

MENTAL MAPPING OF DIVERSIFIED URBAN INTERACTION SPACES AT RESIDENTIAL AREAS IN DHAKA

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Abstract

The Community spaces fulfils “anthropological needs” of human beings. Dhaka is a living city with diverse lifestyle and people from all strata of society with different motivation. The city has different type of land use both planned and organic development which has grown from the need of dwellers. The primary human interaction space for the People living in planned residential areas are community parks and playfields. The organically developed areas of the city lack required number of parks, playfield yet found to be livelier and spontaneous in terms of human interactions and spatial relationships. The narrow alleyways, community kitchen and grocery shop become effective interaction space for the dweller, which has grown in terms of their need. This study attempts to compare the quality of the ‘interaction spaces’ of both planned residential areas and informal settlement area of Dhaka city by generating ‘Mental Map’ of the areas. The study uses Lynchian method in analysing city image and producing mental map of study areas. Geographical Information Systems (GIS) has been used as a tool for visualizing spatially oriented qualitative data to produce ‘Mental Map’ of the areas. The study bestows an idea about the differences between the users’ satisfaction from provided public spaces and spontaneously growing path-space community interaction spaces.

Keywords: *Urban interaction Spaces, Lynchian method, Mental Mapping, Path-space relationship.*

1. Introduction

Community space creates a cohesive environment for human being, it creates a “belongingness”, a sense of association for them. In urban scale community, space plays an important role in both spatial term and environmental psychology. Urban public spaces enhance human happiness and empathy, as they are the focus of human interaction. Lynchian elements are the unique elements of urban environment (natural or manmade) described by Kevin Lynch, which can create a mental map that constitutes a mental representation of what the city contains. Five elements of the urban environment are paths, edges, districts, nodes, landmarks (Lynch, 1960). Jonathan Raban (1998) has divided the city in two parts soft city and the hard city. Hard city is the concrete part of the city such as alleyways, architecture, and soft city is more connected with the mental side of the dwellers, an image created in the inhabitant’s mind. The mental map of a city contains many elements (Lynchian elements), when physical environment coheres with the mental image the city creates more associative for dwellers. Organic developments encourage this sense as Aldo Rossi has put a city is a man-made object, a work of architecture and engineering which grows through time.

Dhaka being one of the densest cities of the world displays a diverse lifestyle of people from all strata of society. Urban interaction space has become a complex term for Dhaka as it is the third most populated city in the world with 47,400 people per square mile (Amin, 2019). Open spaces in urban areas are categorized as 'Utility Open Spaces', 'Green Open Spaces' and 'Corridor Open Spaces'. The public actively uses the green open spaces and the corridors thereby, termed as the 'Public Open Spaces' in urban areas (Nilufar, 1999). The primary human interaction space for the People living in planned residential areas are community parks and playfields (RAJUK, 2015). On the other hand, the organically developed areas of the city critically lack required number of parks, playfield but these areas are found to be livelier characteristics of own created from human interactions and relationships as they lack planned open spaces (d’Cruz et al, 2014). The visual perception of cities is very important rather than the spatial organization. The term mental mapping or the “imageability of city” of city comes in the visual perception of a city in terms of form and space comes. The term imageability was introduced by Kevin Lynch (1960) which gives us insight of a sensory mental image we built in our mind with the stimuli of our surroundings. This study identifies and examines public interactive spaces in three different settings (informal settlement, gridiron pattern and organic residential areas) of densely populated metropolis - Dhaka city in physical and social terms. This study also explores Lynchian elements (paths, nodes and landmarks) and “meaning” (cultural, social factors) in terms of people’s anthropological needs and association.

2 The concept of Psychogeography and Lynchian elements

Psychogeography defined in 1955 by Guy Debord is an exploration of urban environments that emphasizes playfulness and "drifting" consciously organized or not, on the emotions and behavior of individuals (Debord, 2008). According to Lynch "Nodes are the strategic foci into which the observer can enter, typically either junctions of paths, or concentrations of some characteristic" (Lynch, 1960: 72). They are the gathering points such as squares, railroad stations, plazas and junctions even ordinary street intersections are nodes. Pathways are the channels of movement within which the city can be conceived such as alleys, streets, railroads, motorways, canals and the like. Any path has three characteristics that enhance its prominence; they are identity, continuity and directional quality. Spatial qualities of width or narrowness can attract attention and strengthen the image of particular paths (chapter two, Lynch, 1950). The concurrent significance of these kinds of spaces for perception, memory, and playful action indicates their key importance in physical, perceptual, and psychological terms. Norberg-Schulz (1971; 1980) suggests that these elements of spatial structure are 'existential': they organize human dwelling in the landscape at all scales. They are for Norberg-Schulz the fundamental topological structure of space in relation to movement and visibility, and they define continuity, choice, and enclosure respectively (Stevens, 2006). Kevin Lynch focused on the legibility factors of urban design but later it was extended in three significant points **Identity, Structure and meaning** to include people's experience and memory as a city should be analyzed with the result of interaction between the observer and environment (Baseer, n.d).

