

Relevance of Threshold Spaces in Low-income Communities of Colombo for Sustaining Social Ties

Dilini, Gunathillaka,* Shaleeni B A Coorey

Department of Architecture, University of Moratuwa, Sri Lanka.

Abstract

Low income communities in Colombo represent life styles that are established through interdependency and strong social ties. Inadequate resources, land and services are some reasons for interdependence and strong social bonds act as mechanism for facing day to day challenges. Threshold spaces are observed within these settlements where social activity, exchange and interaction take place. They play an important role as spaces where social ties are reinforced. Hence the existence and function of such spaces are critical in sustaining these communities.

However during resettlement such socio spatial relationships and the threshold spaces are ignored and the opportunity for social ties is lost. Hence this paper aims to identify and acknowledge the threshold spaces existing in low income settlements. Further the architectural elements that shape such spaces are explored and understood for shaping future settlements.

Data is collected in three selected cases in the Kotahena area. A variety of threshold spaces were observed in these cases. The spatial formations and architectural elements in threshold spaces were explored using maps, sketches and photographic studies. The social activity and interactions were explored using systematic observations, activity maps and interviews. Ten residents were interviewed from each case.

This research will be beneficial to identify how different qualities such as, separation, connection, communication, differentiation, transition, interruption, continuity, boundary and crossing in threshold spaces have been gained without interfering with social relationships and by composing architectural elements in various ways to the satisfaction of the commune.

Keywords: Threshold Space, Social ties, Low Income Community, Colombo

*Corresponding Author: Dilini Gunathillaka; E-mail- dilinigunathillake@yahoo.com

Introduction

Threshold space is an architectural element between public and private space that act as a zone of transition (Bhonsle, 2010). Meiss identifies threshold space as an in-between space; a space between two different spaces that establishes a separation and connection between space. Namara (2008) states that there cannot be architecture without the idea of threshold space, that differentiate two phenomenon; inside and outside. Madnipour (2003) states that, in-between space of public and private realms, balances the characteristics of two extremes and protect the interrelationships between them. Such space is therefore an essential spatial configuration which connects and separates two dissimilar spaces, public and private spaces. It acts as a starting point to a different spatial experience such as differentiation, transition, interruption, continuity, boundary and crossing (Meiss, 1991). It is a platform to play certain essential roles and activities that differ from place to place due to different physical and social characteristics related to its surrounding (Meiss, 1991). As it is said above, in between spaces such as threshold spaces mainly provide three functions, such as a separation, a connection, and communication. As a separator, thresholds may act as differentiation of transition, an Interruption or as a boundary. As a connector, thresholds may act as continuity and/or as a crossing. As a communicator, it acts as an Identity and/or a landmark.

Types of threshold spaces differ due to many characteristics and activities such as, historical and cultural values, commercial activities, recreational activities, religious activities, residential activities etc. (Bhonsle, 2010). Thresholds can be identified as a zone demarcating a boundary such as an entrance which is used to enter and leave a building. Entrance foyers, corridors, buffer zones, lobbies and other transitory areas used within buildings but not permanently occupied are transition spaces (Bhonsle, 2010). Buffer zones such as lobbies, courtyards, setbacks, platforms that are observed in front of the buildings also act as a transitional space in-between extremely private and extremely public space while performing as a separation and as a connection between spaces.

