SUSTAINING THE IMAGE OF THE CITY: WHAT MATTERS MORE?

An investigation in the city of Colombo

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Abstract: How a city is known to its inhabitants is largely impacted by its physical environment and this knowledge in turn, impacts the behavior and the sustainability of the city. From Kevin Lynch's landmark study in 1960, many studies attempted to explore the 'image of a city' and revealed that the image was a collectively held psycho-spatial phenomenon that evolved with the changes take place in its physical environment. Colombo, the primate city of Sri Lanka has experienced a fast growth both internally and externally over the last four decades. A large number of high-rises, modern shopping facilities, etc., have been dramatically changing its physical environment. This study investigated the changes evident in the image of the City of Colombo as a result of ongoing developments through the findings of a survey, carried out during 2019-20 period. Analyzing the free recalling responses of 150 participants from different age and user categories, the study reveals that there is a shift in the constituents of the image of Colombo, and the emerging high-rise developments and modern facilities do have, but only a marginal impact on this shift. What matters more are the spaces and physical elements experienced at the ground level.

Keywords: *City Image; Spatial Reference Points.*

1. Introduction

Cities around the world are in a flux of constant transformation, propelled by the globalizing economies (Ruddock 2009), ever advancing technologies (Atkinson 1998) and 'urban government strategies' (Gospodini 2006, p. 311). In many cities in developing nations, this transformation is physically characterized by the fast-elevating high-rise structures, gradually shifting neighborhood characteristics, newly emerging trendy commercial districts, and dominating highway and transport related infrastructure. Colombo, the primate city and the commercial capital of Sri Lanka, has been experiencing such transformation since the liberalization of the nation's economy in late 1970s. The growth has resulted in an unprecedented change in its physical environment. Colombo's skyline is gradually elevated by high-rise apartment complexes, modern commercial ventures and a number of skyscraper office spaces. The main streets are increasingly flanked by expensive restaurants, once calm residential areas are gleamed in the lights of international brand stores, and gradually widening highways network is filled with ever enlarging automobile fleet. All these are in par with the current transformation observable in any international city in South and South-east Asia.

The changing physical environment of Colombo has also caused changes in its image. The historically known image of the *Garden City of the East*, cast by Patrick Geddes's involvement in the planning of Colombo (1921), has been fading into the image of a competitive financial and commercial center of the region and a city of opportunities. Despite the fact that this shifting image, largely reflective of the apparent transformation in the physical environment has been lightly touched by a few scholarly work (eg: Brohier & Raheem 1984, Perera 2002), no attempts have been made so far to investigate the structural changes that occurred in Colombo's image and in its inhabitants' cognition.

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The importance of such investigation is highlighted in two fronts. First, the physical constituents and their composition in the built environment directly impacts how the city is known to its inhabitants. Such knowledge influences city dwellers' experience in the city by providing them with orientation, way finding and emotional security (Lynch 1960). Thus, the apparent changes in physical environment may have both progressive and adverse impacts in the use of the city. A poor city image is a cause for unresponsive environment (Lynch 1960) which leads to poor satisfaction of the inhabitants. The conflict between psychological needs and the imageability of urban environment has been identified as the root cause of many issues starting from domestic level (Morris 1969 and cited in Canter 1977). In some cases, dissatisfaction on neighborhood or gentrification has become a byproduct of the physical and symbolic structure of the city (Appleyard 1979).

Second, such investigation is important for the planning and designing of cities in a manner that furnish them with livability and pride of its citizens. The city image is known to "...bear a close relationship to its citizens' level of satisfaction and pride" (Luque-Martı´nez et al. 2007, p. 338). A good city image is a factor that influences attractiveness, identity of the city and place-based identity of people. Thus, the structure of a city's image and the ongoing changes in it are important to be studied by planners and designers those who are held responsible for the making and unmaking of the built environments of cities.

Even though a large body of research can be found in the field of environment psychology, their benefits have been least reaped for planning and designing of user-friendly, livable, and sustainable cities. Observably, the psychological connection between the urban environment and its people has been a less researched topic in the field of urban planning and design (Churchman 2001).

In this background, this study is an attempt to examine the likely impact of the ongoing physical developments, especially new constructions including high-rise buildings, on the changing pattern of Colombo's environmental image.

