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Articles

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The current issue is the third of the sixth volume of the *Athens Journal of Architecture* (AJA), **published by the Architecture Unit of ATINER**

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Gregory T. Papanikos
President
ATINER

Athens Institute for Education and Research

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10th Annual International Conference on Architecture
6-9 July 2020, Athens, Greece

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Transition Spaces in an Indian Context

By Anjali Sadanand[*] &R.V. Nagarajan[‡]

Architectural spatial organization is a manifestation of our socio-cultural character reflected in space. On one hand we have multiple users and on the other hand multiple functionally defined spaces. Differences in social relationships are reflected in the articulation of spaces. In this sense the significance of transition spaces is paramount. The paper aims to explore the nature of transition spaces with respect to social meanings attributed to them and the symbolic reference they give in return to architectural space. The transition from public to private, from sacred to profane is explored. It aims to describe transition space in terms of nature, character, morphology and social meaning. Hierarchy and enclosure will be looked at, as well as transparency and material articulation. From architectural elements to spaces, the role and quality of the nature of "transition" will be analysed. The paper will look at transition spaces from the viewpoint of its role, as that, which enforces the identity of users and from that, which merges them. Social conditions of status, gender and differentiation will be enumerated. Transition spaces from examples of houses in traditional environments, urban and rural will be described and compared with corresponding urban and contemporary examples within a fixed historical framework. The study will concentrate on examples from South India. Focus will be given on threshold spaces and courtyards. Theoretical framework of Yatin Pandya will be referenced in terms of spatial elements and Amos Rapoport for a framework of reference for social meaning and space. The paper will show that in contemporary life people adapt to new conditions but maintain old traditions interpreted in a new way where distinct boundaries laid by tradition, give way to new understandings of adjustment and adaptation and temporal space thereby to some extent blurring boundaries but still maintaining cultural differences.

Introduction

There has been much written on vernacular architecture in the North of India, V.S. Pramar, Kulbushan Jain, Yatin Pandya, to quote a few authors. They describe vernacular settlements and housing with details on materials and use. Some articles have been published on coastal villages and villages in the Thanjavur and Kumbakonam area. However, the focus has been on climatological and sustainable features. They describe vernacular settlements and housing with details on materials, climatic performance with descriptions of social use.

South India has a vivid history dating to the Sangam period as far back as 300AD and has a rich cultural heritage presented in the numerous temples built by the Cholas and Pallavas. Settlements arose around temples and were carefully planned within the norms set down by rules dictated by traditional building codes.

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South India has a caste system and hierarchy in caste was spatially manifested in settlement plans and houses. House design of these settlements gave rise to an origin of secular architecture in South India within the framework of traditional norms respecting differences and manifesting them through their architectural articulation. Within them there were typologies based on size and shape. The paper looks at Agraharam houses, those occupied by Brahmins. The scope of the paper is to study transition spaces in samples in the rice bowl of South India, Tanjore, Kumbakonam and in Chidambaran and urban Chennai. "Agraharam means front or foremost row implying a prestigious location."[1] It is an exclusively Brahmin neighbourhood or settlement. Brahmins were landowners and life in an agrarian society was ritual based and revolved around festivals based on the moon. Families were brought together and a sense of community enhanced through functions for propitiating the Gods on festival days. The Hindu joint family was the basic unit and houses were designed to satisfy needs of different genders and generations with provisions for feasts and celebrations such as weddings, etc. Birth and marriage were celebrated in the house. The house had to spatially accommodate both the everyday functions and the requirements for festival days without compromise. In this light, the in-between or transition spaces seem important as spaces which permit dualities, as well as join the different realms. The paper aims to first understand the nature and kinds of transition space in terms of its spatially, form significance and describe its function in maintaining social relations, as well as question and explore the nature of its transformation under different conditions such as in an urban context and in more modernized houses. The scope of the study is limited to 8 examples from rural and urban areas in Tamil Nadu. The paper restricts its discussion to the articulation of transition spaces.

Literature Review

Definitions

Transition space can be defined as a space between two realms. They are transformative spaces that introduce discontinuity by creating and end and suggest a beginning. They enforce dissolution, create layering and disassociation. The threshold space is a transition space and can be situated between inside and outside, between different spaces inside or be situated entirely outside. "The phenomenon of the threshold thrives on spatial ambivalence."[2] A threshold space can be a space that defines the entry of a major space, it can exist as a space that connects two spaces or it can be a space that is an ante space, a spatial preface to a functional room. In the Indian context the transition space is a significant space as it symbolizes the passage between two distinct realms. "The threshold expressive of transition, has always received special attention from Indian builders of the past. Even today, ceremonies on all important occasions include a special event

1. M. Desai, *Wooden Architecture of Kerala* (India: Mappin Publishing, 2018), 117.
2. T. Boetteger, *Threshold Spaces* (Basel: Birkhauser, 2004), 10.

connected with the threshold, which in many cases is decorated and worshipped every day."[3] "The essence of a threshold space is capturing and staging an entrance."[4] "Man is the centre and forms at every point the starting point."[5]

Space in the Indian Context

Yatin Pandya in "Elements of Spacemaking" suggests a framework for looking at architectural elements in transition spaces in terms of physical articulation. Yatin Pandya does not discuss the courtyard or other typical structures, found in Indian architecture, but restrains his discussion to the following architectural elements-of Floor, column, Wall, Door, window, stair and Roof with examples from the Indian vernacular in North India. Considering the commonality of such references to South India, Yatin Pandya's book has been thought of being proficient to suggest elements common to both North and South India. "The Sanskrit word for floor is *bhutal* where *bhu* refers to the earth or ground, it also means "to exist" and *tal* refers to the bottom or base surface. Floor essentially delineates territory."[6] In the Indian context the floor is particularly significant. As we sit on it and eat on utensils placed on the floor. A modulated floor of ups and downs gives a seat. The thinnai uses this concept (Figure 1). Space is defined in a floor by virtue of decoration which in turn is symbolic and communicates significance. A transition from one space to another is manifested on a floor as level change (Figure 2). The perception of floors in sequence defines pause and movement. Floor as a raised plinth can demarcate reference datum and territory, inside and outside (Figure 3). The column is a support, a point in space and a row of columns suggest direction and can be perceived to define space and form a guide for movement (Figure 4). The column is an image maker and marker of space, with special reference to vernacular columns which are decorated in colors with carved capitals and brackets in timber.

Pandya states that it is a threshold between public and private and an image maker. He says windows are elements that also offer transition. He concludes with stairs. Steps are thresholds and can be seats (Figure 3). The roof, he says is an image maker and modulator of volume with no reference to a correspondence between function and roof type. Pandya restrains his discussion to the following elements discussed above.

3. K. Jain, *Thematic Space in Indian Architecture* (New Delhi: India Research Press, 2002), 72.
4. Ibid, 66.
5. Ibid.
6. Y. Pandya, *Elements of Spacemaking* (India: Mappin Publishing PvtLtd, 2007), 14.

Figure 1. *The Raised Seating Area Called Thinnai*
Source: Anjali Sadanand.

Figure 2. *Kolam on Floor - Entry*
Source: Anjali Sadanand.

Figure 3. *Transition between Inside and Outside*

Source: Anjali Sadanand.