Roles of threshold space: Meiss (1991) identifies three special roles of a threshold space such as a utilitarian role; a protective role and a semantic role. Utilitarian Role of Threshold Spaces is when a threshold space acts as a transitional space. According to Meiss (1991) one of the main roles of threshold spaces is acting as a transitional space between two phenomena allowing one to enter or leave either public or private spaces while providing access for light and ventilation through the openings of the outer skin of the building. Protective Role of Threshold Spaces is when threshold subdivides spaces and acts a definition of territory or demarcation of boundary. Threshold spaces act as a territory since the spatial configuration of the threshold controls the activities and behaviours of people to a certain degree. Subsequently, it is important to understand how the thresholds are designed with various architectural elements in order to gain required degree of privacy and territory. Altman (1975) has introduced mainly three forms of territory such as, primary territory, secondary territory and public territory according the duration of occupancy, the degree of ownership and the amount of personalization. Threshold space as a in-between space, performs the role of territory which controls the privacy and territoriality of the building. But, according to the degree of social interactions and interdependencies of a social neighbourhood within the thresholds, architectural characteristics and the limitations of thresholds to withstand levels of territory, differ from building to building. (Meiss, 1991). Rapoport (1977) have introduced the same concept of territoriality with three types of territory categories, such as public territory, group territory and private territory by considering the spatial hierarchy and level of interactions. According to the socio- spatial relationships, the type of territoriality vary from threshold to threshold. Hence, threshold spaces play a major role in sustaining communities by controlling and providing opportunities to

perform various essential activities and functions which differ according to the type of building. Semantic Role of Threshold Space is when a threshold space acts as a symbolic of identity of the building. Meiss (1991) and Bhonsle (2010) state that, threshold spaces not only act as a transitional space, and territory demarcation, but also as a symbolic identity of the building and notion of how the journey throughout the building is going to be since it is the first spatial experience of the spatial progression. The space acting as a meaningful passage for the door, eye for the window the character and values of the world which are to be found behind are indicated by architectural elements or by the presence of objects. The signs of a place underlie, according to the prevailing social conventions, specific behavior on either side of the limit. (Meiss, 1991).

As a public space Gehl (1971) has introduced three functions of a good public space such as, A meeting place, A market place and A thoroughfare. According to Gehl (1971) Functions such as, seating areas, benches, shady areas etc. which encourage people to hang around and interact with other, should be provided in a proper meeting place. A market place is a space with shops and stalls, where people can buy their wants and needs for day today survival can be identified as a market place. As a thoroughfare, it should encourage people to walk through or ride by a bike. Hence there should be destinations in the beginning and end of the journey. Moreover, Gehl reveals that people's behavior patterns and activities such as necessary activities, optional activities and social activities generate the character and identity of a good public space.

Architectural Physical Elements in Threshold Spaces

“As an architectural element, a threshold marks a passage from one space into another. In the context of this exhibition, a threshold promises both a physical movement forward and a figurative transition into an incorporeal world.” (Dompierre, 1998). The physical formation and architectural elements of the threshold space controls the activities and people's behavioural patterns and movements. “Steps, eaves, gates, doors, and balconies windows are all regulators of this inversion. They control the permeability of a limit, confirming spatial discontinuity whilst at the same time allowing one to cross it physically or visually” (Meiss, 1991). Threshold spaces can be articulated with architectural physical elements, such as steps, walls, half walls, gates, setbacks, canopies, platforms, level differences, landscaping, porches, colonnades, arcades, ramps, handrails, paving, etc. in order to control the socio spatial relationships. Further, the position, proposition and material of these architectural elements and their various combinations create different types of essential architectural languages which are needed to perform the roles of threshold spaces as a transitional space, as a territory that demarcate certain limits while allowing certain activities to be performed and as a visual symbolic route that depict the identity of the building (Bhonsle, 2010). Such architectural elements define the roles of the threshold spaces as utilitarian, protective or semantic. It further defines its functions as a separator, a connector, or a communicator.

Hence, it is essential to study the formation and Spatial characteristics such as architectural elements of threshold spaces within neighbourhoods in order to understand the role of the threshold spaces, since the social interactions that tie the communities together differ from neighbourhood to neighbourhood.

Threshold spaces and their formation in housing

When the threshold spaces of houses are considered, Ramswamy (2010) identifies two types of threshold spaces such as, House and its courtyard and In-between two houses. Threshold spaces in housing can be extremely private or semi private due to the social and architectural characteristics and socio-spatial relationships with its surrounding such as high interactions and less interactions with neighbours. The space between two houses, where there is a constant merging of private and public spaces is elastic in terms of its outlines. It has multiple dimensions where the borderline between public and private is shifted and sometimes even erased (Ramswamy, 2010). In the case of low income settlements threshold spaces are identified “in-between two houses”.