2. Preceding Studies on Environmental Image

Review of literature in the area reveals that there is a dearth of research focused on environmental image and the related over the recent years. In the past, the notion of neighborhood perception, first explored by Terrence Lee (Lee 1952 as cited in Canter 1977), was then extended to the Image of the city by Kevin Lynch (1960) with his seminal work on the 'legibility' or the clarity of visibility in cities as a quality that helps people to easily navigate within the city. From his case studies in three cities in USA, he explained that public image was constructed on the legibility of five urban elements which were paths, edges, districts, nodes and landmarks. According to Lynch, these urban elements are captured by people because of the 'imageability' bestowed in the city environment by its physical composition. Donald Appleyard (1969) endorsed Lynch's work through a similar, but more extensive study in an emerging industrial city in Ceudad Guyana. He further clarified that form, visibility, significance as attributes that promoted the imageability of physical elements in a city environment. Evans, Smith and Pezdek (1982) through a study in Orange, California, explained that legibility alone was not the only factor, but the socio-political and cultural values and the history associated with the physical elements and places, also played a significant role to influence the imageability of a city. Stephan Kaplan (1987) contested the perfect legibility in an urban environment suggested by Lynch, and for him a city has to be 'interesting' rather than being 'boring', because of perfect legibility, and it would be achieved through five more characteristics in the city, namely; the complexity, naturalness, mystery, coherence and spaciousness.

However, early studies on environmental image in human perception and cognition focused mostly on the 'architecture' or the directly perceivable aspects, until it was endeavored in environmental psychology, where the 'structural' aspects that are more amenable to the control of urban planners and urban designers, were explored in a large number of studies. Among them, the theory of '*Reference Points*' proposed by Sadalla, et.al. (1980), was a landmark that influenced subsequent development of the knowledge in this area. Based on the 'developmental process' of human cognition, this theory suggested that the environmental cognition of human beings was based on spatial reference points corresponding to specific physical elements in the environments, highlighted than the other elements for a variety of personal and impersonal reasons. As the human memory has a limited capacity, the whole gamut of information posed by complex large-scale environments such as cities, are not remembered in detail. Therefore, human mind schematizes (Sadella Burroughs & Staplin 1980) such information, so that they can be recalled conveniently. The spatial reference points which are the core elements of such schematization enable judgments in the human memory on the distance and the location of non-reference points in those

environments. Moreover, spatial reference points have a higher probability to be mentioned more frequently than the other elements, while describing the location of places people remembered, liked and in daily routine. Similar notion was suggested by Couclelis et al. (1987) with the *'Anchor Point theory'*, in which anchor points are the central units of that hold information and organized in a hierarchy in cognition. In this organization anchor points can be both spatial and non-spatial and more 'personal' than being public (Figure 1). However, this theory is not specific to spatial cognition and it suggested a general framework for all types of information.

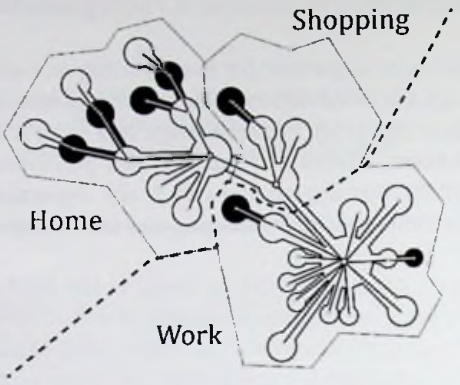

Figure 1: The configuration of Anchor Points in cognition *(Source: Couclelis et al. 1987)*

'Synergetic Inter Representation Networks' (SIRN, Harken and Portugali, 1996) can be regarded as the first model to explain the environmental knowledge in human cognition as a phenomenon both internal to human mind and supported by an external reservoir of information (Figure 2). The model was evolved on the premises of many other theories and concepts such as the Internalization (Vygotsky's 1978) the 'Synergetics' (Harken, 1983), Magical Number of 7 (Broadbent 1975 as cited in Hayes et al 1988) and many more, in addition to the said theories developed in the field of Environmental Psychology. According to the concept, the relationship between people and environment is indirect as it includes an intermediate activity called internalization. The internalization process is triggered by the social, cultural background and urban elements are seen as signs and tools rather than just roads, streets, junctions, or buildings.