3. Methods

A Systematic Field Reconnaissance

It starts by finding out the existing potential by the site and its surroundings. It is made on foot and automobile by mapping the area and explores the visibility of defining its elements and recording any existing activities and forms which could be used to make the place more legible. The researchers' analyses the area in terms of three elements- Nodes, Paths and Landmarks in respective area. The spatial analysis was done in field survey to identify "Structure" and "identity" in urban morphology.

Observation and interview method

The observatory survey of researchers among the users were done with a motive to understand "meaning" in association with peoples experience and observation. Hence, identifying the structure and urban form in their daily life.

4. Case study Area

The study has been conducted in Uttara and Abdullah Beribadh area. The case study area A- sector 11 of Uttara model town is a grid iron patterned planned residential area. The 'Abdullahpur Beribadh' settlement is an organic settlement adjacent to Uttara model town.

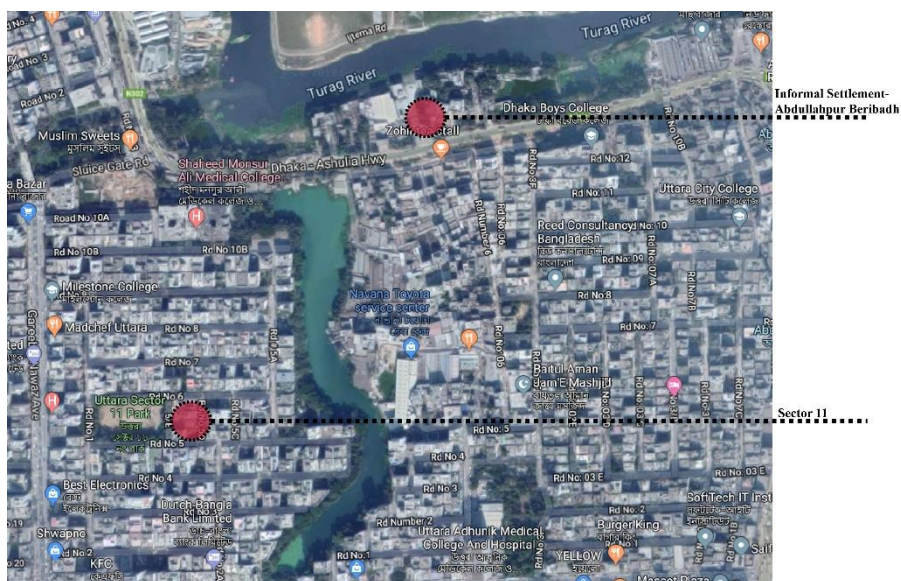


Figure 1, Site plan of the case study area (Source: satellite image)

4.1. CASE STUDY AREA A

4.1.1 Site and surroundings:

The study area is approximate 1235 km. the sector 11 park and its surroundings area adjacent to a 25m main road, 265m away from a lake, although no strong visual connectivity.



Figure 2, case study area A (Source: Google Earth,2019)

4.1.2 Social and physical context of site:

Mostly high income and higher middle-income people live in this Planned residential area with urban necessary infrastructure (park, mosque etc).

4.2.3 What kind of a place is it:

The residential area is designed and perceived as gridiron pattern modern housing for middle income or higher middle-income people. The grid iron network gives a thoroughfare connectivity to the residential area but it lacks hierarchy.

No pocket space was created. As a result, the site elevation seems blunt.