Fig. 1:Thresholds in Between Houses in Low-income Settlements
Source: author



Fig. 2:Thresholds in Between Houses in Low-income Settlements
Source: author

The distance between the houses and their composition within a neighbourhood articulate the threshold spaces around them. Ching (1979) have introduced five types of spatial organizations that vary with their physical characteristics, spatial relationships and response to the context around it such as 1. Centralized organizations; 2. Linear organizations; 3. Radial organizations; 4. Clustered organizations and 5. Grid organizations.

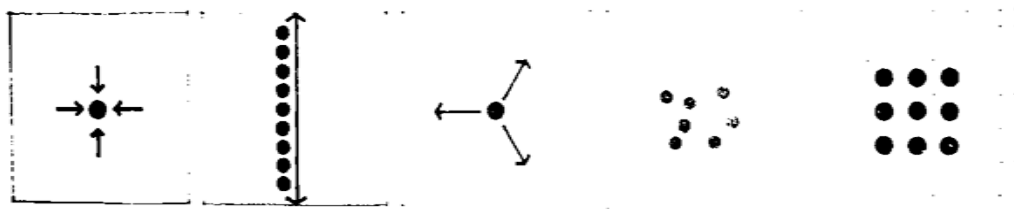


Fig. 3:Centralized, linear, Radial, Clustered and grid spatial organizations
Source: Architecture space form and order

Threshold space in low income settlements

From medieval times to modern, urban outdoor and in-between spaces have undergone immense changes with time in terms of the scale of urban space and the activities which have

taken place within such spaces. Threshold spaces are an important and significant space found in low income settlements. Since transitional spaces are part of human settlement, these planned and unplanned outdoor open spaces have been continuously adjusted and adapted in order to balance the relationships between its physical environment and the functions of the city (Ramaswamy, 2005). In low income settlements such threshold spaces in between the public and private realm are being used for many purposes such as, street vending, social interactions, recreational activities, religious activities etc. Moreover, threshold spaces such as alleyways, pathways, streets, courtyards, steps and passages in front of houses, act not only as transitional spaces and components to link indoor and outdoor spaces, but also as the heart of the settlement, where people relating to different societies get together and interact with each other. The alleyways can be identified as a collection of various communal territories bounded by physical and non-physical boundaries, which act as means of subdividing space, communication and shapes spatial organizations (Madanipour, 2003). It is essential to understand how the physical spaces enhance the social interactions for the reason that, socio-spatial interconnections and quality of such spaces contribute to social relationships within communities. The architectural and social relationships, distribution and spatial configuration of threshold spaces will affect the flow of life styles and activities of communities (Hiller and Hanson, 1984).

Research issue

It is observed that when underserved settlements are re-settled the socio-spatial relationships of threshold spaces are ignored. Hence street vending opportunities that are detrimental for their livelihoods, spaces for communal exchange and social interactions, spaces for recreational activities are lost. They need to be undisputedly focused on because such communities struggle to survive with mutual support, in day today life. Consequently, it is important to investigate the existing socio spatial relationships and how the threshold spaces have been successfully organized to suite the human needs.

Research aim

This study aims to classify the threshold spaces found in low income settlements and explore the architectural elements that contribute to socio-spatial relationships in order to make such spaces successful.

Method of study

Case selection: In order to examine how the threshold spaces have been formed and shaped by the communities to suite their lifestyles, it was essential to select unplanned low income settlements. Therefore three unplanned low income settlements namely Sinniya watta , Appu thotta watta, Parana watta were selected in Jinthupitiya GN division. The three cases were situated in close proximity.