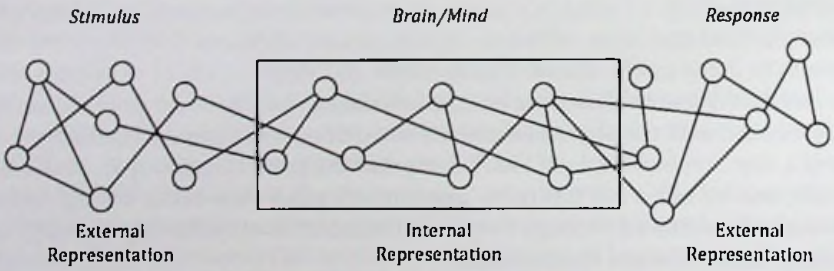

Figure 2: Synergetic Inter Representation Networks (SIRN) (Source: Harken and Portugali 1996)

SIRN is capable of explaining the environmental cognition as a continuous process of internalizing and externalizing spatial information responding to the physical and socio-political transformations taking place in the external environment.

Using SIRN and Sadella's Spatial Reference Points, Munasinghe (2004) developed a conceptualizing model of the image of a place. The model describes the city image and the developing process of the image referring to its shared, partly shared and private domains of the inhabitant's spatial cognition of the city. Its composition changes with the changes internal to the individual inhabitants, and the changes that take place in external physical and socio-political environment (Figure 3). Inferences from this model can be employed to assess the shifting pattern of spatial references in the image of a city and the corresponding physical changes in the city environment.

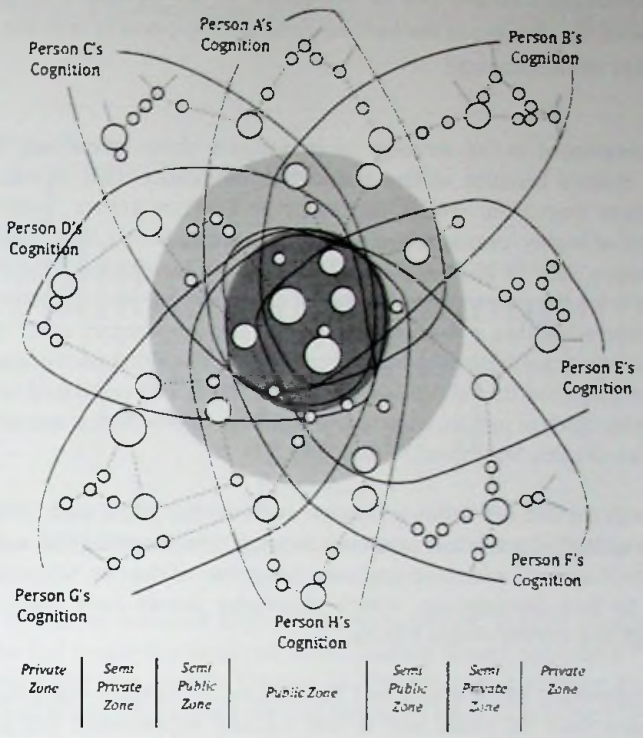

Figure 3: A conceptualizing model of the image of a place. (*Source: Munasinghe 2004*)

3. The need and the objectives of the study

The ongoing changes in the city of Colombo has raised many concerns among those who have been nostalgic of its unique green and heritage characteristics that get blurred in the upcoming flashy and titanic built environments (Daily Mirror 2018). It also was of concern to many critiques those who sympathize for the conventional low and middle-class citizens who are gradually being displaced and alienated to the new globally induced, extravagant and exotic city spaces which are beyond their affordability (Radicati 2017). Above all, it is of importance to urban planning and design professionals those who are responsible for physical built environments that assure the necessary orientation, way finding, sense of place and the overall spatial comfort of the inhabitants within the city.

The objective of this study, therefore, is to investigate the manner in which the transforming-built environment has been impacting the shift in the image of the city of Colombo, especially with the emerging high-rise buildings and modern developments which are dramatically changing the character and the skyline of the city.

4. Method and Material

The method of study consisted of three components. The first is the conceptualizing framework, which was based on the theory on *Spatial Reference Points* (SRP), proposed by Sadella, Burroughs & Staplin's (1980), because of its relatively more comprehensible structure of the image of a place. It also enables to understand the hierarchical organization of the references of the corresponding physical elements in cognition, which is important to examine the aspects of spatial configuration that shapes the order of image of the city.

The second component is the set of **research questions** derived out of the said framework in order to examine the impact of the changing built environment:

1. What specific elements in the city of Colombo act as Spatial Reference Points in its Image (shared areas in spatial cognition) held by its inhabitants?