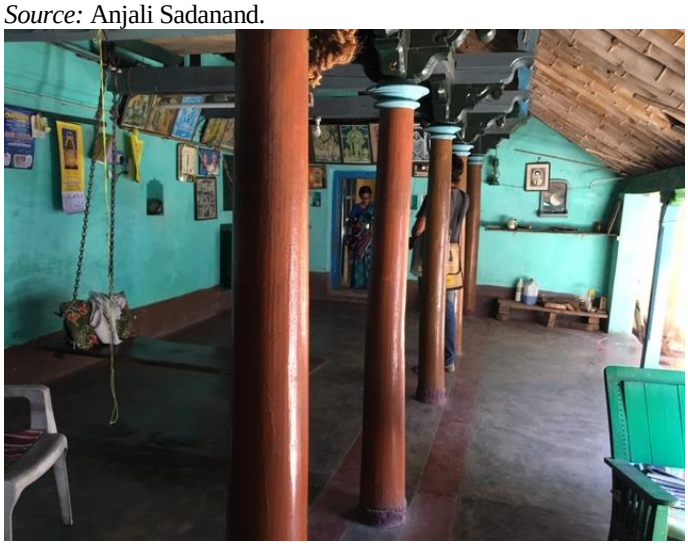

Figure 4. *Columns as Direction and Delineation*
Source: Anjali Sadanand.

Walls are protective barriers and used in the vernacular to store things. "The door connotes an act of passage between two realms."[7] In Thematic spaces, Kulbushan Jain looks at "spatial themes that have a strong presence in Indian architecture. The intention is to also highlight the key factors that have played an important role in the evolution of spatial articulation."[8] The spatial themes are the pavilion, the courtyard, the in-between realm and the classical cave. Jain maintains that "the interplay of physical and the metaphysical determines the formation of architectural spaces."[9] Courtyard spaces are the heart of houses and other spaces are in layers around them and they protect other spaces in terms of privacy. Household functions spill onto them in good weather daily activities spill out onto the courtyard, which is also gender based. Jain says "A courtyard's position becomes that of a principal space organizing element."[10] Courtyards offer light and ventilation and keep the dwelling cool. On transition spaces, Jain comments "the transition deals with the movement from one situation to another, from one set of space - light values to another."[11] Jain quotes "transition of thinnai in South India where two levels of thinnai spatialise differences. The inner layer of higher plinth is for higher caste."[12]

In, a study on sustainable design principles: A case study of a vernacular dwelling in the Thanjavur region of Tamil Nadu, India. By P. Jayasudha, M. Dhanasekaran, Monsingh D. Devadas and N. Ramachandran in Indian Journal of Traditional knowledge, Volume 13(4) October 2014, a detailed study of social activities and spaces has been carried out with reference to space, social activity, user and thermal performance. The thrust of the discussion is on thermal comfort

7. Ibid, 14.
8. Jain, *Thematic Space in Indian Architecture*, 2002, 8.
9. Ibid.
10. Ibid, 66.
11. Ibid, 72.
12. Ibid, 74.

with data supported by Ecotect software analysis. However, the social activities have been listed comprehensively and offer a guide for study of this kind in this paper.

In Strategy for Flexible Spaces in Housing - A Study With Reference To Agraharams in Kumbakonam, by Safrin Rex Dulcie J., in International Journal of Advance Research, Ideas and Innovations in Technology, 2017 (Volume 3, Issue 6) there is a comprehensive study of space, social use and flexibility in courtyard houses in a Thanjavur village. Description of house types are described based on courtyard locations of single courtyard houses She defines the types of courtyards according to their location and discusses spatial organization of the respective houses around the internal courtyards. The author argues technological advancement is reflected in new trends in the behavioural pattern of people and a desire to move away from traditional thinking patterns.

Significant takeaways are in the function of the courtyard as a transition space in different situations evident in the samples provided.

In an attempt to interpret pre-industrial vernacular architecture in Udaiyalur-Samavad 2011 conference proceedings, Ahmedabad, the author concludes with the significance of the haptic experience brought on by light and material and comments on transitions and changing experiences in agraharam houses.

The author has drawn inferences from an appraisal of the vernacular dwelling from a study of space, social use, artifacts, elements such as columns etc., and decorative details that constitute the interior. She comments on typologies as being based on classification based on number of courtyards. Simpler houses, she writes have a single courtyard awhile more complex houses have three courtyards.

The Hindu House

The Hindu house has spaces decided on ancient knowledge based system which derives its rules from metaphysical and practical factors. "Vastu derived from the Sanskrit or *vasa,* to dwell, is the long established name given to localities suited for the habitation of human beings."[13]Refer Figure 5.

"The Hindu concept of a house is that of the Universe as an ordered division of space ranging from vulnerable to sacred areas. There is a progression inward from the unstable to the stable, from the less pure to the pure. Pollution has to be kept at bay. This involves controlling access to the sacred space."[14]

In this paper as suggested by Lindsay Asquith the anthropological and sociological approach will be used to study dwelling.

1. Spatial and activity patterns universal to a culture - an anthropological approach.
2. Those that are part of a daily routine and ritual - a sociological approach.
3. The formation of type she refers to as an architectural approach.

13. M. A. A. Ananthalwar, *Indian Architecture* (Chennai: V. T. Iyer & sons, n.d.)

14. I. Cooper, and B. Dawson, *Traditional Buildings of India* (London: Thames and Hudson, 1998), 163.

"Traditional buildings of India Because Vernacular environments are those most clearly linked to 'culture', they are essential in clarifying the ways in which culture and environments are related."[15] Norms of culture are expressed spatially in dwelling and the reading of cultural meaning in space is made possible. "A dwelling needs to be defined as a system of settings within which systems of activities take place."[16]

In House, Form and Culture, Rapoport suggests that there are three factors that determine vernacular architecture. They are socio-cultural, climatic and material and construction. Furthermore, he reiterates that socio-cultural factors in instances override climatic factors. He draws reference to this in relation to orientation and cosmology in relation to dwelling and settlement planning. He lists five socio-cultural factors:

1. Some basic needs
2. Family
3. Position of women
4. Privacy
5. Social intercourse[17]

Cultural norms determine behavior patterns. To support this, Hanson comments that "a house is not a list of activities of rooms, but it is a pattern of space, governed by intricate conventions about what spaces there are, how they are connected and sequenced, which activities go together and which are separated out."[18] "In this respect the design of houses cannot become divorced from those that will eat, sleep, cook and play in them."[19]

"Concepts of spatiality are crucial to all cultures. "Place-making" has become a more amenable term of social relevance than the purist notions of space" and involves" Scenarios where people shape and define their own area."[20] Desai argues that "place-making" has been suggested as a more humanist approach as a concept, in the context of built environments. Transition spaces ensure place-making by establishing culture in space.

