

Cohesiveness of a built fabric and perceptual implications

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Abstract

Human mind is known to be one of the most powerful processors. This processor possesses a unique ability to identify patterns in and among various objects that exist in the physical world. This ability has enabled the human being to visualize surroundings of self not as individual units but as a whole, which could be interpreted as a congregation of individual blocks. This is the point at which the concept of “cohesiveness” or, the “state of sticking elements together” was developed. This research was conducted with the aim of further generalizing the concept of “cohesiveness within a built fabric” along with its relationship with users’ perception.

This study was based on the city of Kandy, the capital of the central province of Sri Lanka. It is a city in which economic, social and cultural characteristics directly interact or co-operate with traditional settings and values. A survey was conducted on a sample of 50 people, to extract the essence of their opinions on the cohesiveness of a built fabric.

The data interpretation of the research has exhibited a close relationship between cohesiveness and user perception. Basically it is only the user of any built fabric, by whom the city’s level of cohesion is determined. It has further established the need for a strong concern on the users’ perception in building in adding to, or altering an existing built fabric. As the conclusion, the study revealed some interesting aspects which imply that the cohesiveness of built fabrics is defined and determined by the users.

Keywords: *Cohesiveness, Built Fabric, Whole, Perception*

Introduction

Human-spatial relationship is as old as the human civilization itself. Through the course of time, the requirements, structure and appearance have changed considerably and so has the human-spatial relationship.

A human habitat is a congregation of people in which almost every person who belongs to the particular congregation is engaged in a variety of tasks, and has a variety of lifestyles. Yet the basic aspects of their lifestyles are common to a certain degree. Primarily, buildings are constructed to facilitate the smooth functionality of each task in which people are engaged in. Human-spatial relationships started to complicate with the development of civilization and culture. The “space” belonging to a person became the symbol of social status and wealth. Therefore humans became more sensitive to determining their “space” with the perception on personal belongings.

Cohesiveness is the noun for of “Cohere” and the word “Cohere”. It is defined as “have internal elements or parts logically connected so that aesthetic consistency results” (Fellbaum, 1998). Cohesiveness further defines the linkage between the characteristics of human requirements in a shelter. Simply it can be concluded that all the characteristics of human requirements from shelter are generally about “Cohesiveness” in built fabric. In other words, a human being expects dwelling to be cohesive in construction. This attests that the concern on the cohesiveness of any construction is important. Illustration given below clarifies this idea furthermore.

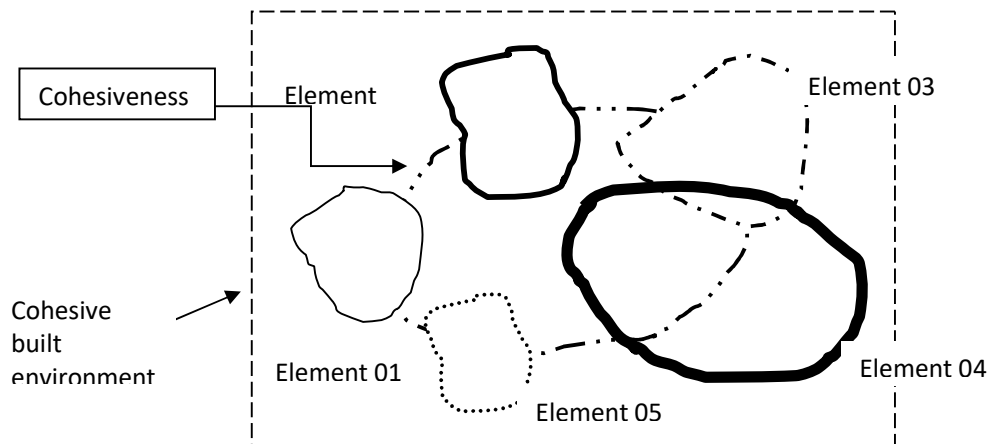


Figure 18 - Graphical interpretation for Coherence according to Ralph (Ralph, 1976)

Since humans are social creatures, “Grouping” is a common nature. Through grouping humans started crating neighbourhoods, settlements and cities. As the urbanization grew, humans became dwellers and their surroundings became “urban environments”. With this, the perception of the dweller became “the image of the urban environment”.

The scope of this research was to study how “coherence” has contributed on connecting elements of the city which affect the user perception. The coherence can be studied under a wide spectrum of areas such as environmental, social, economic, political etc. Here, only the coherence of the built fabric and its elements are considered. The words “coherence” “integration” and “wholeness” have been used with perception of urban environment at many times by intellectuals [List a few references, and are chosen properly by individual viewpoints. The ultimate arguments are therefore put towards as a well-defined scope under limitations of literature and other facts.

The primary objective of this research study was to **“determine the key features of induce cohesiveness to a built fabric”** and the sub objectives are listed below.

- 1) Define the term **“Cohesion of built fabric”** in the context of architecture.
- 2) Identify the supportive factors which flows parallel to the key determinants of the cohesion of built fabric.
- 3) Disclose the merits and demerits of the city of Kandy in the context of cohesiveness.
- 4) Plot the demerits disclosed from the above objective and forward some possible recommendations to overcome them.

Literature Review

Elements of the built fabric

It is obvious that a city is comprised of elements that generate a built fabric, as same as in discrete space, is perceived by its elements: centre, enclosure and continuity/path. Equally there can be many distinguishable elements in city which aids user perception towards generating its wholeness in mind and so the residents to attain subjective cohesion in their mind. Many researches done by K. Lynch to prove the appearance is extant in and its

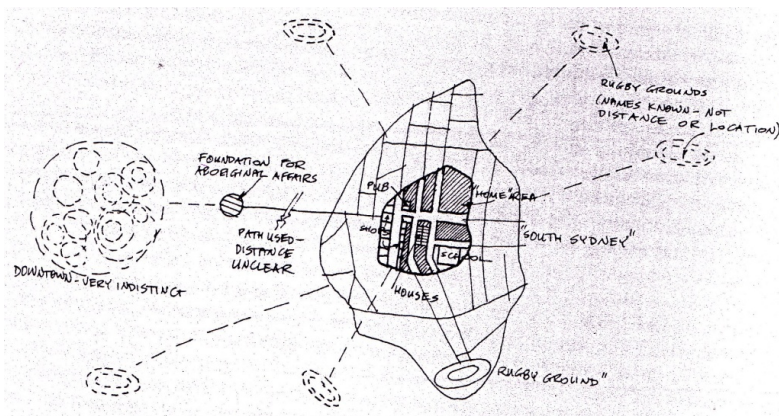


Figure 19 - Typical mental map of aboriginal children (based on verbal descriptions in Riley) (Ralph, 1976)

coherently interwoven elements to help citizens to trace their bodily movement along their subjective print.