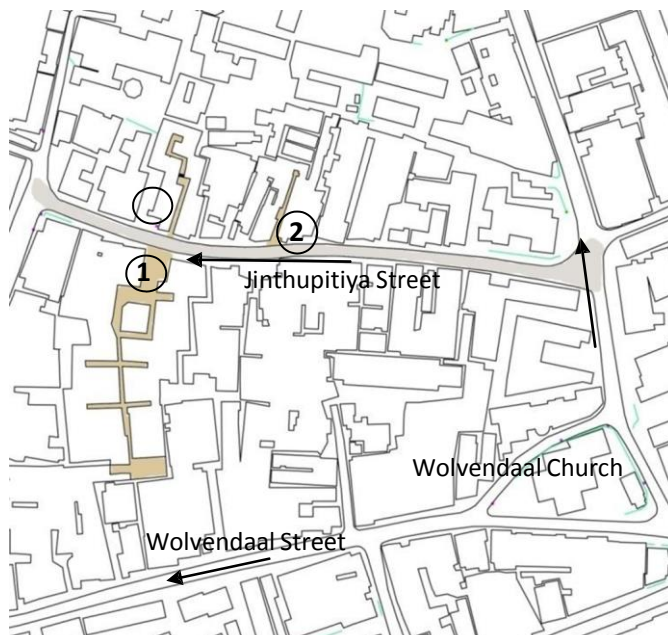
Data collection: The spatial formations and architectural elements in threshold spaces were explored using maps, sketches and photographic studies. The social activity and interactions were explored using systematic observations, activity maps and interviews. Ten residents each from the three selected low income settlement were interviewed. Resident's personal background, functions and their social and spatial relationships in their threshold spaces were the focus of the interview.

Limitations: This research is focused on low income settlements in Colombo area. Following the pilot survey, low income settlement in Wanathamulla was rejected since the people in Wanathamulla were resettled by the government during the research period and Kotahena area was selected for the case study instead. Due to time constraint, scale, and access to information, the number of case studies were limited to three.

The study data consist of both social attributes and physical attributes. The social attributes were quantified as user types, social groups, variety and times of activities, interactions and safety. The physical attributes were quantified in terms of physical form, architectural elements and variety of the functions within the threshold, formation of space, socio -spatial relationships and territory levels. Data collection tools such as systematic observations, checklists, activity maps, photographic study and semi structured interviews were used to collect data.

Interviews were carried out in a very informal manner by making the residents comfortable with the questions and hence avoiding misleading answers. Due to the residents' poor literacy skills, the necessary data and information were gathered by interpreting data that were generated from interviews instead of questionnaire surveys.

Background of case studies



- 1 - Case study 1: Sinniya watta, 128
- 2 - Case study 2: Appu thotta watta - 125
- 3 - Case study 3: Parana watta - 117

Fig. 4:Map of Jinthupitiya Division
 Source: Author

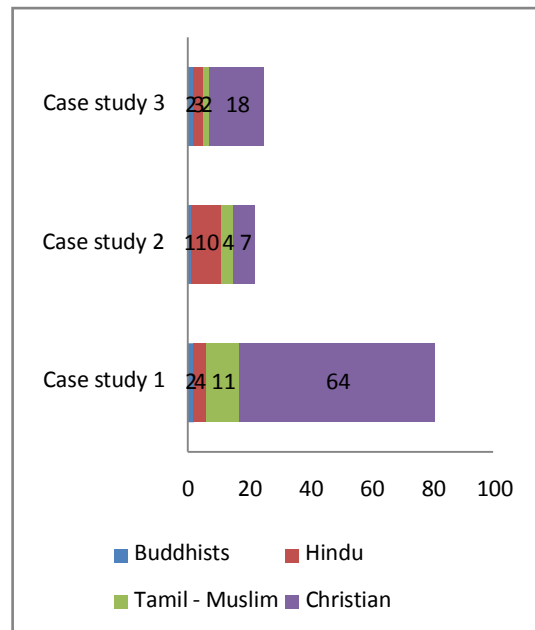


Fig. 5:Number of Housing Units According To Ethnicity
 Source: Mr. J. Primlas Costa (member of Western Provincial Council and also acting J.P in Jinthupitiya GN division)

Due to rapidly migrated low income population, Jinthupitiya GN division can be identified as a low income settlement in Colombo district. There is a high ethnic variation due to migrated population from foreign countries for business purposes in Colombo Harbour area.