Typology

With regard to typical descriptions of Agraharam houses, the following describes a short evolution in development, from a simple structure to a complex

15. L. Asquith and M. Vellinga, *Vernacular Architecture in the Twenty-First Century* (Great Britain: Taylor and Francis, 2006), 183.
16. A. Raporport, *House Form and Culture* (USA: Prentice-Hall, 1969, 162).
17. Ibid.
18. J. Hanson, *Decoding Homes and Houses* (Cambridge: Cambridge University Press, 1998), 2.
19. Asquith and Vellinga, *Vernacular Architecture in the Twenty-First Century*, 2006, 129.
20. Desai, *Wooden Architecture of Kerala*, 2018, 165.
21. https://shodhganga.inflibnet.ac.in/bitstream/10603/38625/3/03_abstract.pdf.
22. Ananthalwar, *Indian Architecture* (n.d.), 61.

multiple courtyard house with a large hall. First two typologies have openings in front and rear and through courtyards. The dwelling unit starts with one room to develop into a three room unit with a thinnai or front raised verandah, a hall called a *koodam* and a kitchen called a *samayals*. The thinnai is the front and male zone and public zone, the kitchen is the women's zone and private zone and the centre is the family and semi-private zone. The courtyard was the introduced to give light and ventilation and houses subsequently developed around their courtyards. "Typology 3 consists of dwellings with a central double height ceiling with clerestory upennings."[20]

Another description enumerates the various parts of a typical house. "In South India, the custom is to provide for five well defined parts of a house:

1. Outer verandah intended to receive visitors.
2. The front hall where all rest at night.
3. Quadrangular structure with a courtyard in the centre; dining and religious observances here.
4. The kitchen, nursery and toilet requisites, practically women's quarters.
5. A long and open backyard of the house with well, bathing shed, latrine cow-shed, etc."[22]

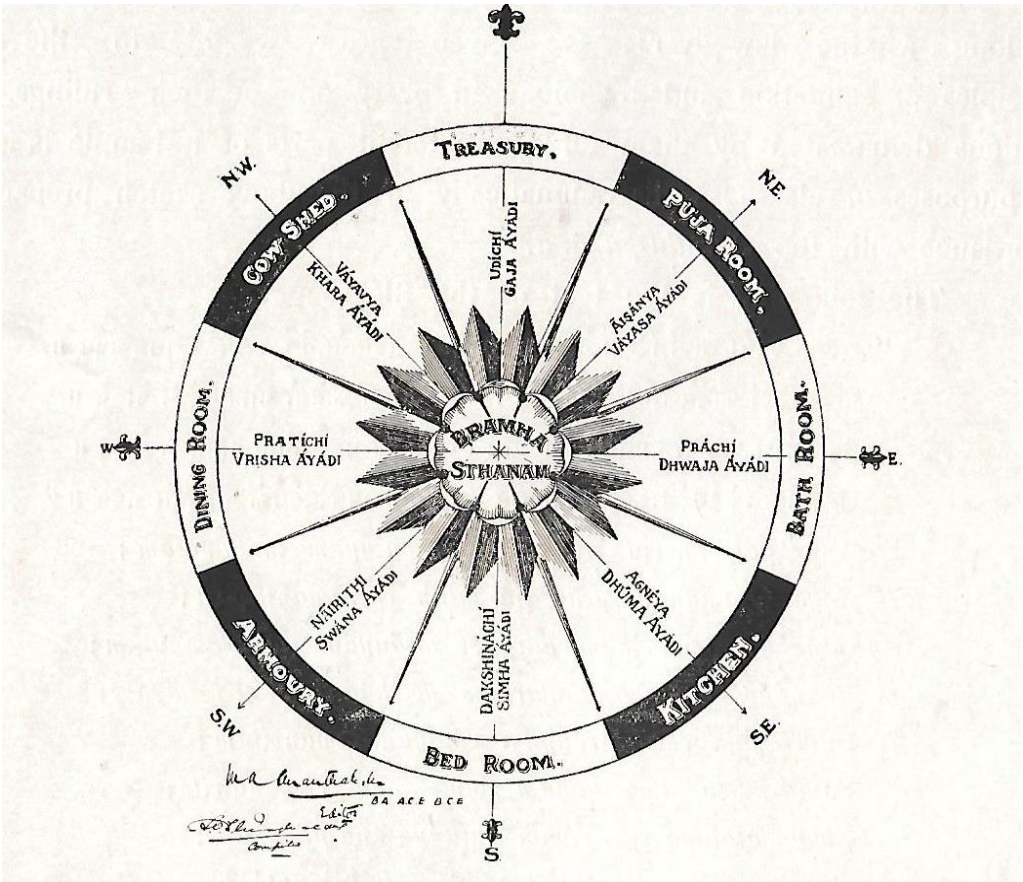

Figure 5. *Space Arrangements in a House according to Sanat Kumara Grihavastu*
Source: M. A. A. Ananthalwar, *Indian Architecture, n.d.*

Methodology

A sample of 8 houses will be studied in terms of the location of transition spaces and with the parameters stated. A comparative analysis of them will be conducted to arrive at conclusions and to therefore suggest types of transition spaces and to suggest those that have sustained themselves and have been retained in urban houses. Parameters to analyse transition spaces:

1. Spatial arrangement with relation to house and street.
2. Access and control. Sequence? Is the movement fixed or flexible?
3. How can the threshold space be defined with respect to scale i.e. width and length.
4. Phenomenological experience in terms of light and materiality.
5. Level of decoration, image ability and any distinct architectural elements or furniture equipment.
6. Its function and social use.
7. Its symbolic significance.
8. Types of transition spaces.

Discussion

Sample Selection

The sample of 8 houses has been selected based on two broad categories- traditional and urban. With respect to the vernacular, the two villages selected have been studied by students as part of their academic rural documentation programme and furnish examples of houses atypical of the area and in good condition. However, many are sealed and inaccessible. Therefore, the sample comprises a few numbers. In the urban scenario the sample was chosen from what is available and representative of the theme of the paper. Reference is not made to area of each house as it is not considered significant to the study.

List of Houses

House 1 - Agraharam house of single courtyard in Chidamabaram, original and as converted by a couple who worked in a bank.
House 2 - Agraharam house of single courtyard bought by a Christian family and converted.
House 3 - Agraharam house of three courtyards.
House 4 - Agraharam house of three courtyards with additional rooms.
House 5 - Agraharam type house in Chennai.
House 6 - House built in 1960's which combines tradition with the contemporary Traditional dwelling converted to today's living conditions.
House 7 - Traditional dwelling converted to today's living condition.
House 8 - Contemporary House.

Description of Agraharam Houses and Comparision

House 1 (plan in Figure 6), is a house accessible from an agraharam street in a village near Chidambaram town. The street leads to a temple. Houses have common walls and in the rear, is situated a backyard with a rear entrance. The house is south facing with a linear plan. Only the entry and a room face the street which gives it a narrow frontage. The window facing the street is sheltered by the thinnai. It has been planned following the traditional concepts of planning of Vaastu. The house serves as a home for a Hindu joint family of five to ten members. Social customs and behavior patterns though modified are adhered to. There is sparse furniture in the house as it is the custom to sit on the floor. Sitting on the floor is a practice even used for eating. Bedrolls are used for sleeping, which can be rolled up after use and stored away. In some houses there is a single bed or cot. A timber plank swing suspended from the ceiling beam in the hall is a common feature.

Lifestyle patterns are simple, as in, men go to work during the day and women are in the house performing duties. Women seldom go out on social occasions except for festivals and special social functions.