4.2. CASE STUDY AREA B

4.2.1 Site and surroundings:

This organically developed settlement near Beribadh near Uttara model town is known as “beribadh basteei(slum)”. This place is situated on the north side of Dhaka-ashulia highway or beribadh road. Uttara sector 9 is situated just opposite of it (south side of Dhaka-ashulia highway)



Figure 3, case study area B (Source: satellite image)

4.2.2 Social and physical context of site:

The slum is adjacent to an industrial zone nearby and a planned residential area which act as a dominant factor in the lifestyle and profession of the people living in that slum. The dweller of slum is lower income people and adjacent high middle-income area has created scope of employment for them. The growth of small industries in that area ensures a scope of employment for slum dweller. A fish market, bus stand and the highway also encourage the spontaneous growth of slum as these features make a promise of employment to the dweller. Female member works as a part time maid or garments worker. Male members mostly work in rickshaw garages or small industries.

4.2.3 What kind of a place is it:

A very organic and informal settlement located adjacent to a highway which act as an important link to the main city. The planned residential area and highway has acted as catalyst to the growth of this slum. They suffer slightly from environmental hazard and there is a lack of good sanitation. Otherwise it's a very organic layout and there's a sense of place in the nodes and small pocket spaces which faces the river Turag. Children have also made their place to play and the dweller has also made their individual lifestyle and sense of place.

5. Findings of survey

5.1. CASE STUDY AREA A

Uttara sector 11 is a residential area with a park located at almost at mid-point (230m from the main road) along east-west direction and one-third point (130m) along north south direction. This is the only open space for respective case study area (apx 1230 km). The park is open in four sides, it has two entrance gates. It has four nodal points which act as the Lynchian nodes and landmark for the area (Lynch, 195). The space is perceived as community's child play area and jogging track for adults. There are some sitting spaces in park and near the play area. The field survey finds that the sitting spaces at the edge are not as active as the sitting near play area. Children play in afternoon at the mid of the park in cluster of different age group or peer group. The brick tracks at edge is perceived and used as a jogger's track. At the entrance gate of the park some street hawkers and food cart are seen which spontaneously creates another community interaction space. At the northeast node, there are other food carts. As this park is designed within gridiron pattern, it is open in four sides' nevertheless poor visual connection and lack of hierarchy of space is observed in the park area. There are two grocery shops and tea stall from 100m ahead of the park which also act as a community space. Number of park user during different time of day are recorded. The park is found to be more active in afternoon for user of all age groups. The joggers are seen in both morning and afternoon.



Figure 4, Map of the sector 11 park
Source: Authors preparation by using DAP 2004-2015



Entrance of the park, seating near play area, play area and instruments (Source: field survey)

Source: Field



Tea stall 01
Source: Field Survey, 2019



Tea stall 02
Source: Field Survey, 2019

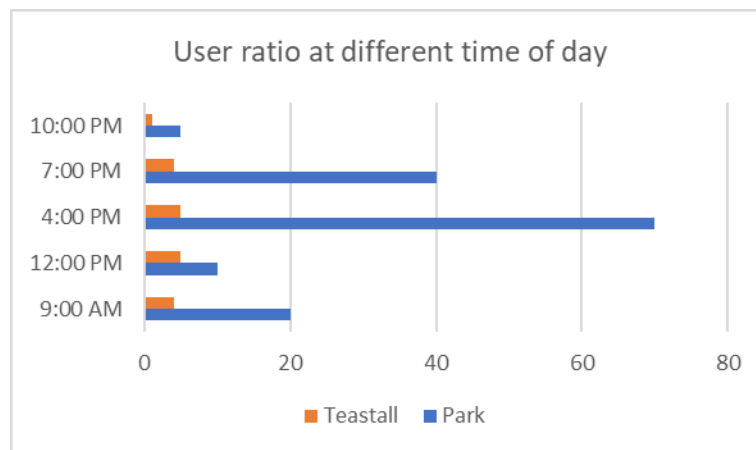


Figure 5, the no of user through-out the day (Source: field survey,2019)