2. What differences are evident in such Spatial References across different inhabitant groups of the city?

3. What corresponding changes can be witnessed in the structure (organized spatial reference points) of the image with the changes in the built environment, especially with the newly constructed high-rise buildings and other developments?

The third component is the strategy to investigate these questions. The study preferred the empirical approach, mainly because of the purported 'neutrality' that it would likely to offer in an investigation of human cognition, which inevitably is diverse across individuals and groups, and encompasses a variety of highly 'personalized' domains. Administering free recall protocols (Munasinghe 2004) was the technique used to elicit spatial information in inhabitants' cognition. It is used to obtain immediate responses from the participants to a set of unstructured open questions, purely based on their memory and administered within a few minutes. Even though several other methods such as mental mapping, sketch map technique and photo image recognition are being widely used for similar studies, the selected method bear more merits in terms of the limited time and restricted resources available for the study, the foreseen reluctance in participants to draw and the likely distortions in the interpretation of the participants' responses (Evans, Smith and Pezdek 1982).

The survey was carried out between August and October 2020, with 150 inhabitants of the city of Colombo, selected by stratified snowball sampling method. The stratification aimed to compose a sample that cuts across different age, sex, vocation, and user categories of the city. Snowball sampling was the most convenient method to find participants, which otherwise would have been difficult because of the reluctance to take part in a survey of this nature.

The sample consisted of 78 males and 72 females. 38 of them were less than 15 years old and another 38 were more than 50 years old. It was equally represented (50 each) by residents, daily commuters, and visitors, and well divided in terms of the mode of frequent transportation: walking, public buses or trains and used their own vehicles.

The participants were asked to respond to an open question 'what comes into their minds with the name Colombo'. The responding time was limited to three minutes and the verbal responses were recorded in both written and electronic media.

The recalling by the participants with a stimulus provided by the interviewer was the method of observation. The target was to get the respondent to mention the urban elements priming in their cognition within limited reaction time. The physical elements such as buildings and places (e.g.: public spaces), which have the potential of becoming corresponding 'spatial reference points' in inhabitants' cognition were considered as the units of observations of the study in line with the theory of spatial reference points and the frequency at which they appear in the freely recalled responses was the unit of analysis.

The recalling frequencies of the physical elements were analyzed across:

a) Overall observations of individuals

b) Age groups

c) User categories of the city; residents, daily commuters and occasional visitors

d) Frequent mode of travel; walk, own vehicle, public transportation

The analysis 'a', 'b', 'c' and 'd' were targeted to identify the spatial elements which were widely shared as spatial references in inhabitants' cognition (RQ 1). The results of the analysis are also used to examine the role of the emerging developments, especially the high-rise structures in the image of Colombo (RQ 2). Further analysis of the results of 'b', expected to identify the observable shift in the image (RQ 3), on the preposition that inhabitants of different ages have allegiances towards specific type of physical elements, emerged during their intense encounters with the city, in the selection of spatial references for their cognition.

5. The Analysis and Discussion

In order to identify the composition of inhabitant's cognition of Colombo, all responses were analyzed for general observations. Figure 4 shows the overall recalling frequencies of the spatial elements by the respondents. It reveals that Galle face Green was the mostly recalled element, and recalled by 26% (39 out

of the 150). The frequency drops to 18% (28 out of the 150) recalls in Lotus Tower and gradually decreases to include Fort Railway Station, Viharamahadevi Park, Hilton Hotel, Colombo Municipal Council building, National Museum etc.