The rear part of the house can be zoned as being chiefly concerned with women's duties and the front part with men's social duties. A centrally located courtyard built with one side to the edge wall gives light and ventilation to the hall and space is organized around it. The house demonstrates a key feature of the vernacular house in its alignment of doors in an axis. This is called as the "Soma sutra." This Energy axis is a row of openings aligned in the same line. The North-South energy axis, i.e. the front door facing, the rear door and the thinnai as a transition from street to house are aligned. The kitchen is accessible from the hall and as is customary the bathrooms are in the rear accessible from an outer verandah. The Hall is a multi-function space. Transition from public to semi-public happens through the thinnai area. Slippers can be left there. The thinnai with the doorway performs as a threshold between the profane outside world and symbolizes and spatialises the transition.

The second transition is the colonnade around the courtyard. The transition space is "C" shaped. This space is of neutral significance and functions as a corridor. The space can be traversed by all categories of people. It leads to the rear part of the plot that houses services such as well and cowsheds and bathrooms. This space leads to "impure" spaces and to the Hall. It is the transition between the Hall and the "ritually "impure" space. The kitchen and pooja which is located as a part of the kitchen are considered as sacred space. Rights to entry are therefore scrutinized and women during menses are considered unclean and hence not allowed inside these areas. The area adjacent to the kitchen serves as a living space for them with easy access to the outdoor, privy and accessible from the colonnaded space.

Within the house the transition space adjacent to kitchen precludes the service spaces beyond. In dealing with labourers this door and space is used.

The Chidambaram house represents the simplest form of understanding of transition spaces as delimiters of space. The space can be used for storage. Its

primary role is to establish a threshold between two realms and thereby create significance and importance to the following space.

Alterations were made to House 1 by an urban couple, both of whom were bank employees, who decided to shift to a rural setting. They took over the house and renovated it. They were a small family of two people. Changes made, were as follows. The kitchen and puja were joined as one space and the ante room in the rear was converted to a bathroom. Rear rooms were left as is. The hall functioned as a living space with television and for social interaction. The thinnai was rarely used and people were invited inside the house but a thinnai seat was built. The kitchen was an open plan kitchen which functioned as a dining room in addition. The puja was a shelf in the kitchen so located that the God's faced east as considered auspicious. Entry remained through the thinnai, but the thinnai lost its function as a socialising space. It was retained as an ante space where you removed your footwear. Social hierarchy manifested in space and seen earlier ceased (Plan on the right in Figure 6).

Taboos related to pure and impure were removed and the bathroom was located within the house easily accessible from the hall. Spatially the house, in terms of the social relations it established, worked as a modern flat with the exception that the front room retained as a bedroom did not have an attached bathroom and functioned as the only sleeping space.

Subtle differences and articulations of steps and levels have been removed. Symbolic significance has been removed to give way to function and ease of living where proximity succeeds.

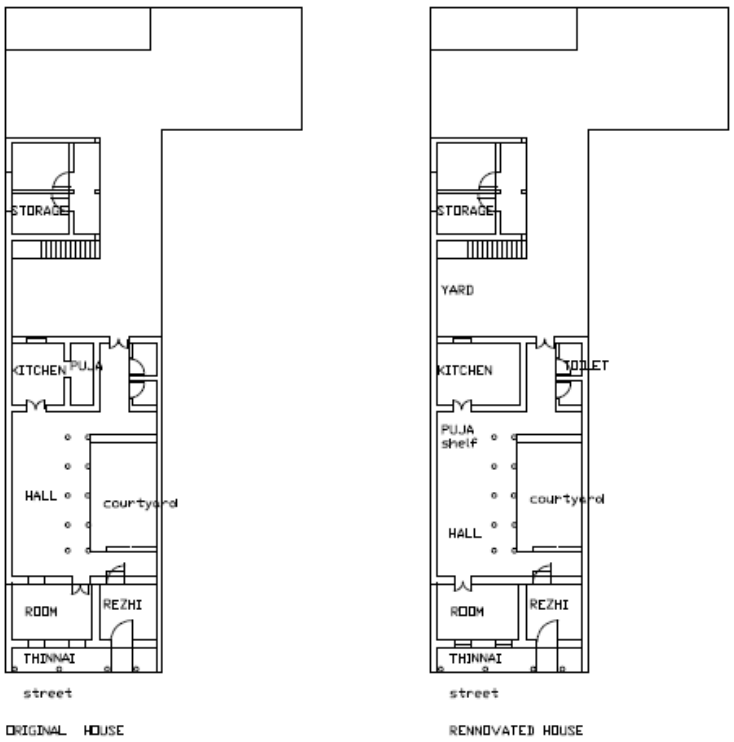

Figure 6. *Chidambaram House Plans*
Source: Anjali Sadanand.

House 2 (Figure 7), is in a village with close proximity to Kumbakonam town, faces west and is an agraharam house. It is similar to House 1, as it is linear in plan but is more compact. It has a larger front room with two windows facing the street and therefore, a longer thinnai. The kitchen has a small skylight and there is a walled in backyard for services and a door leading beyond for the privy. From the front door, the door to the rear land is visible. In the context of agraharam houses this house is part of a settlement plan where houses are arranged around the temple. Its front door faces west. The kitchen is in north east and bedroom, a part of it is in south west. The courtyard's longer side faces south and ensures that the interior of the house is kept comfortable. The courtyard like in House 1 is aligned to the front door and creates a visual barrier from the outside. The hall is visually protected (Figure 8).

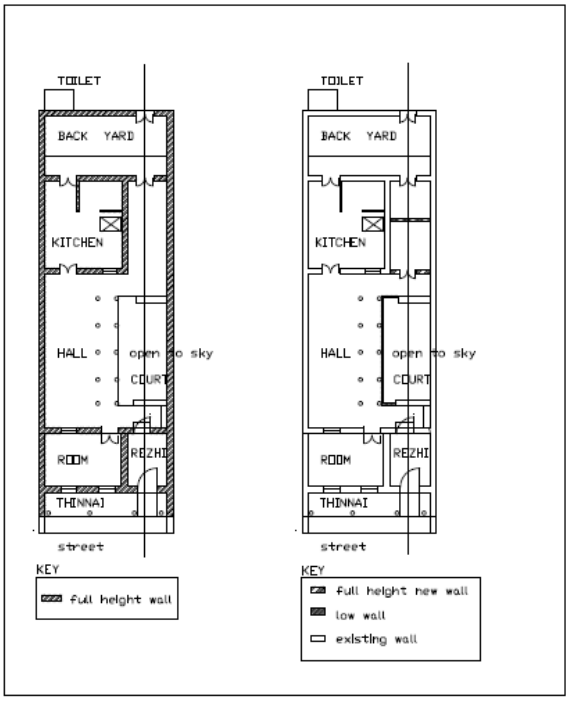

Figure 7. *Plan of House 2 (Renovated House on the Right)*
Source: Anjali Sadanand.

Figure 8. *Hall in House 2*

Source: Anjali Sadanand.

A neighbor and an identical house of House 2, was renovated by a Christian family with young children. In agraharam houses you buy only one wall and they were offered the second wall as the house next door was being demolished. Their house shows the value placed by traditional Hindus on certain factors to do with orientation, purity and impurity and hierarchy. The first noticeable change is in the lack of significance given to the axis and the front door. The front door in the House now faces another closed door. The former ante- space, a transition to the outside, has been renovated to form a granary. There is no division of services in courtyards and the washing machine features as a piece of equipment with the fridge in the Hall. The hall is still the hub with social interaction and dining activities taking place there. Women are not relegated to specific areas of the house but can at all times enter all areas. The courtyard which was connected visually and physically construed the thalavaram as a transition between courtyard and hall becomes a delimited space by being contained within a small low wall. Access is only permitted on two sides and the thalavaram now becomes part of the hall and constitutes a differently articulated space by virtue of the rows of columns, but is part of the hall and can be perceived as an extension of it. Each space connects equally in a network of rooms. Definitive rooms emerge now and connect one another with blurring boundaries on the one hand as well as being spatially well defined on the other hand. What is retained is the location of the privy which remains outside and accessible only through the outer courtyard which acts as the threshold to the outside world. The thinnai is maintained and remains a social interaction space.