5.2. CASE STUDY AREA B

The Abdullahpur beribadh baste (squatter) is a U-shaped informal settlement along the branch of Turag River. At the entrance a Banyan tree is located just before the slope which acts as a landmark for this settlement. The settlement has started from the slope. Some residential units (made of bamboo, wood and corrugated sheet) are just above the swamp and waterbody, the units are connected by wooden bridge. The pathways have connected the residential units with the main land and it acts as a community space for dwellers. At the entrance 2-3 grocery shop is located just before the residential units, it is one of the liveliest community spaces especially for the male members of community. The grocery shop is a landmark and it situated along the pathway and before a node. After the grocery shop a two-way node is seen where one branch of node is leading to the linear pathways of residential units. The service units (Shared kitchen and shower) are situated along the pathways. The latrines are located far from shanty units facing the lake. The children are playing through the narrow alleyways, pocket spaces are created along the lake/ river. The narrow alleyways are the interactive spaces for dwellers especially for children. The kitchen acts as a community space for women. Most of the women here work as a part time maid in the adjacent residential area Uttara model town. The kitchen using time is early morning (7.00-9.00 am) before going to the work and before dinner time (8.00-9.00 pm). Women of the community gossip and cook simultaneously during aforementioned time period. The shower space is mostly used by woman, the male users are seen less in number. They usually do hurry in a shower but woman interacts with each other while taking bath, washing clothes or collecting water. The male users hardly interact in the shared bathroom. The user number is seen highest in morning (6.00 -8.00 am). During afternoon (12.00-3.00 pm) children are the dominant user of bathroom as other members are busy with their livelihood. The narrow alleyways are also used for children's activity and interaction space for the community people. The children play in the pocket spaces, alleyways or they just visit sometimes the small shops. The security is an issue in lower income group therefore children are not encouraged to go outside of the homestead area. The space and ratio of users are presented in a chart based on field service data.



The shops at entrance (Source: Field Survey)

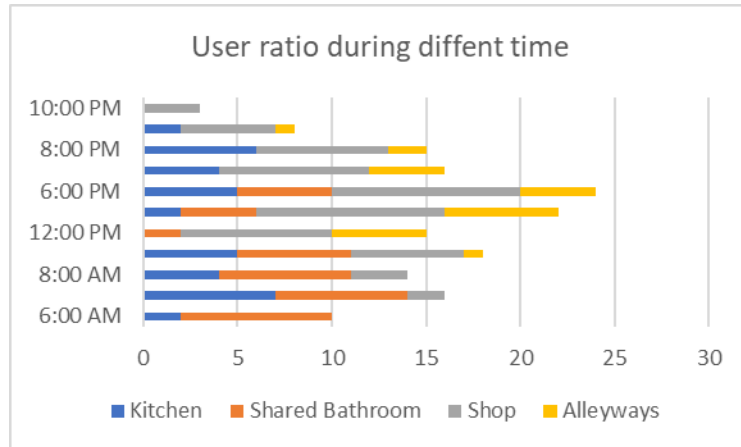
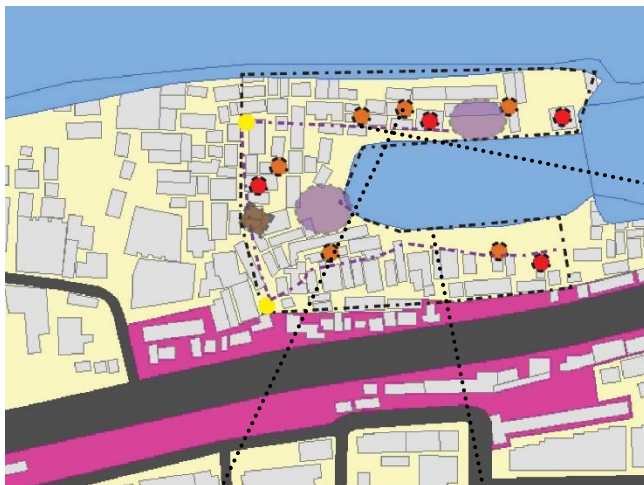


Figure 6, the number of users throughout the day (Source: field survey)



Narrow alleyways

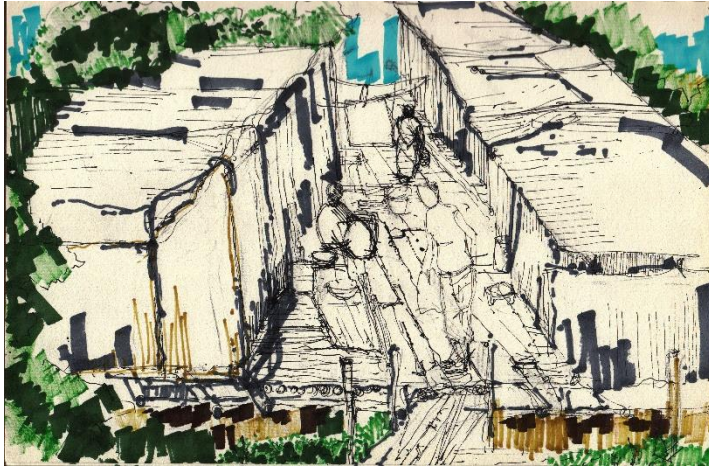


Community kitchen

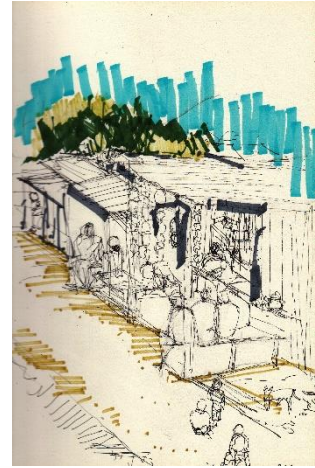
Pocket space, child play



Shared Service



Organic community space created in between their home along the linear wooden deck