For example, for a resident of Kandy town, Dalada Veediya has a segmented print in his mind about his home town. The print can be a set of distinguished hazy graphical pixels found on the built fabric's elements and his familiarity of them, which are interrelated and form 'one entity' call Kandy city. According to Lynch (1982), the contents of a city images which acts as a successor to the concept of "cohesiveness" (which are preferable to physical forms) can conveniently be classified in to five types of elements. Namely,

1. Paths
2. Edges
3. Districts
4. Nodes
5. Landmarks

Achieving the sense of wholenessAs mentioned the city is composed of elements with coherence intertwined. Therefore, for the composition inferred to be understood, it must be well composed and must have good integration of separate elements. As an example, a building cannot survive without an access path and this shows the need for integration and composition of the two components. Organizing these elements

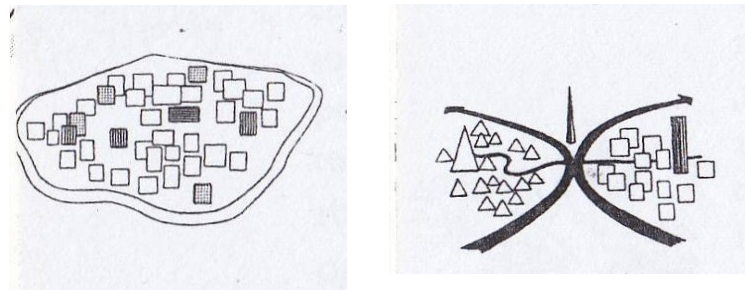


Figure 20 - Organizing the elements and composing the whole (Lynch, 1960)

together to attain a combined scheme will help creating a well cohered residence for our people which makes "sense of wholeness". Well-connected and integrated system will have returns socially, functionally and towards discovery of a better image on urban environment and will be discussed **further**.

If elements are extant, the next is to organize them in a custom to obtain an adapted urban object. The tools to attain this cohesion and the ways of integrating the urban elements will be deliberated; in order to achieve a better liveable environment for people is addressed separately. The need is therefore the cohesiveness of the built fabric and elements, as a discipline to build better cities.

Typology of coherence

In the architectural context along with the user perception, two basic types of coherence can be identified as follows.

- 1) Physical coherence
- 2) Experiential coherence

Physical coherence

Since the primitive ages, man has not only lived together harmoniously as groups, but also they were able to correlate the distinct parameters of existing physical atmosphere. This was a combination of manmade built forms and naked environment which we define as nature.

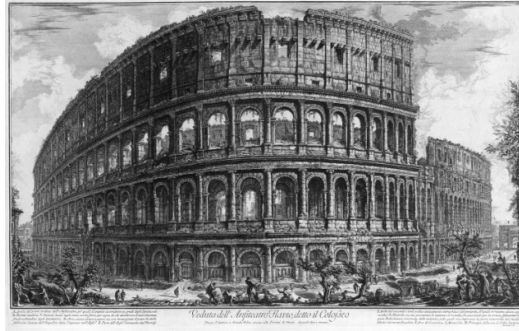


Figure 21 - The Colosseum of Rome

Some ancient cities act as cohesive entities and they are well identified as in such state. For being active until the present day, the level of cohere should be more powerful, and therefore the facts of cohere exist must be well identified and applied in to modern city design criteria. Even the built fabric in cities like Paris is still remaining same with the cohesion which was present earlier.

Out of all the factors that depict the physical coherence, proximity, symmetry, common enclosure, permeability, accessibility, repetition and similarity can be identified as the most determinant.

Proximity: - Proximity is so called closeness of the objects in other words. The objects that are close grouped in a special way, while the other groups at a different point, therefore each cluster can be easily separated and identified in a similar manner. These objects in the vicinity may be places and so the spaces between them with connecting access ways.

Symmetry: -Symmetry is a mirrored form of a partial object which approaches the "wholeness". Symmetry is initially a concept of order (Meiss, 1990). Ching defines it as "the balance distribution of equivalent forms and spaces about a common line or point centre." (Ching, 1979)

Common enclosure: -When it comes to an urban environment, common enclosure can be defined as common area residents, other people and objects enclose. A group of objects is determined by a common housing. Here, the housing has a limit for a group of buildings, or boundaries of a space to be.

Permeability: -Permeability is the feeling of possibility to enter. This could be physical or only visual significance. Physical permeability of a city could be achieved through paths and access routes, or arranging built fabric in a way that people can move through it.

Accessibility: -Accessibility can be defined as the ability to enter. A city to be cohesive, it should be interconnected in terms of its built entities the ability to access, physically, let person trespass the space. This is identified as main criteria to obtain a cohesive habitation

Repetition: -Repeated elements are known as repetitions. Repetitions create a rhythm of progression. As Ching explains "The use of recurring patterns, and their resulting rhythm, to organize a series of like forms or spaces" (Ching, 1979, p. 117) is so called repetition.

Similarity: -A city's cohesion could be achieved by "sameness of the things. Sameness could refer to the equality of the scale, texture, or the content. Elements of a city should by somehow differing to each other, unless otherwise it creates the monotony. This particular objects need to be grouped together, whereas it might be positive action towards creating cohesiveness. Basically the regulations of a city profile supports to make a city cohesive such as building lines, window lines, building height, buildable area etc.

Experiential coherence

Coherence may not be physical at certain times, so that it can be called as a fact of "metaphysical". Though this type of coherence is not physical, people may perceive it as "coherent" according to the experiences they gather from and within. This enables the perceiver to compliment on the particular environment. Most of the time the experiential coherence happens due to familiarity, semantics and activities which make the environment cohesive though they are certainly not physical elements in the built fabric.

Familiarity: -This is one of the most prominent facts that influence the perception on cohesiveness of the built environment. Being well acquainted with the special atmosphere generates the feeling of familiarity.

Semantics: -Semantics are the signs which are identical for each person. This "sign" could be a built structure or something physical. Rapoport defines semantics as "...the reaction of signs to things signified, that is how signs carry meanings, the property of elements" (Rapoport, 1977, p. 58).