Subtle differences and articulations of steps and levels have been removed. Symbolic significance has been removed to give way to function and ease of living where proximity succeeds.

In House 3 (Figure 9), the plan is linear and extended. This agraharam house has 7 doors. Features of typical agrahram houses from house 1 and 2 are made more complex. Where House 2 gives a compact solution House 3 is spread out and each activity is given its own space. The house is built around three courtyards. Interface with the street is through the thinnai. The thinnai represents an area open on one side to the street and shaded by a low sloped roof. The height inside this area is not sufficient to stand upright. It is a place where men and women chat and interact with the outside world. It is cool as it is oriented to catch the breeze and in older days offered a place for strangers to rest. It is the most public space of the house. Once inside the threshold one bends to enter and walk over the strip of wood of the door frame before entering the ‘‘rezhi.’ The door enclosure is very significant and features symbolic motifs of religious significance. It is seen to protect the house. The door frame of a house is fixed only on an auspicious day and time seen in the Hindu Almanac. Beyond the door the rezhi is a semipublic space. Its function is to give access. It is used for storage etc. In House 3 it has a thinnai seat and leads to the thalavaram. An outsider can be met at the thinnai area and if you are a family member or known person entry to the house is permitted and slippers can be left at a specified space in the rezhi or thinnai and only house members leave their slippers in the thalavaram. Like other houses, the front door is aligned to the back door. Two sets of transition spaces are visible. Interior

transition space of thinnai, rezhi and thalavaram and first courtyard which leads to second courtyard, which has an ante space for women and then leads to a third ante space of a colonnade around a service courtyard leading then to a backyard. Courtyards act as transitions between women's spaces and men's spaces or family spaces. There is a sequence of transition spaces leading one to another and each establishing the significance of the space by creating an interval between realms and connecting them. Transition spaces of this nature maintain privacy and control of the rooms they lead to.

In House 3, transition is also articulated in the formation of levels between courtyards and can be seen in the detail of steps. Steps formalize transitions through behavior and engage the body in enacting the transition, as in the lower lintel heights of doorways which ensure you bend your body by lowering your head and enter. Sequential glimpses of the interior are thus offered which is orchestrated by the careful placement of openings and levels. The hall is the hub of the house and all activity is spatialised there. It is occupied throughout the day and protected on both sides from outsiders through the transition spaces that lead off to the rear door and front door. Women are given privacy this way and in the older days rank was maintained through these numerous transitions.

House 3 offers a series of courtyards each one establishing a zone from a front public zone, to a women's and a more private zone, to a series of service courtyards and finally connecting to the outside (Figures 10-12).

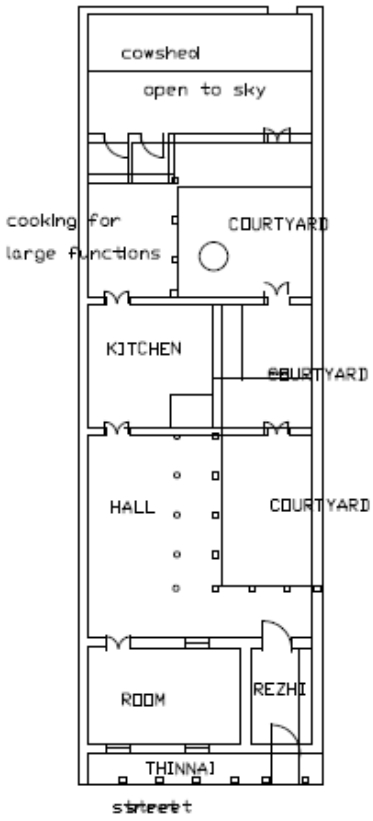

Figure 9. *Plan of House 3*
Source: Anjali Sadanand.

Figure 10. *Puja in House 3*
Source: Anjali Sadanand.

Figure 11. *Doors in Axis in House 3*
Source: Anjali Sadanand.

Figure 12. *Looking from the First Courtyard*
Source: Architect Vidya Shankar.

In House 4 (Figure 13) a more complex version of House 3 emerges. The major difference is that it caters to a large joint family and hence has to cater to more social complexities brought on by age and gender and provide a spatial programme that appropriately answers their needs. House 4 is an example of an original agricultural landowner's house in an Agraharam where the family now consists of members who are office workers. The thinnai takes the form of two seats on either side of the façade of the house to provide strangers with seating to rest. The space between them which is decorated with a kolam is the golai, Refer Figure 14, an area where grain is dried in the sun. The thinnai follows and is for social interaction and as it is south facing catches the breeze and occasionally used by men to sleep. The rezhi is the next transition and is the first space the front door opens on to.

On either side of the front door are two niches for oil lamps, to be lit as is customary in the evenings (Figures 14 and 15). Water as a purifier is believed in Hindu tradition and water is sprinkled in the golai first thing in the morning and a kolam is drawn, to protect the house symbolically and the same process is repeated in the and in the early evening when the lamps are lit at twilight. Transitions to the outside are always viewed as protection for the dwellers. The system of layering and sequence installs a slow progress into the interior and provides a psychological break with the outside world. The hall has a swing and is a cool space which transitions to the courtyard through the thalavaram (Figure 16). The thalavaram is the outside fringe of the interior hall.

For women during menses a separate room is provided off a transition space beyond the thalavaram. The thalavaram has been designed to accommodate an area for them to dialogue with the rest of the family and not enter the hall which has more significance. This space acts as a transition space for them and the family just as the thinnai acts as a space between the outside and the family.

The first courtyard contains the main spaces and the second courtyard the service spaces. Once again a sequence of transitions occur from public to semipublic, semi-private and private to once more gender oriented space sand semipublic space. In each case the nature of the transition upholds the quality and significance of the space. In today's world the family retains its cultural outside fringe of the interior hall.

In today's world the family retains its cultural rootedness by practicing these behavior patterns with the only difference being in their attitude to caste and religion, people of all caste and creed are allowed into their Hall which is fitted with a swing, a few chairs and a TV.