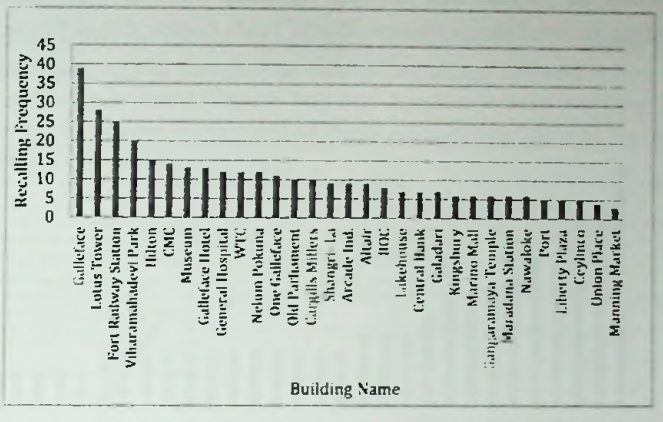

Figure 4: Recalling Frequency of spatial elements in Colombo by all groups

The youngsters, which represented 25% of the respondents, mostly recalled Lotus Tower and Viharamahadevi Park, and the frequency declined from Gallface Green, including Fort Railway station, Nelum Pokuna theatre, One Galle face and etc. (Figure 5). The next age category, 16-25 recalled Gallface Green, Lotus Tower and then Hilton, One Galle Face and Shangri-La hotel buildings (Figure 6).

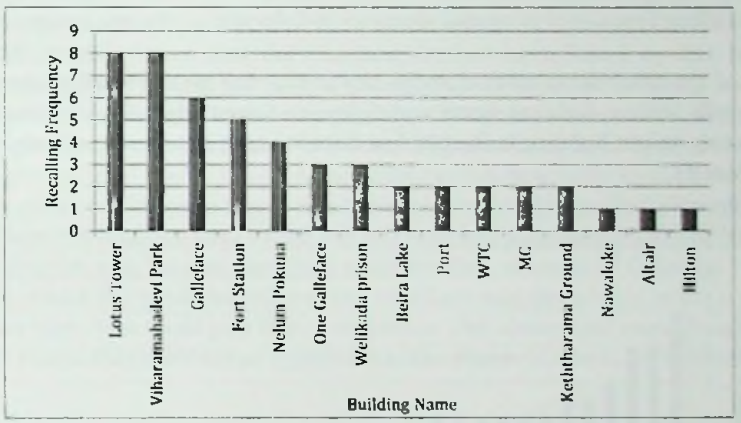

Figure 5: Recalling Frequency of spatial elements in Colombo by the age category under 15

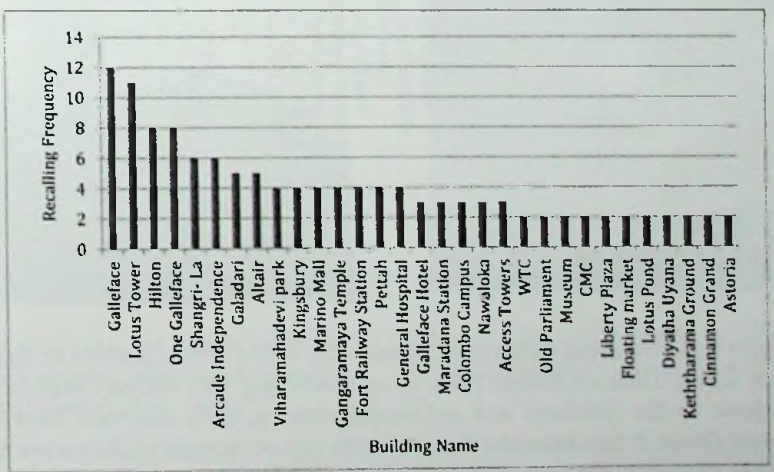

Figure 6: Recalling Frequency of spatial elements in Colombo by the age category 16- 25

The respondents of the age 26-50 had recalled most elements recalled by the 16-25 age group but also consist of elements located apart from each other (Figure 7). The 16-25 had recalled spatial elements within close proximity narrating 'there are Hilton, Galadari, One Gallface and Shangri-La', While the respondents of age group 26-50 also had recalled buildings such as Fort Railway station, Colombo Municiple Council building, Nelum Pokuna theatre, World Trade Center, Lotus Tower and General Hospital.