Activities: -Happening activities can make a city cohesive. In the early period, the city has being working as a module of activities. With the time, people or the dwellers stated to gather towards the city centre where it became the main gathering centre for the marketing purposes. In early roman cities the trade became the main activity which the city evolved throughout. The concept "agora" was the theory behind which was an indicator of connecting cities extents, rather than physical elements.

Problem Statement

The problem was formulated to find out how the cohesiveness of the built fabric affected the user perception of the city and the hypothesis being tested was "***The coherence in a built fabric of a city is directly interrelated only with the users' perception***". Extracted typology was used for an analysis of the city of Kandy in a local context as a case study.

Methodology

First, the study explains this extension from individual man's perception on space towards thousands of dwellers' perception on space called "city". City space is urban environment, few of many attributes explain elements such as nodes landmarks, edges, paths & enclosure which are related in making of user perception in an urban environment and were analysed in the latter part of the study.

Second, the important fact of combining these separated elements of the holistic environment is considered as the cohesiveness of the components in a built fabric. They are the physical

arrangement of the elements and analysed separately by literature survey and authors' own point of view. Physical cohesiveness and psychological cohesiveness in making a "wholeness" of a city and its relationship with the context were studied in detail. Observation of elements of Kandy's built environment therefore were analysed with the present attributes of coherence to determine the adoptability of cohesion in city's elements and how it affects user perception.

The final part of the study was in the stabilisation of two subjects- the coherence of built environment and its adoptability through user perception. The conclusion reflects on the need of the presence of cohesiveness in the built elements in creating wholeness of user perception in an urban environment. The theoretical basis was used to study the role of coherence of built fabric and its adoptability in the city of Kandy as architecture becomes a universal language in creating better living aspirations.

The Case Study: Elements of the built fabric in City of Kandy

It was intended to question the users who are familiar with the urban setting for more than 10 years. The familiarity and the closeness of the dweller towards the city throughout a considerable time period were taken in to account at this point of research. They had to be well familiarized with the places and activities of the city and therefore it was confirmed that they don't give vague answers depending on their personal experiences in getting to know an unfamiliar cityscape. A sample of 30 respondents including 10 architects, 10 professional level personnel and 10 medium level professionals were selected randomly and asked to answer a simple questionnaire according to their respective level of understanding. The bias of selection the 3 different categories of professionals were to determine the "perception" at different points of view. An architect may look at the attributes of a city in a socio cultural and physical point of view while another professional may look at the city by its appearance and ease of access.

The results received were analysed accordingly and graphically represented in a way which they can be used in analysing the elements of cohesiveness in the city of Kandy, and after that few more questions were asked from the interviewees as indicated below. This part of the survey however was conducted as an unstructured interview.

1. What do you think I was trying to find out?
2. What importance are orientation and the recognition of city elements to people?
3. Do you feel any pleasure from knowing where you are going? Or is it displeasure in the reverse?
4. Do you find Kandy an easy city to find your way in, or to identify its parts?
5. What cities of your acquaintance have good orientation? Why?

And finally the interviewees were asked to do a simple mind map of the city in which they live in and how they notice the city; the needful details were also taken by them. The answers they have provided for the above questions were analysed first in order to construct a more general picture of their opinion about the research study first.

Data analysis of the unstructured interviews with the respondents

Kandy, commencing from its psychological centre, the palace Dalada Maligawa, the progression path, Dalada Veediya acts as the major spine to the street network which lies along North and South directions. D.S. Senanayake Veediya is connected to the northern part of the city, creating an intersection in an almost right angle to it. These streets pretend to be the X and Y axes to the city grid pattern. Basically, many streets which are parallel to the D.S.

Senanayake Veediya (Fig. 7) and Dalada Veediya compose the grid iron pattern, and through those, the city has been divided in to twelve segments which we also can define as “districts” accordingly. The intersections of the roads create different ambiances. Though the city has been gone through many changes with the time, the progression path of the Kandy Procession has never changed, hence the streets are never considered of revising by the authorities. Most of the paths are physical access ways made according to the landscape and the geographical context. One of the most functioning paths is the lake round along with the sangaraja mawatha.



Figure 5 - D.S. Senanayake Veediya



Figure 6 - Foot path along the Lake Round

As the Kandy Lake physically creates a large open space in the centre of the town, the pathway along the lake round happens to be a more recreational and functional path due to its location the connectivity with the edges of the city (Fig. 6). The continuation of Dalada Veediya creates linier connectivity with the other roads while it defines the commercial core of the city acting as a boundary. In reference to Kandy, several elements which are known to be playing a key role, has been identified through participatory observations as follows.

Edges

City edges in Kandy mostly are street edges due to the layout of the city. Edges may occur due to the topography and natural landscape. As Kandy has been surrounded by three peripheral mountains, those ranges can be identified as Edges. If we consider the street edges, the most prominent are, Dalada Veediya, Kotugodella Veediya, Yatinuwara Veediya and DS Senanayake Veediya. These street edges act as definitions of city blocks.

According to the figure 7, there is not much variation of the preference of each interviewee. With the discussions conducted with them, the researcher could realize that the main reason for this similarity of preference is the distribution of the built elements which are important to the core functionality of the city.

- 1) Edge 1 – Temple of the tooth relic, Queen’s hotel patio, BOC 2nd City Building
- 2) Edge 2 – Bogambara Lake round
- 3) Edge 3 – Ceylon Electricity Board, Pushpadana Girls’ College, St. Sylvester’s Primary College, Cemetery
- 4) Edge 4 –KMC, Udawtahtha kele range

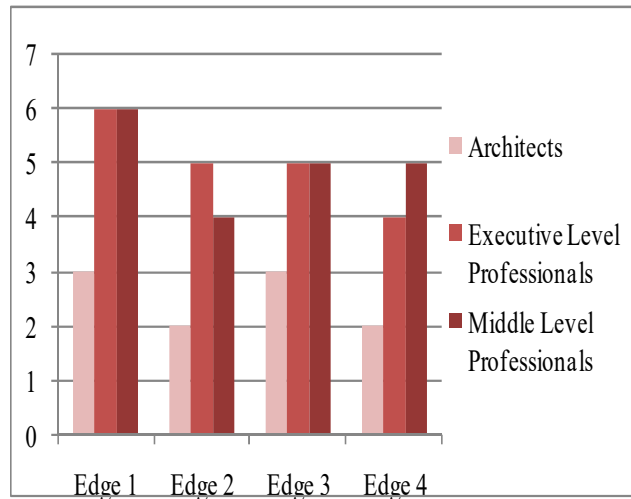


Figure 7 - Remarkability of the selected edges



Figure 8 - Lake Edge

Districts

Cities have different districts which are also called as “segments” as per Lynch (Lynch, 1960). The city of Kandy can be segregated in to three main segments in terms of its built fabric and its functional bias. These districts can be segregated in different perspectives, such as political, cultural, economic or topographical nature. As the case study depends on the perceptible elements in a built fabric, the city has been divided in to three main segments, depending on characters of built layer and their functionality and they can be depicted as shown in figure 9.

