciation in perceiver and his ability to process and response. Based on studies sudden changes can generate negative behavioral responses because it is difficult for the perceiver to adjust to the new experience of the space. However, to avoid such condition; in-between spaces or transitional spaces would be required as conditioning zone of behavior; to avoid the sudden change of condition which can cause physical and psychological separation and resulting in stressful and inappropriate behavioral pattern (Gunawardana I.K, 2005).

Safety Performance

The concept of safety performance:

Building performance relates to a person-environment relationship throughout the entire building life cycle. The three levels of priority in building performance are (Preiser, 2005):

- Safety performance
- Functional, efficiency
- Psychological, Social and aesthetic performance

According to Yau, safety performance is one of the characteristics of the building quality and rating of housing properties whether is rated under good or poor performance it’s mostly related to the failure of safety in the building quality (Yau, 2006). However Pati said the prediction of building performance criteria reflects the expectation held by owners and occupants and the extent to which these expectations are met by designers. (Pati. 2009)

The Safety Performance Issues of Low-Cost Housing:

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The implementation of the safety features should be addressed during the design process. Architects focus on the layout configuration and disposition of the building in order to get the finest design details how ever the focus shall not only be on the aesthetic features but also combination with certain structural solution and style which indicates weather the space should be enclosed or open to serve its purpose safely (Akasah, 2011). Ramly, found out in Malaysia, 47% of defects were caused by design defects, 17% from materials, and 15 % from construction, 18% from misuses of facilities, 15% from poor maintenance and 5% from vandalism. He also found that the majority of the defects identified were architectural works, followed by electrical works, and civil and structural defects (Ramly, 2006). This suggests that defects could have been prevented if consideration were made on the architectural building elements in preliminary stages. Furthermore, Chohan pointed out the needs for architects to prevent these defects by using more appropriate materials and better design and layout (Chohan, 2011).

Base on reviews done on safety issues in LCH, safety is generally can be characterized under two elements; structural and service items and base on survey study of Technology MARA University in Malaysia in 2014 on satisfactory level of occupants on safety performance in low-cost housing in Kuala Lumpur, safety aspects of these type of buildings especially in their transitional space design are compromised and it need more appropriate design layout for potential crimes (Nawawi, 2014).

Methodology

The selection of the appropriate methodologies was based on the type data being sought; live experience, voices and perspectives in order to answer the research questions. Scientifically, research involves careful outlining of procedures to be followed or what others called research design. According to Creswell (1994), research methodology can be classified into quantitative and qualitative. In this study quantitative methodology was chosen and adopted survey research method in order to collect the data from the Residence of the chosen study area.

Table 5. (Research Methodology) below shows the process where the Research Objectives are categorically extracted through qualitative methods; and instruments used to realize the output. The major strip of data presentation will be through the questionnaire Results from the survey questionnaire.

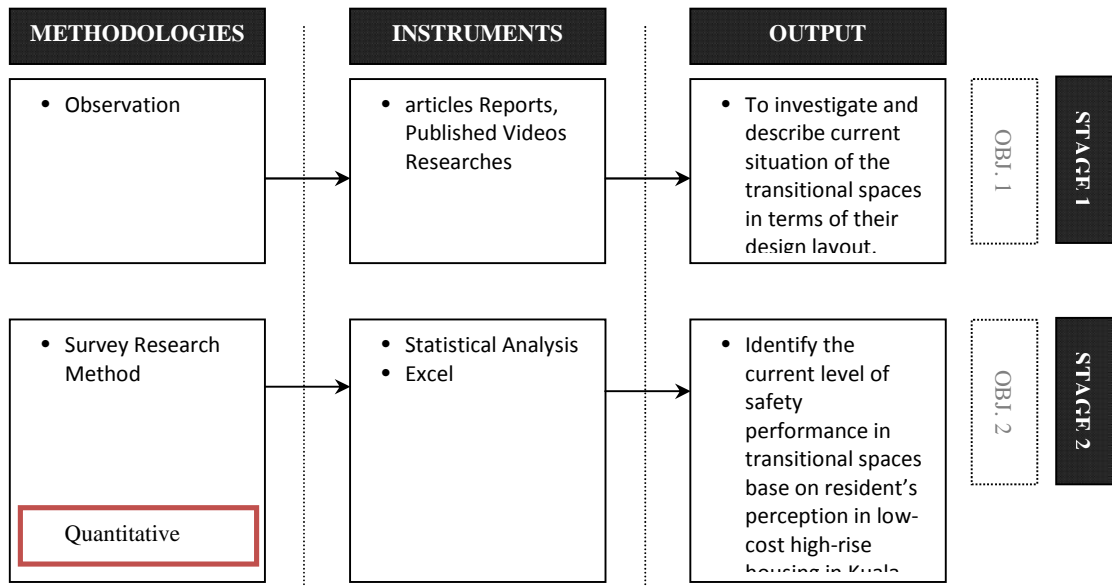


Table 5. Methodology Framework (Source: Author)

Data Collection

In survey research, the researcher selects a sample of respondents and administers a standardized questionnaire to them. The sample selected is assumed to be the representative of the larger population, thus the selection is done in such a way that the characteristics of the population are given a due consideration, so as to make it true representative. To access and get quantitative value of this study and to fulfil the second objective, a paper-based on street questionnaire was used in collecting the data from respondents, and were administered with the aid of research assistants of both male and female.