The entrance with grocery shop

Source: Authors' Preparation

6. Results and Discussions

Study area A is a planned residential area following grid iron pattern. The park is designed to fit the grid iron pattern manner with four nodes around the edge, the active node is north and north east corner which is actually close to the main entry of the park. The open area itself is a landmark for the area, it is visibly clear as it is the only open space in the area. The “identity” is clear but the park was not designed to create a strong dialogue or visual connectivity with the physical environment of the community rather it is a “fit”. The park is only breathing space for community of sector 11 the users have an affiliation towards the park but it is like an option rather than a choice. Use of space during different times of day show us that in the afternoon it is the most active space. The tea stalls are more or less active during the whole day but in terms of community action, it is not perceived as a place for all age group and genders.

In study area, B there is no designed open space or community space. The functional space i.e. grocery shops, community kitchen and shared services (water collection, shower) act as community interaction space. The shared services are located in nodes or edges of alleyways. They are located regarding their functional need and merged with physical environment, as the main axis of the settlement is linear and organic. The user shares a belongingness to the spaces however in their mind; it is not conceived as an interaction space. The interaction developed in case study area B is not a choice of the residents but “unconsciously” spontaneous as it is directly related to their daily activities. The user number in different time of day indicates that kitchen user is highest in morning, shared bath is also same. The children have their activity during the whole day. Both the case studies have their space-user ratio according to their living pattern.

6. Conclusion

The image of an environment is two-way process, an interaction between the observer and the surrounding environment. A space must have meaningful relationship with its surroundings and the activity of the users. The visual environment should be significant to people's other aspects of life exceeding the daily commute and activity. A built environment become more meaningful to the environment when there is a congruence between physical form and activity. People can filter and built environment based on their choices. Study of two different spatial aspect and different strata of society shows that a designed pre-decided urban facility for inhabitants fulfil their needs but not their mental satisfaction properly. Aside from, in organically developed settlements, space is perceived in peoples mind and they can feel having a sense of kinship. These spontaneously growing spaces can bestow the users' mental satisfaction, as they possess the space.

7. References

- Amin, Mehedi Al (2019) “Dhaka remains the world's most densely populated city”, Dhaka Tribune
 Lynch, Kevin. 1960 the image of the city, USA: MIT Press
 Debourd, Guy, 1955 a critique of urban geography, UK: UC Berkley
 Wood. D (2010) “Lynch Debord: About Two Psychogeographies” Cartographica, volume 45, issue 3, page 185-200

- Nilufar.F (2000), “Urban life and use of Public Space Study of responsive public open spaces for supporting urban life in Dhaka City”, The Asiatic Society of Bangladesh, Dhaka.
- Damayanti.R and Kossak.F (2016) “Extending Kevin Lynch’s concept of imageability in third space reading; case study of Kampung, Surabaya–Indonesia”, ITU, volume 13, issue 1
- d’Cruz. C, Patel.S and Mazvimavi. G.Z (2014) “Affordable public spaces in Informal settlements urban poor federations strategize around spatial, social, political and economic inclusion”
- Stevens.Q (2006) “The shape of urban experience: a reevaluation of Lynch’s Five elements” Environment and Planning B: Planning and Design, Volume 33, Page 803-823
- Jhonathan. R (1998) “Soft City: A Documentary Exploration of Metropolitan Life” Harvill Press
- Rossi.A (1966) “The Architecture of the City” MIT Press
- RAJUK (2015) “Chapter 10-Draft Dhaka Structure Plan 2016-2035”, RAJUK
- Baseer. A (n.d) “Chapter 2-KEVIN LYNCH MAPPING METHOD, physical & spatial characteristic of environment”, Msc Thesis
- Debord.G (2008) “Critical Geographies: A Collection of Readings”, Praxis (e) Press, Kelowna, British Columbia, Canada