- 5) Sacred District: - The sacred area consisting of the temple of the tooth relic and its ancillary facilities, Uposhita and Pushparama temples in the Malwaththa chapter and Bhayagiri and Wijesundararama temples in the Asgiriya chapter.

- 6) Commercial District: - The commercial district can be defined as the most dense, compacted area in the city. This segment comprises 12 sub segments generated through the grid iron pattern.
- 7) Peripheral District: - This area with mixed residential built fabric which has less density acts as the periphery of the city core. Most of the built elements are new additions or extensions of the city layout. The Good Shed bus stand towards west, along the main street including George E De Silva Park, Market, Buwelikada from the east, Mahaiyawa from the North, and the Maha Vihara complex with Mahamaya College and Dharmaraja College by the southern axis, are being defined as the peripheral district.

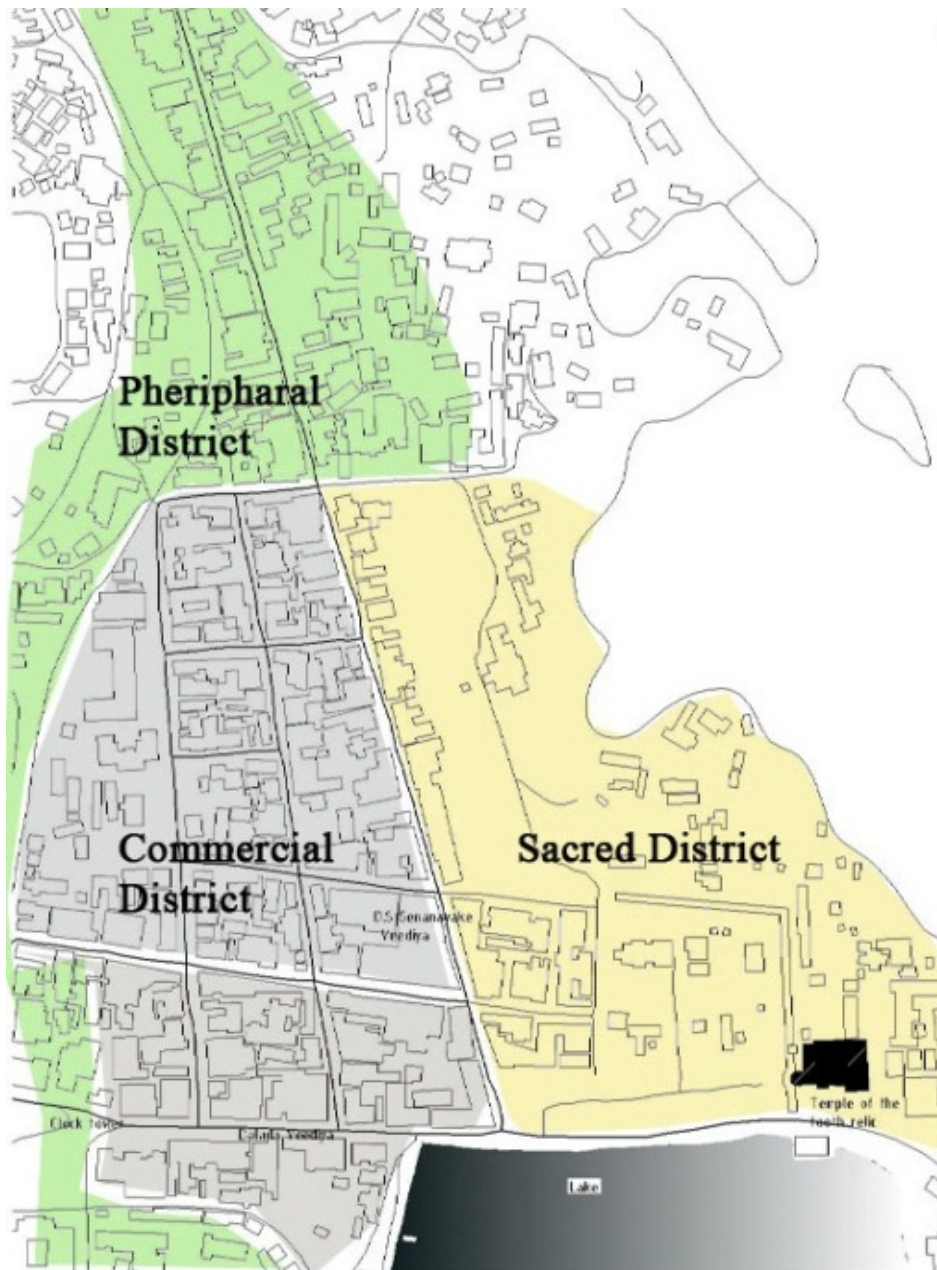
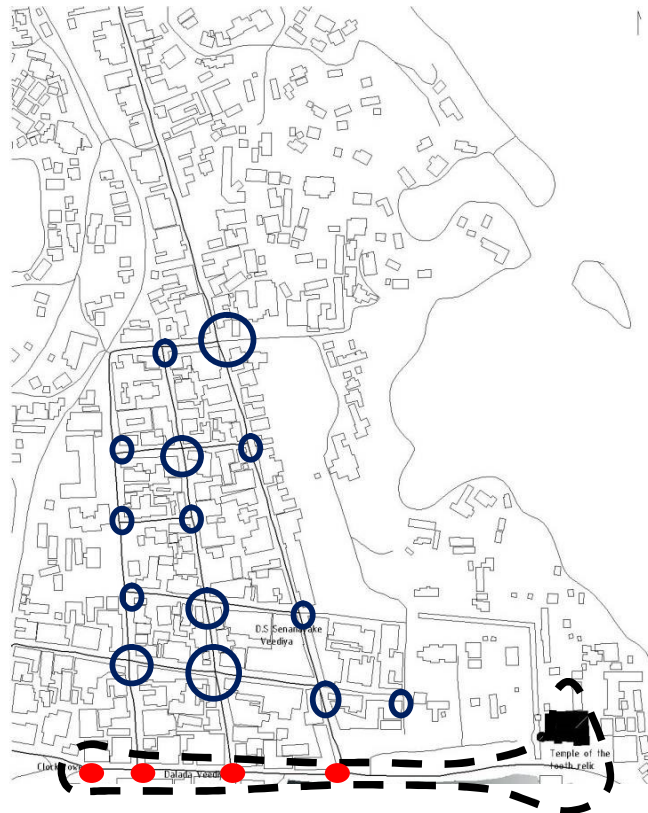