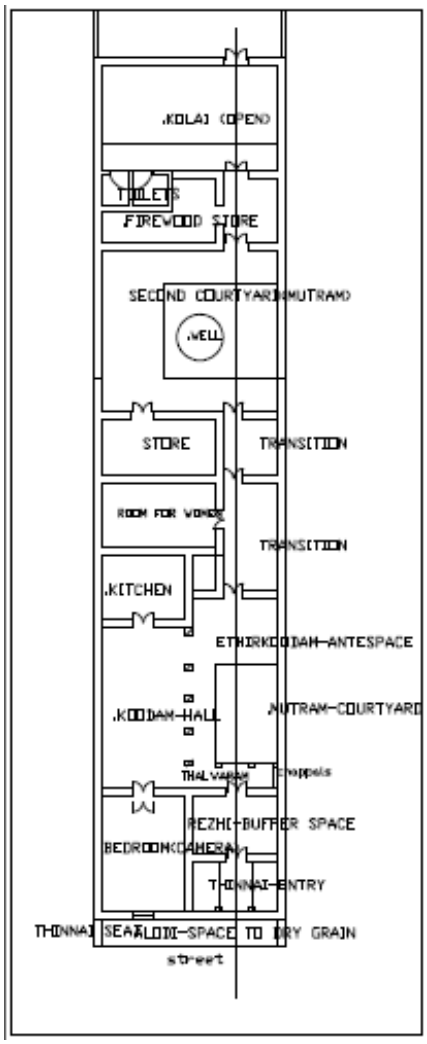

Figure 13. *Plan of House 4*
Source: Anjali Sadanand.

Figure 14. *House 4*
Source: Anjali Sadanand.

Figure 15. *Agraharam House with Lamp*
Source: Architect Vidyashankar.

Figure 16. *Thalavaram in an Agraharam House*
Source: Anjali Sadanand.

Figure 17. *Thulsi Plant in Agraharam House, House 5.*

Source: Anjali Sadanand.

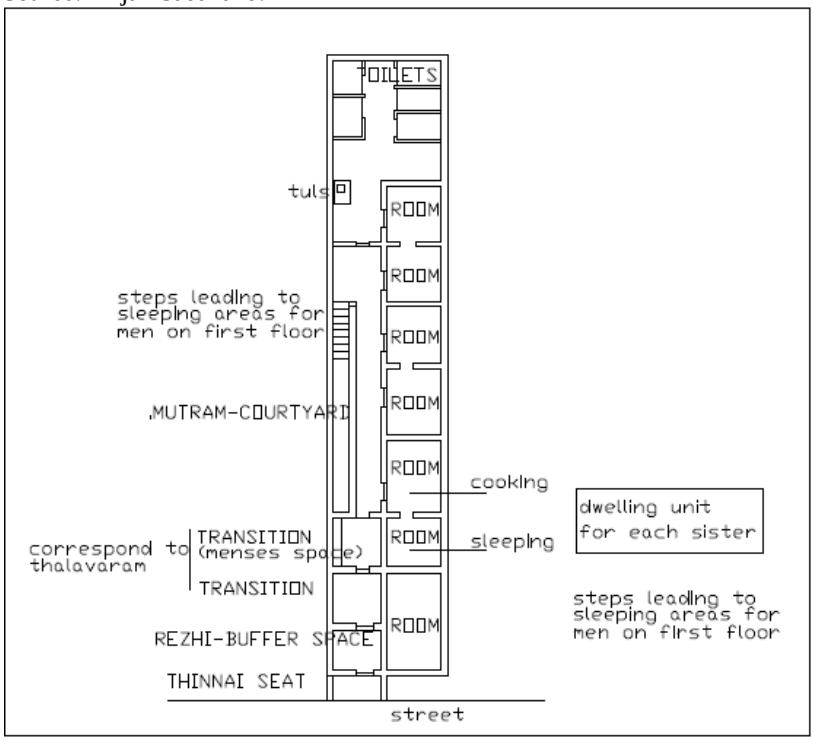

Figure 18. *Plan of House 5*
Source: Anjali Sadanand

The question arises as to how these fixed social constructs are maintained in an urban situation. House 5 (Figure 18) is the house of a Brahmin family in Chennai. The house is in close proximity to a temple as the men work in temple related posts, as cooks and priests. Due to paucity of space, combinations of spaces have resulted in a compact plan with origins in the agraharam plan typology. The house has a very narrow frontage. The plan is linear and follows the agraharam typology. It is two storeys. There are three sisters, who live in this house with their families; each sister has a unit which consists of a hall, a kitchen and a room with a separate bathroom. As the front is narrow, the plan is deep. The courtyard is narrow, approximately three feet wide and lets in light and gives access to the floor above. The similarity to the typology of agraharam house is in the provision and location of each unit and toilets within the social framework of their origins i.e., agraharam typology, but within the spatial constraints offered. A thinnai separates the house door from street and another room the rezhi of the rural counterpart is the next transition (Figure 19), but beyond this, is a room and space which is traversed to enter the central part of the house which is the women's space. This space leads to a narrow corridor with the courtyard on one side and gives entry to each unit; each unit has a hall with one side as cooking space and a door leading to a room. The corridor and front door are aligned to open into a small rear courtyard which houses a tulsi plant (Figure 17). This court corresponds to the second court of the agraharam typology and deals with housekeeping and services shared by the three sisters. The axis is then broken as it then leads to the end of the plot leading

to a corridor from which bathing rooms and latrines are located. The central corridor is the neutral space which was earlier seen around the courtyard which connects all spaces. The kitchen is now a cooking space and at the far end of the hall; the hall leads to the broom for sleeping as in the earlier type. Taboos and customs are thus observed and maintained. Men sleep in the upper storey. The thinnai provides a seat for social interaction with neighbours and family.

Figure 19. *Entry Showing Kolam*
Source: Anjali Sadanand.

House 6 (Figure 20) is a house built in the 1960's that shows a veneer of modernization but holds on to its traditional cultural norms seen in it thinnai, axis and rules on eating. The house is built in a large plot with a compound wall and has a large garden with trees. Transition from the street is through the garden. The house has a large "L" shaped verandah which has a low wall to delineate its boundary. Steps lead to its plinth and the verandah divides into a space for cane chairs and a flexible space for other activities. Immediately to the left of the entrance is a thinnai seat. Refer Figure 20. The owner is very proud of the thinnai as it is an emblem of cultural rootedness. The thinnai does not function as it does in the rural context but is more symbolic in its role. The front door is aligned to a window through which a tulsi plant is visible (Figure 21). The master bedroom leads off from the verandah. The verandah, Refer Figure 21, is a transition and an identifiable, labeled social space where all family functions are conducted and where the owner reads and socializes. It is her threshold space between the private bedroom and living room and the outside, but the verandahs serve as an interpretation of the function of the hall and thinnai. Whereas the hall in the rural counterpart climatologically made conditions comfortable, the garden in this case takes on the role of the courtyard as it offers ventilation light and the prospect of a view and privacy by virtue of its compound wall. There are no set women's spaces and the ritual of eating is maintained by locating the space of dining inside. The verandah hosts all events but eating.