Nevertheless, most of the low income settlements in Jinthupitiya GN division are situated along the Jinthupitiya Street. Consequently, three unplanned, mix ethnic, low income settlements

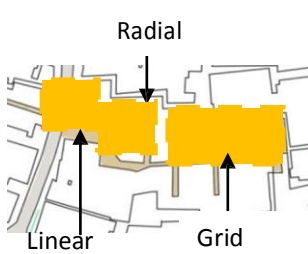
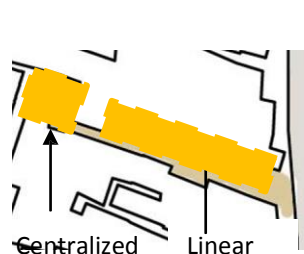
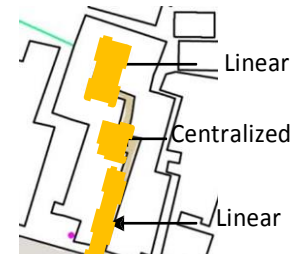
which are situated close to each other in Jinthupitiya Gramaseva Division were selected for the research.

Findings and Discussion

Classification of Threshold spaces in low income settlements

In order to identify the utilitarian role of threshold spaces in sustaining low income communities, types of threshold spaces around the housing units were identified through observations and maps. Further, it was recognized that, in low income settlements thresholds fall into the “In between houses” category, as the housing units are situated very closely to each other due to inadequate land resources. The findings revealed that, linear and centralized forms are the most common types of spatial arrangements and both shapes encourage people to interact with others as their thresholds are facing each other and linked with the adjoining.

Table 1: Spatial organization of the Threshold Spaces

Case study	Case study 1	Case study 2	Case study 3
Line drawing of settlement			
Spatial organizations	Radial, Grid, Linear	Centralized, Linear	Centralized, Linear

Threshold spaces in low income settlements can be classified under the following characteristics.

1. Boundary of Threshold: in low income communities, there are two different boundary types that separate the private space and threshold spaces. Due to the differentiations of physical elements that shape up the form of threshold, these adjoining boundary types have a major impact on activity types, identity, privacy and territoriality in the threshold. It was identified that there are mainly two types of boundaries that defines threshold spaces.

- i. **Built – Open Boundaries:** A physical element such as a high walls can be identified as a built – open boundary which separates private spaces and transitional space very clearly, visibly and physically. It can be a permanent or a temporary boundary. Further, since there is no separation between the transitional space and the public space, privacy and security levels are lower and, there is no territory demarcation between the public space and the transitional space. Most of the time with this type of Built- Open boundaries, the space that is shaded with the eve is used as the threshold space by low income communities.
- ii. **Built - Semi Built Boundaries:** Apart from the high wall element that separates private and transitional space, there are other elements such as half walls, steps, columns, gates that separate public and transitional

space. This semi built space increases the degree of privacy, territory and identity of the house more than Built- Open boundary type, since the threshold is not fully opened up to public space. And also, these enclosed threshold spaces are being used for various activities such as interacting with neighbours, resting, playing etc. Most of the people in low income settlement had kept benches and flower pots in the semi built thresholds.