Figure 9 - Districts within the city of Kandy

Nodes

The city's core creates many intersections by its grid iron pattern. Most of them are identifiable along Dalada Veediya. Nodes need not essentially be physical nodes of intersections of two streets though it was stressed in previous sections for the convenience of explanation. Therefore, the temple of the tooth relic and the open esplanade is considered to compose the most dynamic and celebrative node. It creates a climax of many sequential nodes along the axis as illustrated in Fig. 10.



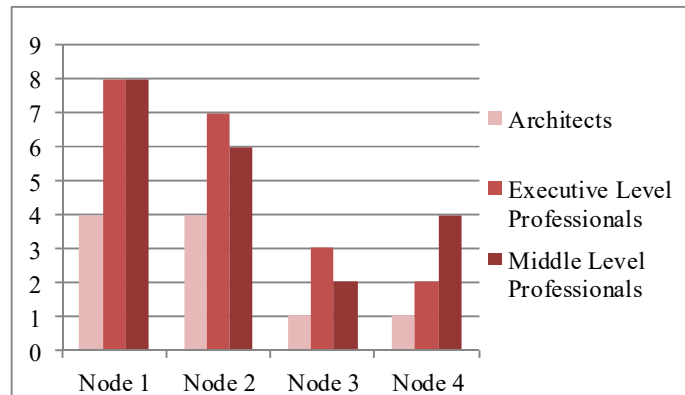


Figure 11 - Users' selection of the remarkability of each selected node

Landmarks

The most prominent feature of a particular region in a city is known as a landmark. Generally Landmarks are the features that people use in their perception in order to build mind maps. When perceiving the Kandy, landmarks play an important role as Kandy is a combination of both old and new city layers. The city has many potential landmarks which have historical values. The user perception may depend on the historical knowledge one possesses about Kandy.

Data analysis on the questionnaires and Interpretation

The questionnaire was formed to contain two parts. The objective of the first part was to get personal information of respondents and the second part was focussed on extracting their opinion on cohesiveness of a built fabric. The duration of stay was collected from the respondents in the first part and a vast majority of them were born in Kandy. Numerically the percentages happened to be 70% for the set of architects and 65% for the non-architect professionals.

Question 1 of the questionnaire was about the reasons that they had to keep Kandy as their

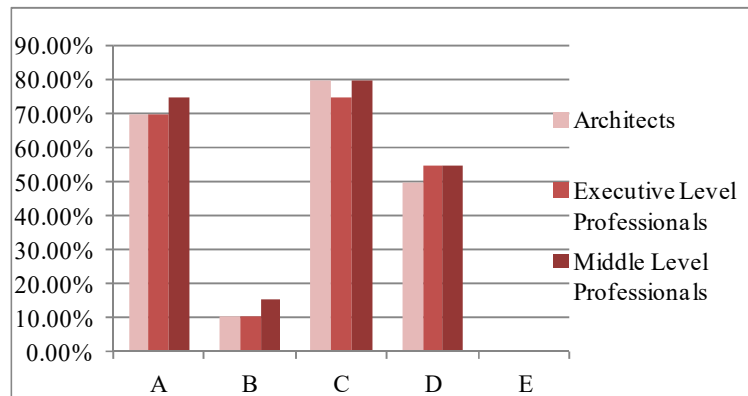


Figure 12 - Question 1 - Variations of responses

city of residence. For that they were given with multiple choices and the variation of the choice of responses by the interviewees is as above (Fig. 12).

Upon closer examination, one can conclude that the natural beauty and its historical and religious values are the main interests. This gives us an idea about the possibilities and boundaries for further expansion of the city while preserving its current state of cohesion.

Second question was the option for the interviewees who have stated that there are other reasons for them to choose Kandy as the city to reside. But any of the respondents have not utilized this so that it is fair if one concludes saying that there are the mostly concerned facts by the user. This limits the user perception into a narrow domain.

Next question was "Are you satisfied with the present appearance of the City of Kandy?" which is a straight forward question with a single choice out of two, and 62% of the sample says that they are unsatisfied with the present appearance of the city. This is the place where "Cohesiveness" comes to play.

Then, for the respondents who chose "No" for the previous question were given with the

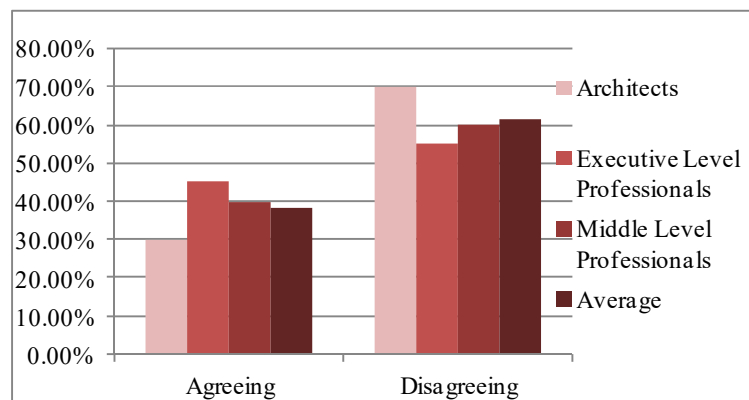


Figure 13 - Satisfaction with the present appearance

option to justify their answer. The following options were given to them by concerning the facts collected from participatory observations and unstructured interviews etc.