Babbie (1979) outlined some of the advantages of having a questionnaire administered by an interviewer rather than the respondents themselves, these include attainment of higher response rate; limited number of ‘don’t knows’ and ‘no answers’; ability to clarify unclear questions and; chance to probe further; lastly, other sensitive questions can be observed where possible e.g. issue of race, nature of respondents’ houses etc. The questionnaire contained both close-ended and open-ended questions, written in English.

Study Area and Target Group

Pantai Dalam development is located in Federal Territory of Kuala Lumpur, Malaysia. The area has the highest number of flats with 5000 units in 5 housing schemes. Basically, Pantai Dalam is divided into 5 areas that are Kg. Limau, Kg. Selamat, Kg. Pasir, Kg. Pantai Dalam, and Pantai Hill Park. The sampling will be selected within Pantai Dalam low cost high rise housing.

And the targeted populations are adults' members of families, both males and females from the age of 27 years to above who lives in Pantai Dalam Development in Kuala Lumpur. Two (2) categories of respondents were selected for the surveys: youth and Matured adults among the residence of the Development.



Figure 1. Pantai Dalam development (Source: Google)

Findings & Conclusion

The result show that transitional spaces whether indoor or out-door such as lift lobbies, corridors, recreational floor in low-cost housing scheme in Malaysia are not responding to its basic practical means such as safety performance of the environment from the moment it's built. Pantai Dalam Development was chosen area of this study; based on observation and relevant studies in literature review transitional spaces of this development does not feel secure; although the spaces are lit during the evening but the layouts were angled to the corridor area almost obscured to other public spaces and since there have been even case of child kidnapping not far from the area of study, it is expected based on new knowledge on the impact of design characteristics of transitional spaces on safety, user be more concern about transitional space provided.

LIMITATION AND DELIMITATION

Limitation

One of the limitation during the study was most of the studies presented in literature review was referenced from foreign articles that is due to lack of such a study in Malaysia high-rise context.

Delimitation

Out of five blocks of low-cost high-rise housing in Pantai Dalam development with 500 Units, study limits its coverage to one of the blocks with 100 units to identify the common problems that the residence encounter.

SIGNIFICANT

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The research has covered many articles about transitional spaces and its impact on safety psychological responses of residence. The knowledge shared in previous chapters suggest that Architects and planners are provided with opportunities and challenges to ensure that transitional spaces are being used beyond its potential and practical means as physical link. In the past years the low cost high-rise housing scheme in Malaysia were not much different, its basic layout and strategies for transitional spaces changes were in minimal context. Therefore, the study hopes that information shared help architects to be more aware and focused to create transitional spaces as common space that promotes sense of belonging and shared memories and also reminds architects about the impact of transitional spaces on safety performance of the building.

(Abdullah, 2015; Bachok, Osman, Ibrahim, & Ponrahono, 2015; Bakar, Osman, Bachok, & Zen, 2015; "Building and Environment 40 (2005) 725 www.elsevier.com/locate/buildenv," 2006; Castilla et al., 2011; Chakroun, Ghalib, & Ghaddarb, 2011; Chan, 2011; Chun & Tamura, 2005; Hiziroglu & Holcomb, 2005; Hu & Wang, 2005; Hughes & Mak, 2011; Hussain & Said, 2015; Jelle, 2011; Jeong, Heo, & Jung, 2015; Mabahwi, Leh, & Omar, 2015; Majid, Salehudin, Rahim, & Othman, 2015; Moghisi, Mokhtari, & Heidari, 2015; Mohd, Johari, Ghani, & Rahman, 2015; Nasir, Ahmad, Zain-Ahmed, & Ibrahim, 2015; Nazir, Othman, & Nawawi, 2015; Osman, Bachok, & Rabe, 2015; A. R. Othman & Fadzil, 2015; N. L. Othman, Jaafar, Harun, & Ibrahim, 2015; R. Othman, Arshad, Aris, & Arif, 2015; Rahim, 2015; Rahman, Ahmad, Mohammad, & Rosley, 2015; Rashid, 2015; Sadat, Monfared, & Yazdanfar, 2015; Saha, 2011; Salleh, Zoher, Mahayuddin, & Abdul, 2015; Samadi, Yunus, Omar, & Bakri, 2015; Santin, 2011; Sedaghatnia, Lamit, Abdullah, & Ghahramanpouri, 2015; Yazdanfar, Heidari, & Aghajari, 2015; Zhang, Zhang, & Ding, 2017)

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