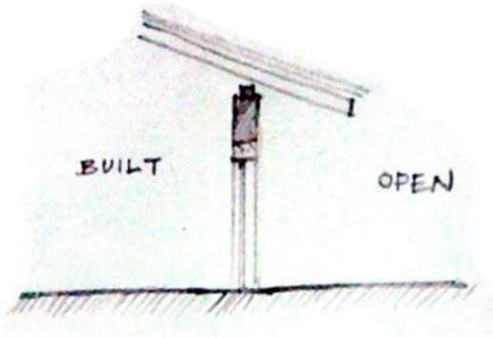


Fig. 6:Built- Open Boundaries
Source: Author

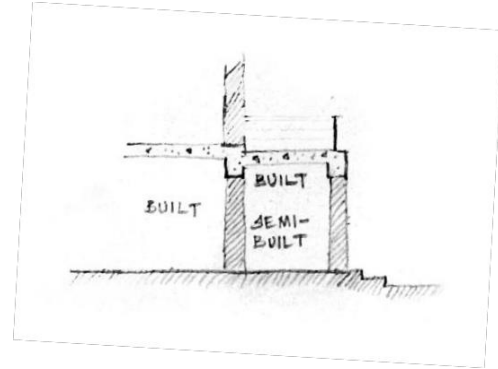


Fig. 7:Built- Semi built Boundaries
Source: Author

- 2. Public-Private Zoning of a Threshold:** Thresholds in low income settlements can be classified by zoning it according to a hierarchy of private - public levels. As seen in Fig(8)
- Zone 1** demarcates the post private layer of a threshold space. It is defined by architectural elements such as walls, doors, windows, projections and canopies.
 - Zone 2** is a semi private threshold space that is defined by level changes, projections, canopies and paving (floor finishes).
 - Zone 3** is also a semi private transitional layer demarcated by steps, half walls, gates, handrails and foot paths.
 - Zone 4** is the public layer defined by roadway, paving.



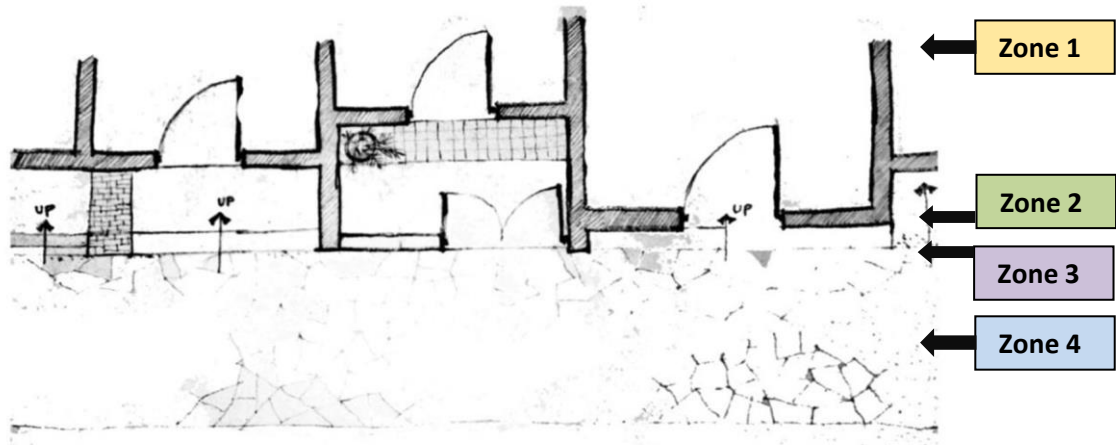













Fig.8:Public-Private Zoning of a Threshold
Source: Author

- 3. Functions of a threshold:** Since most of the low income communities are significantly interdependent and have strong communal relationships, it is observed that their social interactions have shaped up the spatial organization of the settlement. According to the collected data, it is observed that, all the residents use the threshold spaces as a thoroughfare since the type of threshold spaces in these settlement are, 'in-between houses' type. Therefore, the threshold spaces seemed to be merged due to the closeness of the threshold spaces. In order to do identify highly active spatial organizations, activities and behavior patterns of peoples in selected low income settlements, were observed on a weekday and a weekend from, 8am to 10 am, 12 pm to 2pm and 4pm to 6pm and marked in maps as it is shown in the table 1.

Moreover, In order to investigate the protective role of thresholds in sustaining communities, two main aspects in terms of physical and social, were studied. When it comes to the social aspect, the functions that are taking place within the immediate surrounding outside the private space were observed since social interactions and interdependencies within communities are the main attributes that enhance the quality of low income people's life. As the transitional space in low income settlements act as the main space within the community where high communal interactions are happening, the functions and behavior patterns of people that makes a space a good interactive space, were checked through activity maps, interviews photographic observations.