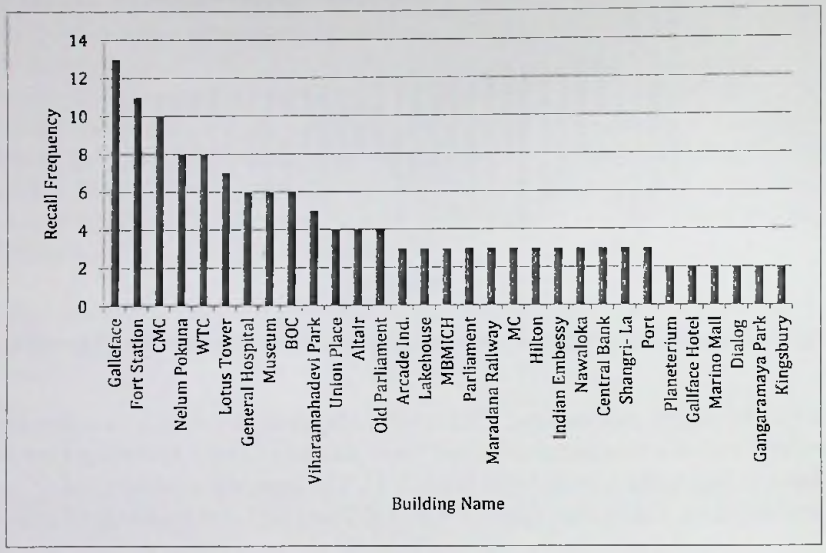

Figure 7: Recalling Frequency of spatial elements in Colombo by the age category 26-50

The figure of the inhabitants more than 50, shows that the mostly recalled elements of the elder inhabitants are Cargills Millers, Gallface Hotel and Galleface Green while Ceylinco building, which was remembered as the only tallest building in the city few decades ago (7 stories) had been recalled as the 4th urban element (Figure 8).

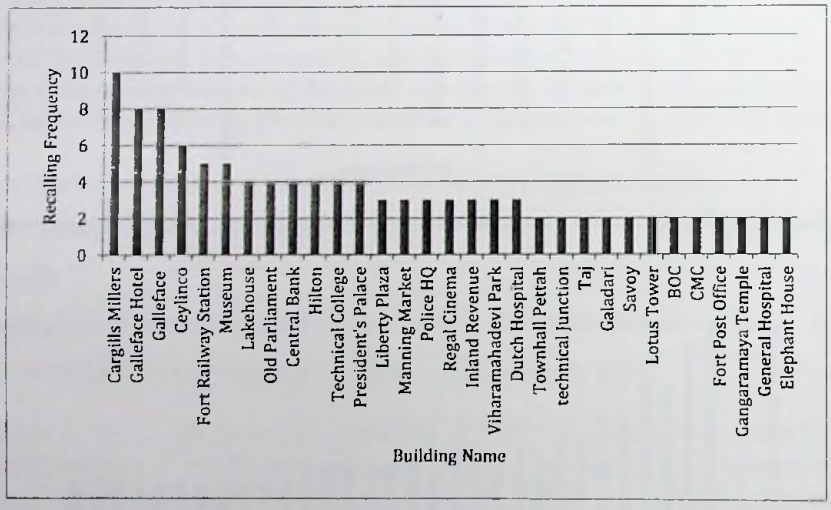

Figure 8: Recalling Frequency of spatial elements in Colombo by the age category above 50

The residents and occasional visitors of Colombo City had a similar pattern in recalling buildings. It included, Gallface Green, Viharamahadevi Park, Lotus tower and Fort Railway Station. But the results showed that relatively to the residents and occasional visitors, daily travelers have a low recalling frequency of Galleface Green. It was assumed that residents and occasional visitors were more familiarize to open spaces while daily travelers recalled the spatial elements in their daily routes as for the use intensity of the elements. On the other hand, the most recalled element of the daily travelers, Lotus Tower dominated their image due to its visibility with the context.

The analysis across different modes of travel showed similar patterns of recalling of the spatial elements by all groups. Galleface Green was recalled by the most, followed by Lotus Tower, Fort Railway Station and Viharamahadevi Park, enabling to understand that the dominant references in the image do not significantly vary depending on the mode of travel.

The above graphs show the dominant elements of each age group category and the changes that can be witnessed in the changing city image. The recalled buildings differed across age categories, where older buildings such as Gallface Hotel (Figure 9a) and Cargills Millers building (Figure 9b) were the dominated buildings in elders' image of the city and these were less recalled or marked 'zero' in the recalls by the youngsters or 16-25 categories.