- 1) Too much of abandoned lands
- 2) Too much of congestion of buildings
- 3) Negative influence from one location to another
- 4) Uneasiness to access and inconvenience of locating a particular place
- 5) Other

The variation of the selection of choices happened to be as shown in the figure 14. Majority of the respondents (93%) say that the city is too congested with buildings. This is of course something that directly deals with the experiential cohesiveness. The issue is actually not the congestion of the city, but the congested-like appearance. This can be eliminated by embedding the already identified characteristics to the city. A percentage of 40% say that the reason is "Uneasiness to access and inconvenience of locating a particular place". This too needs to be taken into consideration (Fig. 16).

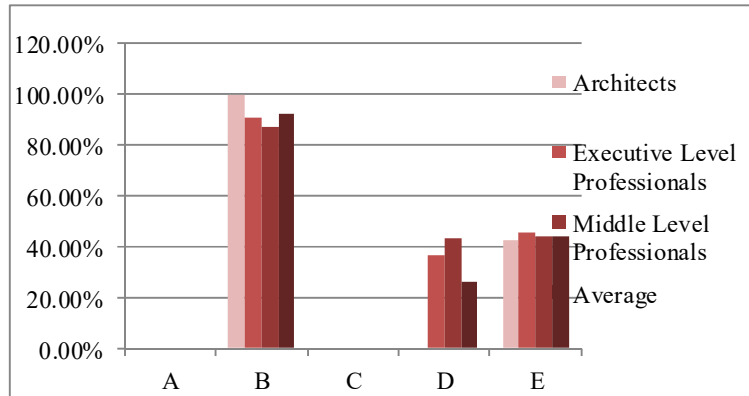


Figure 14 - Reason for the dissatisfaction about the appearance of the city

After that, a questionnaire was given to identify preferences of landmarks in the city. The list of landmarks is provided below and they were identified as prominent landmarks by the unstructured interviews conducted.

1. Temple of Tooth Relic
2. Lake Round
3. Market Square
4. Bahirawakanda
5. Udawaththakele
6. Bogambara Stadium
7. Hanthana Range
8. Goodshed Bus Stand
9. Clock Tower
10. General Hospital

Out of the given, the first choice of a majority was the Temple of Tooth Relic. It is identified as the most prominent of all. The unique popularity of it as a monument, running parallel with its gigantic appearance has resulted in its prominence. A majority have chosen the good shed bus stand as the least preferred location of all as shown in Fig. 15.

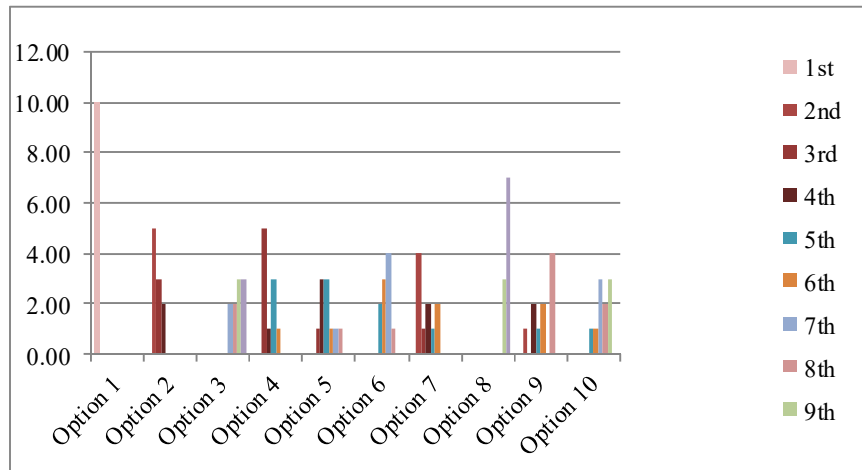


Figure 15 - Preferred landmarks (Architects)

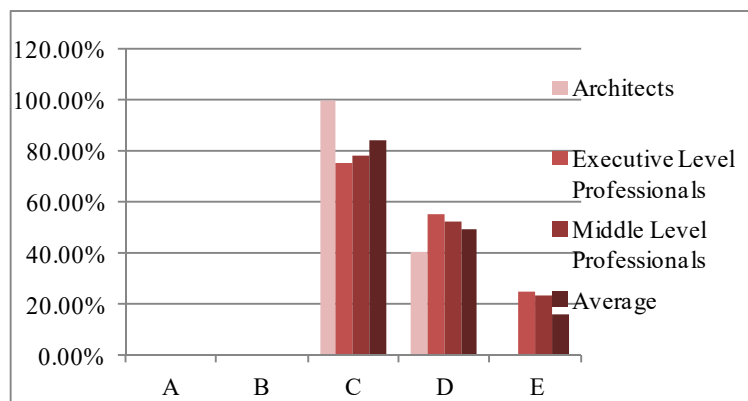


Figure 16 - Reasons for the first choice

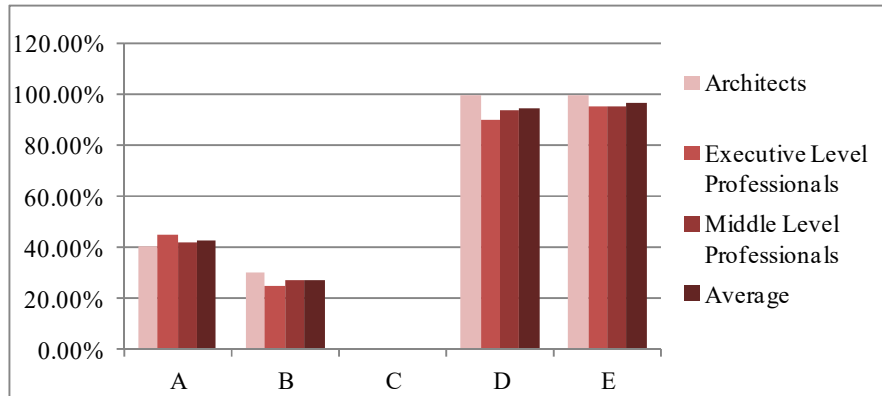
The variation for the other two categories of respondents was also the same. Here, the distribution of middle range of options was rapidly varying but the edges were not so. Especially the good shed bus stand has become one of the least preferred places.

Afterwards, the respondents were given a set of reasons to choose, based on what made them to select their first choice as the first and the tenth choice as the last. Those two were separate questions but here they are addressed simultaneously.

The most preferred reason was the third and the sense of freedom, the fourth reason and some others were also given as answers. That is mainly because of the religious nature in which the temple of the tooth relic is based on. The sense of freedom was also given as a closely preferable answer because of the inherent sense of freedom that prevails in the temple. Location of the temple might also be a cause for this response because of the serene background and nature.