Table 2: Functions of Thresholds

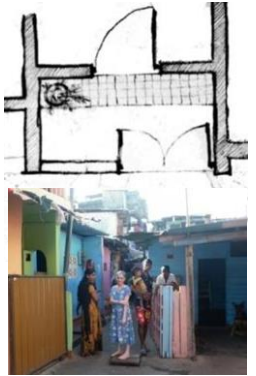


Case study	1. Sinniyawatta	2. Apputhottawatta	3. Paranawatta	Discussion
Meeting place				Threshold spaces play a major role in sustaining community by acting as meeting places especially within these interdependent communities.
Market Place		No market place in case study 2		Few thresholds were converted into market places which ties the community together.
Thoroughfare				As a thoroughfare, threshold acts as the heart of the community which is the most used space by the community.
Necessary activities				Threshold space help community to cope up with day today activities such as, religious activities, washing, eating, playing etc.
Activity Maps	In Sinniya watta, A, B, C, D, and E areas can be identified as the hot spots and threshold spaces at A, B, C and D areas have been used as small boutiques and E can be identified as the public toilet and bathing area.	In apputhotta watta, only A and B areas; the entrance and the end of the settlement can be identified as the hot spots of this settlement.	The hot spots in parana watta had been formed in the main public spaces which were the public toilet, entrance foryer and the market place.	One dot Two People The activity maps and discussions reveal that Communities in low income settlements have significantly high social interactions in their threshold spaces.

Classifications can be done as per –

- Boundary
- Levels of public-private
- Function

Following which it was identified that the most commonly found type of threshold spaces in the selected low income settlements had the following characteristics.





Table 3: Classifications of Thresholds

Threshold type	Boundary	Public-private zoning	Function	Plan and Image
1	Built- semi built boundary	Semi private zone with medium privacy and high identity characteristics	Mainly used for necessary activities such as, eating, playing, seating, storing, cooking and religious activities.	
2	Built- semi built boundary	Semi private zone with low privacy and medium identity characteristics	This type is mainly used as a meeting place due to the architectural elements such as steps and seating with half walls. Apart from the thresholds which were converted into commercial activities can be identified as threshold type 2.	
3	Built- open boundary	Semi private zone with low privacy and low identity as it is directly opened up to public zone	Threshold type 3 is mainly used as thoroughfare.	

Identifying the physical elements for socio-spatial relationships

In order to investigate, the importance of understanding threshold spaces and their roles in reinforcing community bonds and sustaining the quality of low income people's life, a check list was designed by using parameters that were derived from the theoretical basis of threshold spaces which have been discussed in the introduction.

Table 4: Identifying physical elements of threshold spaces as a means of connection

Quality	Connection				Discussions
	Continuity	Crossing	Differentiation of transition		
Socio- sp. Re.	Pavement/ steps	Gates/ Doors & Windows	Level differences/ platforms	Projections	Architectural elements of threshold spaces can shape up the threshold spaces as a means of connection in terms of continuity, crossing and transition.
Physical elements					
Photograph					
Role	Utilitarian role	Protective role	Utilitarian role/ Protective role	Utilitarian role/ Protective role	

As seen in table 3 above architectural elements such as pavement, steps, gates, doors and windows, level changes, platforms and projections enhance the connection between private and public spaces and also connections between houses –private spaces enabling continuity, crossing and differentiation of transition. Further the utilitarian role and a protective role is displayed through the composition of above elements.

Table 5: Identifying physical elements of threshold spaces as a means of separation




Quality	Separation			Discussions
	Boundaries	Interruption		
Socio- sp. re.	walls	Fences	Half walls	Architectural elements such as, walls, fences, and half walls can separate public and private realms while creating different privacy and private levels.
Physical el.				
Photograph				
Role	Protective role	Protective role	Protective role	

Table 4 above shows how elements such as walls, half walls, and fences create boundaries and interruptions between spaces, where the threshold play a protective role for its users.