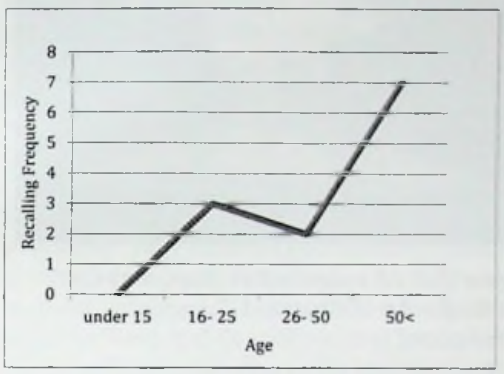

Figure 9a: Recalling Frequency of Galleface Hotel across the age groups

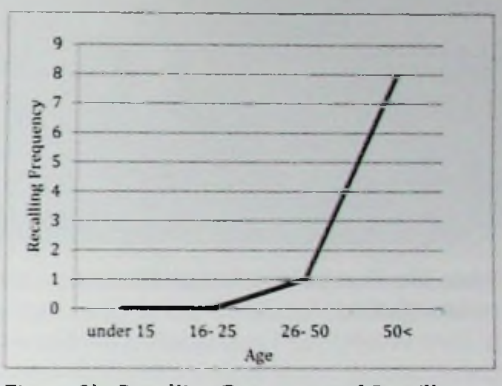

Figure 9b: Recalling Frequency of Cargills Millers across the age groups

The overall results shows that the common landmarks referred by the inhabitants were a collection of landscapes, open spaces, tall towers, transportation nodes or buildings with high singularity or intensity compared to its context. The form singularity of structures does not necessarily include the size of the buildings (high-rises) but recognizable contours, shapes and surfaces. Spatial elements which were observable at the ground level seemed to dominate over the tall structures in the overall cognition of the inhabitants. For an example, Galleface Green was the most frequently recalled element (Figure 10a). Fort Railway Station, a low rise building with a high use intensity and singularity, painted in white in front of a busy commercial district: had become the third most recalled element of Colombo (Figure 10c). Lotus tower (Figure 10b), which is a newly introduced tall structure, was prominent in the cognition of younger groups, but no other high-rises could gain that prominence. This shows that even though high-rises had an impact on the city's image, they were not as significant as the elements which were observable at pedestrian level.

Figure 10a: Galleface Green, the mostly recalled spatial element of Colombo, with Galleface hotel at the background (*Source: Moor Travel Tips.com)*

Figure 10b: Lotus Tower, second most recalled spatial element (*Source: Free Pik.com)*

Figure 11 is the analysis which used to understand the changing public image across age groups. The results showed that there were some common elements included in the changing public image such as Galleface Green which had been recalled by all the age groups. A decline in recalling from the youngsters to

elders could be seen in the urban elements such as the Lotus Tower, where 29% of the 16-25 group and only 5% of the elder category had recalled it. In contrast, Galleface Hotel was recalled by none of the youngsters but by 21% of the elders. In the recalling frequencies of Viharamahadevi Park, 21% of the youngsters have recalled the park, 10% by 16- 25 and 13% by 26-50, while 7% of elders have recalled it. Fort Railway Station, Colombo Municiple Council building and World Trade Center showed a different pattern as the three elements had recalled mostly by the category of 26- 50 compared to the other three age groups.

Figure 10c: Fort Railway Station *(Source: Lankapura.com)*

Figure 10d: Viharamaha Devi Park, with CMC Building in the background *(Source: Goibibo.com)*

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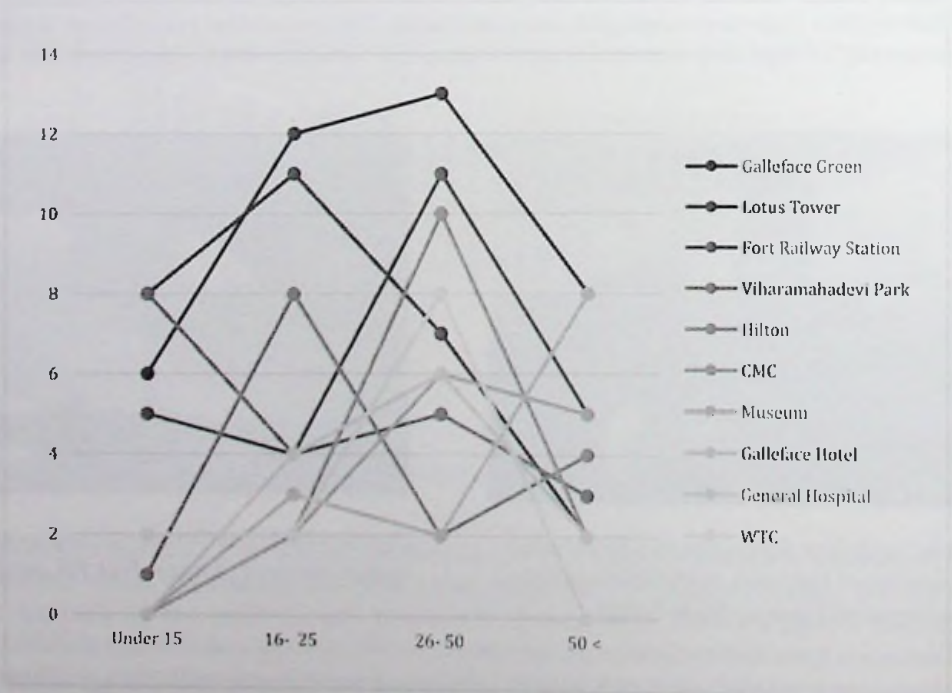