The mostly given reasons to justify the last choice were poor cleanliness and the disturbances. The thing that needs close attention is the fact that the poor cleanliness being caused by the imperfections of the layout. Disturbances are also caused similarly. For example, if the Good Shed bus stand is considered, there is continuous noise. This noise is mostly caused by honking and running engines . If it is possible to ensure a smooth flow of vehicles, the noise effect could be minimized.

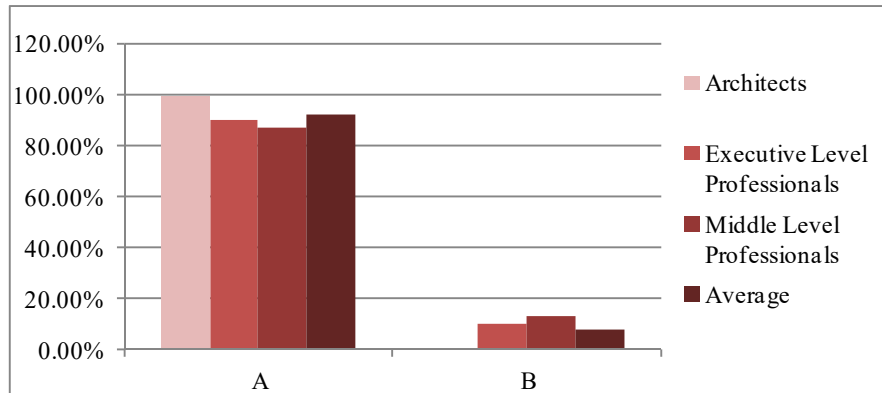
The questionnaire then asked about further opinions related to whether a built fabric should



progressively interact with its surroundings. Majority of the respondents agreed on that

Figure 17 - Reason for the last choice

Figure 18 - "A built fabric should progressively interact with its surroundings"



aspect.

Ninth question was to evaluate general ideas about Kandy. There were five statements given to state whether strongly agreeing (SA), agreeing (A), Uncertain (U), disagreeing (D) or strongly disagreeing (SD). Generally, the responses given as a whole say that the interviewees have uncertainty about the city.

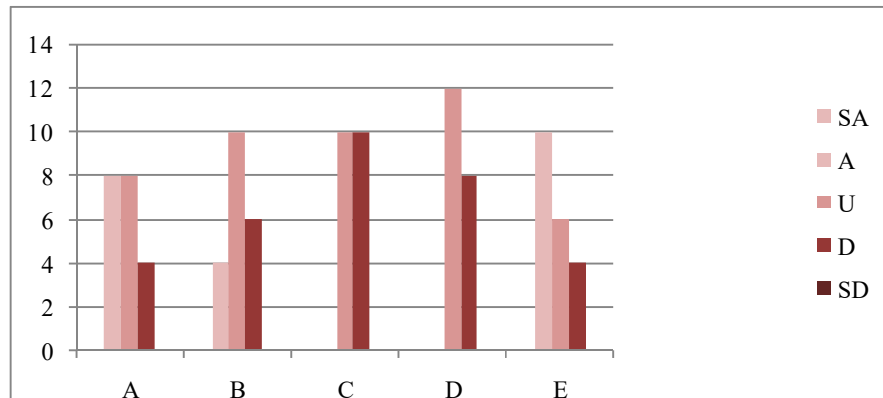


Figure 19 - Opinion on the given statement

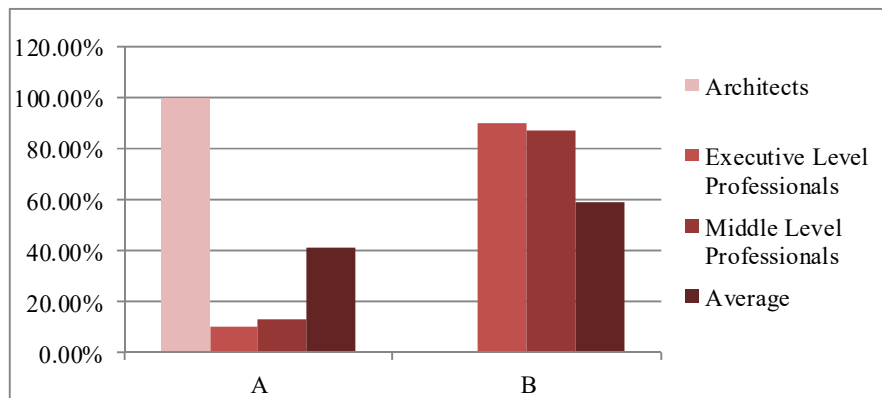


Figure 20 - Awareness of the term "Cohesiveness"

The last question of the questionnaire was about the respondents' awareness of the term **"Cohesiveness"**. All the architects were aware about that term but most of the other respondents were not aware about that. The reason for this question to be added is because it testifies, ***"even though the common user is not aware about the cohesiveness as a concept, they do worry about the cohesiveness in other ways."***

Probable issues related to the absence of cohesion

Unutilized space – Fragmentation of space

Prevalence of unutilized space means that the management of existing space is poor. In short term, this will cause the appearance of the city to be incomplete. Even though it is not directly affecting to the function of the city, there may be indirect negative influences such as refusal of the place by its users. Pleasant appearance is a must in any location and when it is about the pleasantness, the entirety of it is vital.

In long term perspective, the prevalence of unutilized spaces might lead the existing space allocated for the city to fail to cater the growth of the city. As described previously, a city is not an element that remains as it was after the establishment. The problem with the fragmented spaces is they are insufficient to provide the required room for additions. So, the lack of sufficient spaces for the growth will either be reduced or be completely sabotaged. Even

though it is possible to expand the city along the third dimension also, but on one hand that is extremely expensive and on the other hand that also has a very limited envelop.

Overlapping and mutually interrupting functions

More than 70% of the functions of a city are dependent on the built fabric of the city. These functions are interacting with their built fabric on a regular basis. If there are two elements of a particular built fabric which are mutually interrupting, the functions which are based on the particular elements also get interrupted. For example, if the drainage of the city's hospital is directed to the nearest water body, and if that water body is the main source of water supply to the users of the city that is an occurrence in the built fabric that mutual interruption is prevailing. Even though this can be possibly overhauled by employing a mobile drainage solution but that is again expensive. So it is a must to consider about the possible interaction of a planned element with the surrounding of the built fabric to manipulate the establishment of the element to minimize the possible negative interactions such as overlapping and mutual interruption to a null. Problem associated with the overlapping functions is that it will lead the functions to fail and ultimately the city will be lead to a failure.