Table 6: Identifying physical elements of threshold spaces as a means of communication

Quality	Communication				Discussions
Socio- sp. re.	Identity		Landmarks		In order to gain their own identities and to communicate the cultural backgrounds, architectural elements are used in thresholds.
Physical el.	Colour	Texture	Statues	Decorative el.	
Photograph					
Role	Semantic role	Semantic r.	Semantic role	Semantic r.	

As seen in table 5 above elements such as colour, texture, ornamentalions or decorative elements creates an identity to its users and landmarks in space, performing a semantic role of threshold spaces.

Conclusion

As the first spatial experience during one's transit into an indoor space from outdoor space, within a collection of various spatial progressions, threshold space is found to be one of the main architectural elements, because it consists of every architectural creation in an inseparably blended manner, enhancing the uniqueness of the building. Moreover, threshold is the starting point that speaks the architectural language of a building and it presents an introduction as to how the journey through the inside is going to be. At the same time, threshold separates private and public realms while striking the balance of inter-relationships between the two extremes. Threshold spaces play an important role in low income settlements acting as spaces that enables social exchange, interactions and bonding among its community. Interdependence and strong social ties being a significant characteristic among this community, the space that allows for such social engagement becomes equally important for them, in their day to day life. Hence it is important that architects and urban designers acknowledge this fact and also identify and reveal the threshold spaces that exist in Colombo's low income community.

The study identified the common types of threshold spaces in low income settlements taking three cases for in-depth study. Thresholds are located as "In between houses" since the housing units are situated very closely to each other due to inadequate land resources. Therefore the study directs future designs to take into consideration the importance of in-between spaces – which is difficult to achieve in the case of high-rise living. Most high rise housing has not considered the spaces in-between the dwellings which are shown, as important as the individual private dwelling spaces. Such inhabitants use space in common and this needs to be represented well in future developments. Unlike the mid-high income groups where the area of private space plays an important role in their quality of life, in the case of low income groups the common spaces play a significant role in their quality of life. Hence need more serious attention.

The findings revealed that, linear and centralized forms are the most common types of spatial arrangements and both shapes encourage people to interact with others as their thresholds are facing each other and linked with the adjoining thresholds. When considering the layouts of high rise or low rise resettlement projects having linear and centralized forms for housing layouts may serve as fruitful neighbourhoods that encourage successful threshold spaces, thereby better social ties.

Study further revealed that the threshold spaces can be classified based on Boundary, Levels of public-private and Function. Three types of threshold spaces were identified. The types of boundary was built – semi built and open boundaries, semi private zones with low to mid levels of privacy and mid to high levels of identity. The functions being necessary activity, as meeting spaces, thoroughfare and commercial activity. When allowing space for threshold it may be important to consider the type of boundary that is used to establish or define these spaces and also the type of activity that the space may encourage. The levels of privacy being a mid to low levels of privacy is also worth consideration as important in this type of settlement unlike in high income dwellings where high privacy levels are sought after. But as seen the levels of identity range from mid to high indicating the necessity to achieve identify in space which may be an important criterion for the low income dweller.

The study shows that subtle architectural elements such as steps, corridors, paving (finishes), level changes, boundaries with variation in its visual and physical penetrations, porches, hoods, canopies, colour, texture and ornamentation all act as elements in architecture that forms cues for separation, connection and communication and plays the utilitarian, protective or semantic roles of threshold spaces.

Study reveals that, communities in low income settlements have significantly high social interactions in their threshold spaces which have been woven around various day to day activities relating to recreation, commerce, religion etc. which assist them to sustain themselves in their life styles. Moreover, the formation, composition and orientation of various architectural elements within different spatial organizations in threshold space, have a major impact not only on integration and segregation of public and private space, but also on controlling various human behavioural and activities.

Thus, this study sheds lights on the importance and roles of threshold spaces as means of transitional space, territory, subdividing space and identity. Since public spaces and private spaces are considered as the main spaces that ought to be well designed by articulating architectural elements to promote necessary activities, this study would draw the attention of architects towards the need of considering and detailing threshold as one of the main aspects in building design.

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