Figure 20. *Entry Verandah and Thinnai of House 6*
Source: Anjali Sadanand

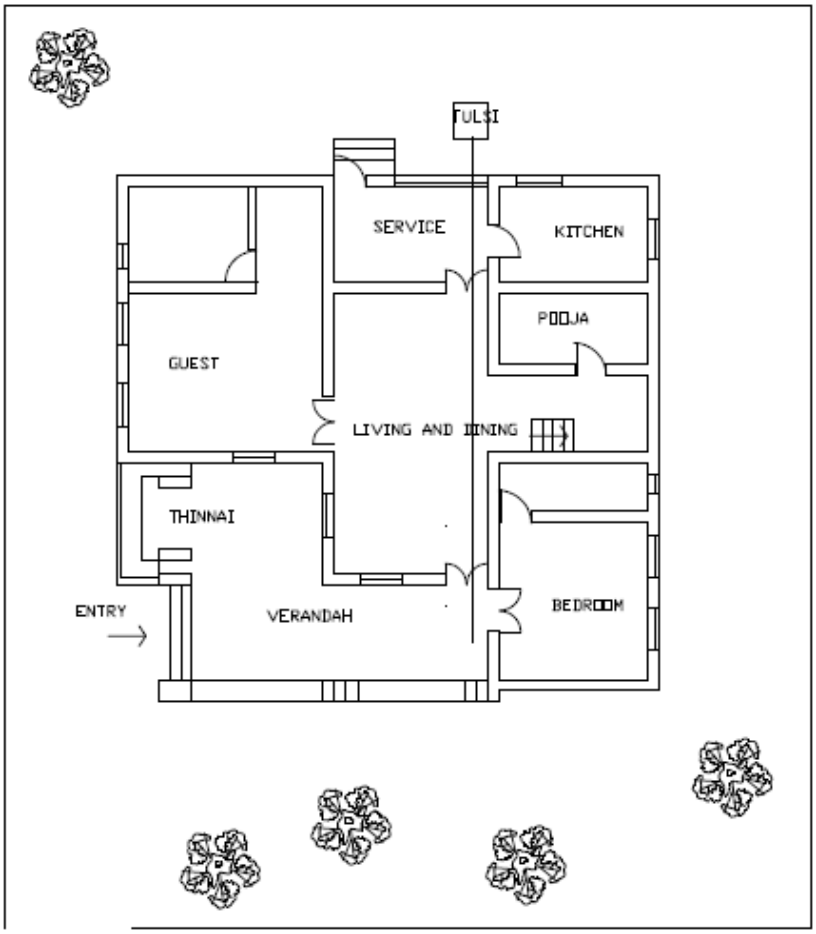

Figure 21. *Plan of House 6 showing Entry Verandah and Thinnai*
Source: Anjali Sadanand

House 7 (Figure 22) is an old house built 100 years ago but remodeled to suit modern needs (Figure 23). It belonged to a musician who lived in it with his family. The house is a typical house as described earlier modified slightly to be built in an urban setting. The house when it was originally built sat on several acres. It was approached by the front thinnai area which served as an open space with no walls on three sides with just a roof. Two identical thinnai or sloped seats were placed symmetrically on two corners like in the agraharam houses. Two symmetrically placed rooms led off from this space. In the early days the thinnai area was a mere transition space which leads to the rezhi. From the rezhi were steps that lead to the main hall above which was the owner's reception room or hall. Beyond the rezhi was another hall and beyond it kitchen, store and puja and bathrooms at the rear. To one side of the house were built two rooms approached by a side door which was the room for women with menses. A separate staircase led off through a transition space which led off the ground floor hall to an open terrace above where social interaction with the women could take place. Conventional cultural norms as seen and observed in the agraharam typology have been recreated but spread out over a larger area. The transition space is still the key moderator and convener of privacy, identity and hierarchy.

In the modern renovation of recent years the transition space has lost its potential to create boundaries and spatialise categories. In the new plan, the entry is on the side. One enters through a transition space to the ground floor hall which functions as living and dining. A bedroom is accessed from it. An open kitchen is visible from the dining and a smaller puja has been created. The ante space between hall and rear verandah has been remodeled into a television family space. Similarily, in front the central thinnai area has been converted to a family room and the inbuilt thinnai seats in the two corners have been absorbed, each into a bedroom. The corner bedrooms are fitted with attached bathrooms. The first floor plan is similar. The rezhi is the only ante space or transition in the house. Breaking down of social barriers, especially those related to gender spaces, has opened up space in the house. The Musri Subramaniam house shows a blurring of boundaries between categories of function. Compartmentalisation is more a requisite of the need for a comfortable environment for air conditioning than social division based on privacy. Our notion of privacy is redefined and relates to bedrooms. The rezhi acts as a transition which leads to an informal living area which leads to bedrooms. In effect the front of the house is the private space and with the entrance on the side the semi-private space is the entrance area and the living and dining. The side entry also creates a meandering walk and transition between public entry and house.

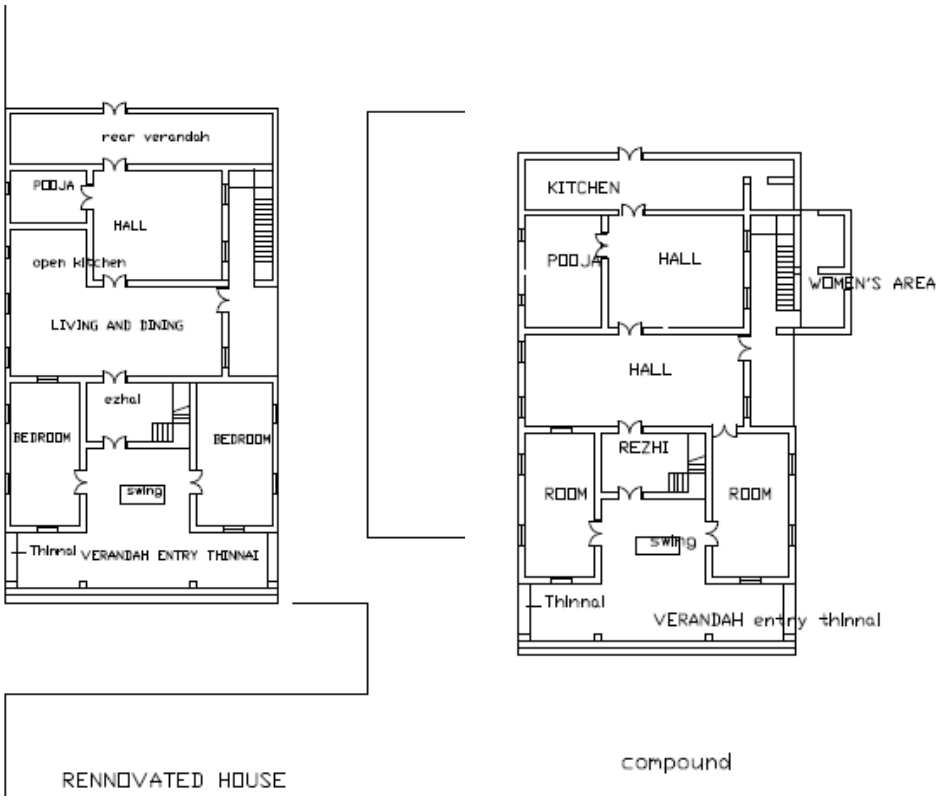

Figure 22. *Musri Subramaniam House - Plans of House 7*
Source: Anjali Sadanand.

Figure 23. *View of House as it Stands Today*
Source: Anjali Sadanand.

In House 8 (Figure 24), it can be seen that transition spaces add to hierarchical importance and build up a sequence of views like Corbusier's promenade to key spaces. The internal courtyard has been used as a prayer space and when not in use functions as part of the schemata of the house. Blinds give privacy when it is used.

Thresholds are significant and ornamented when there is a function. In an apartment or where there is a property boundary the gate marks the first point of entry. In Figure 24, the floor, as Yatin Pandya suggests, of the lobby is shown to be demarcated as a transition by creating an imaginary transition space in front of the entrance by the drawing of a kolam.