Chaotic layout

For a user who uses the particular fabric on a regular basis, it is important to be adapted to the layout of the city within the minimum possible time. This directly affects the performances of the functions related to the particular user and the element by increasing the efficiency, as it provides quick access within a minimum subjective and objective effort. Here, the importance of the objective effort is that it always deals with the mind-set of the user. If the user has to think a lot about the access route and has to worry about the access that will increase the stress, leading the user's performances to be reduced. At the same time it is important to think about the possibility for the user to register the layout of the surroundings of the particular element. More the element is closer to a relative landmark, which is related in functions becoming easier for the user to register the access path in his mind which is a mind map. So it is important that the layout of the city to not to be chaotic and making the mind map in the users' mind simpler.

Unselfconscious sense of space

The character or the appearance of the city is the most important above any other when it is about a city. Here the word "*Character*" refers to the appearance and the functions of the city. "*Character*" of a city is defined by its appearance, its layout and the interaction of each individual element with the surrounding, or simply the space of the city. Basically, if fragmented spaces prevail, elements overlap or interfere with each other negatively and the layout is chaotic, the character will obviously be improper in its definition. The improper character, which is out of definition, will lead the city to be a failure. An authentic attitude to place is well understood to be a genuine experience regarding the sense of place, the character of a place would not be omitted due to the social, economic and cultural constrains, and the distortions has to be self-consciously sorted out.

Conclusions and Recommendations

The study concludes that the coherence in an urban environment happens through the experiences that a person has in that environment. In today's urban context or rather in case

of the city of Kandy, the physical coherence is evident due to its physical arrangement of its elements and the fact that most places, despite of their physically incoherent appearance, function in a feasible manner. It is understandable that most places like in the peripheral area, sacred area to a same extent and even commercial core have become cohesive with the context as these are experientially cohesive places.

Over the past decades, the built fabric of the city of Kandy has gained a drastic change, as it is known to be the capital of the hill country over a long period of time. However, the responses for the questionnaires testify that the city of Kandy is expected to be a destination with a historical and a religious value. That means irrespective of the alterations done, the users of the city of Kandy expect the originality to be preserved.

Majority of the respondents who stated that they are not satisfied with the present appearance of the city of Kandy, have reasoned out that by saying that there is too much of congestion of buildings in the city. Even though this is not true when the city is given a glance as a whole, this becomes considerable when it comes to the micro view. The present character of the built fabric in the city lacks of some of the key features of the cohesiveness that has been identified earlier in this paper.

The choice of the most preferable landmark is the temple of tooth relic at the first place. This is a good point to commence the analysis of the existing built fabric. And the clock tower and roundabout is also become commonly prominent. Concerning the reasons leading these two elements to have a high prominence is important because Kandy being a large and yet expanding city, should have unique elements to differentiate each location. In the 9th question, the rate of disagreements with the statements C & D are comparatively high. This would be proposed as a point for further studies as it is important to improve the city along with the course of time.

Here it is important to consider the strong relationship between the questions 8 and 11. Even though most of the users are unaware of the standard terminology, they concern about the link of the elements in the built fabric at the first place. So, it is logical to state that the users of a particular built fabric are the most determinant factor of the construction of the built fabric; hence the hypothesis "*Coherence in the built fabric of a city is directly interrelated only with the users' perception*" can be proven to be true

Directions for future research

The preceding study has been an observation of city's built fabric and the user perception which helps to create wholeness in a city. Some next steps for future researchers and studies are necessary for grasp cohesion as a strategy in development of a city, which goes beyond the limitations of this paper.

The most important next step of this study should be an in-depth study of how coherence can be integrated with the city's development plans in order to acquire wholeness. This paper already had looked into finding the perceptible elements and the ways how it could be cohered. The virtual existence of the elements of built fabric and its role of cohesion has been proved by the sense of the users in the paper while further study could be more precise and practically applicable solutions for the identified loopholes in the wholeness of the city. This can be done via a solid interaction with the regulatory bodies and decision making authorities along with the oriented results gained through this research. The outcome may result more human-friendly, holistic cityscape for the dwellers which dominates the image of the city.

References

- Ching, F. D. (1979). *Architecture form, space and order*. New York: Van Nostrand Reinhold Company.
- Doxiadis, C. A. (1974). *Building Entopia*. Athens: Athens Publishing Center.
- Fellbaum, C. (1998). *WordNet Search - 3.1*. Retrieved from WordNet® - A Lexical database of English:
<http://wordnetweb.princeton.edu/perl/webwn?s=cohesiveness>
- Gibbered, F. (1970). *Town Design*. London: Architectural Press.
- Lynch, K. (1960). *Image of the city*. Cambridge: MIT press.
- Lynch, K. (1981). *A theory of good city form*. Cambridge: MIT Press.
- Meiss, P. V. (1990). *Elements of Architecture: From Form to Place*. Abingdon: Spon Press.
- Nuttgens, P. (1989). *The Home Front: Housing the People*. BBC Books.
- Ralph, E. (1976). *Place and Placelessness*. London: Pion Limited.
- Rapoport, A. (1977). *Human Aspects of Urban Form*. Pergoman Press.
- Smith, P. (1987). *Architecture and the Principle of Harmony*. Newcastle: RIBA Publications Ltd.
- Lee Pugalisa.b.c ,**The culture and economics of urban public space design**:Public and professional perceptions ,Newcastle University, Newcastle, County Durham Economic Partnership
- Kathaleen Lloyd , Christopher Auld, **Leisure, Public Space and Quality of Life in the Urban Environment**, Urban Policy and Research, (2003) carfax publishing,tayler & francis group.
- Rosemary Bromley, Andrew Tallon, Colin Thomas, **Disaggregating the space**: time layers of city-centre activities and their users Environment and Planning (2003),Department of Geography, University of Wales Swansea, Wales
- Nicola Dempsey,**Quality of the Built Environment in Urban Neighbourhoods** Planning, Practice & Research, (2008),Routledge publishing, tayler & francis group
- Perry Pei-Ju Yang, Simon Yanuar Putra,Meutia Chaerani, **Computing the sense of time in urban physical environment** ,(2007),Department of Architecture,National University of Singapore, Palgrave Macmillan Ltd.