Figure 11: Recalling Frequency of the 10 most recalled elements across the age groups

In terms of the impact of the high-rises in composing the public image, all age categories had mentioned high-rises relevant to their cognition. Same as the Lotus Tower, Shangri- la hotel was included in the public image from the youngsters to 50-year-olds and Ceylinco building which was known as the tallest building around 40 years ago was recalled by the elders. Yet, in the four deviations of the city image held by selected age categories, high-rises have an impact but not a significant recalling frequency compared to the other elements, where only 30% of the image seems to have had an impact by high-rises, considering the 10 most recalled urban elements where only three of them are high-rises.

6. Conclusion and Recommendations

This study could reveal that when inhabiting a city, people become more familiar with the spatial elements experienced at the ground level, than the tall structures, however much visible, tall and larger they could be. These most familiar elements dominate the structure of the reference points in their cognition. The image of the city thus, is structured in the order of most dominant elements. On the other hand, high-rises are also recalled as spatial reference points in inhabitants' cognition, but not for their size in terms of height and bulk, but for their form singularity compared to its surrounding.

To a large extent, the results of this study in Colombo supported the findings of Applyard (1969) showing that the image of a city was dominated by the spatial elements with high use intensity and form singularity. They included open spaces, nodes of transportation and buildings with unique characteristics in terms of contours, shape and surface. For example, Galleface Green, which is an open space surrounded by hotel buildings; Viharamahadevi Park for its greenery and usage in the middle of building masses; Colombo Municipal Council building for its surface, contours and the green field in front (Figure 10d); or the Lotus Tower, standing as the tallest in contrast to its surrounding with a unique shape. In other words, the spatial elements' use intensity and form singularity have influenced them to become 'reference points' in inhabitants' cognition and dominate the image of the city.

The varying recalling frequencies along descending age groups, from the Cargills Millers, Galleface hotel, Ceylinco building to Galleface Green, Lotus Tower and Hilton hotel, show that there is a gradual shift in the structure and the content of the image of the city. The members of the older generations seem to have preferred buildings well known, intensely used and significant in the cityscape in early days, as reference points in their spatial cognition of Colombo. The younger groups seem to have replaced them with newly built public spaces and prominent places for their references. However, for all groups, the public open spaces experienced at the ground level seem to be common and important references in their cognition of Colombo.

These findings, even with a limited investigation, provide a few important insights to planners and urban designers. First, they highlight the importance of the users' experience at the observable, ground or the lower level of a built environment that critically contributes to the image of that environment. The second is that the high-rise developments can be influential, but not necessarily as critical as the prominent spaces experienced at the ground level, to make a significant change in the image of a city, a finding that is contrary to the common perception among planners. The third is that the structure of the image of a city depends more on the elements that contains the form singularity and use intensity, in addition to their overall composition in space.

However, this study is not free from limitations. The research is based on the available knowledge in the domains of environmental psychology and spatial cognition, and the theories used in the research were the ones mostly associated with the physical built environment of the city. Therefore, the semantic factors which influence on building the city image are not discussed in this work. Further, the study has adopted the available models of spatial cognition and the place image for the intended purpose, and not attempted to test their validity or consistency in a detail investigation. The location of the elements, the frequency of their encounter and the way that they are experienced could also had an impact on their potentials to be included into inhabitant's cognition of the city. Such impacts were not included into the limited scope of this study. The number of participants to the survey was limited to 150, due to time and resource limitations, and the representation of each category of inhabitants in the study may be quoted as insufficient. A study with a larger number of participants may reveal more information and insights on the changing patterns in the image. Future studies shall take these limitations into account and design their investigations accordingly.

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