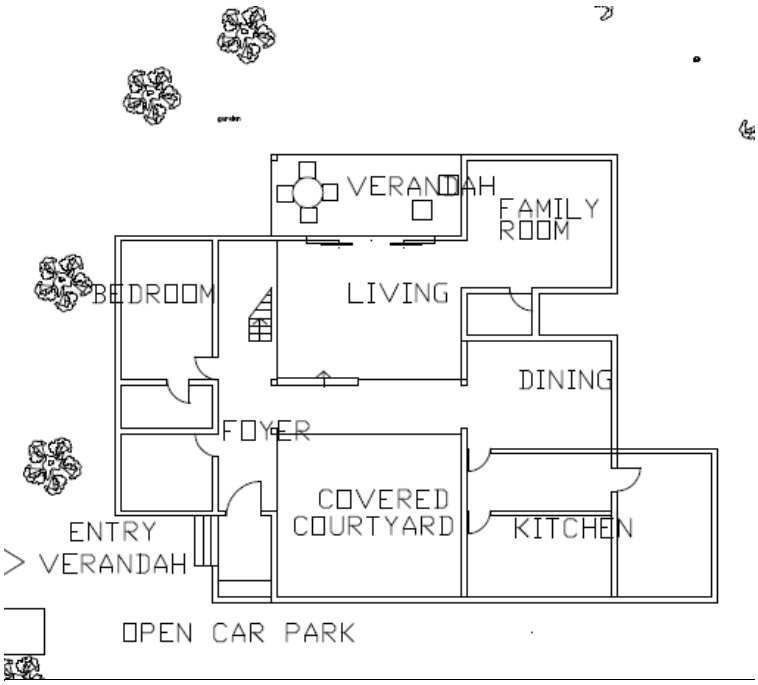

Figure 24. *Plan of House 8*
Source: Anjali Sadanand.

Table 1. *Comparative Analysis of Transition Spaces in Rural Houses*

	House 1		House 2		House 3	House 4
Context	Agraharam houses					
Time Period	Approximately 100-150 years old but in current use					
Modifications	Basically electrical and sanitary					
Scale	Single courtyard and back yard for cows		Two small courtyards and back yard for cows		Three courtyard and back yard for cows	Three courtyards and back garden cows etc.
Type	Agraharam with front and rear entry, basic rooms of thinnai, rezhi, hall, kitchen, pooja, room, cowshed and bathrooms, single storey					
Transition Interior	Front, thinnai or verandah	South facing	Front, thinnai or Verandah South facing	M & F	Front, thinnai or verandah south facing	Golai with thinnai, south facing Front, thinnai or verandah, south Rezhi rectangular room with two doors on a north south axis
Front Public	Rezhi rectangular room with two doors on an north south axis	Doors on a north south axis	Rezhi rectangular room with two doors on a north south axis		Rezhi rectangular room with two doors on a north south axis	3.Rezhi rectangular room with two doors on a north south axis
Middle Semi-Public/Priv			"C" shaped colonnade around courtyard south and west and north		Verandah for second courtyard	Thalavaram, colonnade along south Colonade along courtyard on west
					4.Verandah for second courtyard	
Rear Private			4.Verandah for rear courtyard North		5.Verandah for rear courtyard North	Ante space to Women's room Verandah for festival cooking Verandah for cows, latrines.
Transition Interior	"C" shaped narrow space around courtyard on three sides	Doors on an north south axis south, north and west	"L" shaped Colonnade Low parapet Separates courtyard from hall		Around walled	Courtyard

Transition Open Space	West	Courtyard on East		Three courtyards	Three courtyards defining three zones
Orientation and Position	All three linked on main door axis	Axis broken	Axis links		North south axis
Steps as Transition	Between courtyard and transition space Entry at thinnai and street Exit to rear				Levels and steps
Boundary Articulation	1.Open to street 2.Open to court and visually shielded from interior by a colonnade				Open to colonnade but walled in
Doors to Rooms	Door frame to denote threshold And level change Low doors making entry possible only by bending				
Roof	1.Low sloped roof 2.Low sloped roof				
Built in Seating	1.Thinnai seat				
Elements	Place for slippers in front thinnai				
Windows	Front thinnai has windows				
Visual Transparency	Visibility with respect to each zone Aligned doors give privacy and control				
Activity/Use	Transition, storage and sleeping, interaction				In
	1.	2.	3.		
Day	Entry social interaction	Corridor, storage, Extension of prep cooking -grinding	Spill over space Ventilates and gives light		
Afternoon	Social interaction	Ditto			
Night	Nil	Nil			
Significance	Entry	Connects			
Climatic Factor	Shades room	Shades hall			

Architectural Features	• Thinnai Door details of frame and casing, threshold • Entry step Painting • Kolam • Columns of thinnai • Coloured walls	Column details and articulation	Step details	Common to all, except in House 4. Women have a room to rest in during menses and discuss with family in part of the colonnaded transition space. In House 3, they use the second courtyard.
Phenomenological	Inviting, open connecting with context	Feeling of enclosure by low roof eaves creating a layer around the courtyard to create spatial interaction with hall and facilitate movement	Neutral corridor	

Table 2. *Comparative Analysis of Transition Spaces in Urban Houses*

	House 5	House 6	House 7	House 8
Context	Agraharam houses	Independent house	Independent house	Independent house
Time Period	Approximately 100-150 years old but in current use			
Modifications	None			
Scale -apprx size of Ground floor	Apprx 900 sft	Apprx 2000 sft	Apprx 2200 sft	Apprx 2500 sft
Type	Agraharam typology,with front entry, basic rooms of thinnai, rezhi, hall, kitchen, bathrooms, double storey.	Independent house with verandah and rooms leading off a living dining .Certain traditional features as in door in alignment with window and tulsi plant and verandah substituting for thinnai and transition.	Conventional rooms and sequencing in an independent house with no courtyard (and set in a large plot-original)	A modern house facing to the rear garden with an entrance verandah.
Transition Interior	Front, thinnai or verandah, rezhi, etc.	none	Thinnai and Rezhi in the original house and none in modernized renovation.	Series of transition buffer or passages
Front Public				
Middle Semi-Public/Priv	Passage and courtyard	none	none	Series of transitions to highlight promenade.
Rear Private		.		
Transition Open Space	Narrow interior courtyard and rear yard	none	none	none
Orientation and Position	Entry door linked on axis to outside through door opening.	Entry door linked on axis to outside, visual, and tulsi plant through window.	Entry door linked on axis to outside through door opening in original house. Door opening in line with a window opening in renovated house.	Door opening in line with a window opening.
Steps as Transition	Between street and thinnai	Between verandah and entry garden	Between thinnai and entry garden in original and none in renovated.	Between verandah and entry garden
Boundary Articulation	Open to street Open to court and visually	Visually shielded by garden	Open to plot	Shielded by verandah in front Private garden in rear.

	shielded			
Doors to Rooms	Door frame to denote threshold And level change Low doors making entry possible only by bending	No alignment	No specific alignment in renovated	Door itself can become a French door and open up garden in rear to living room Visual connect to garden
Roof	Flat roof	Flat roof	Flat roof	Flat roof
Built in Seating	1.Thinnai seat	Thinnai seat created	None	none
Elements				
Windows	No windows	Front thinnai and verandah has windows	Front thinnai and verandah Has windows in original not in rennovated	no
Visual Transparency	Visibility with respect to each zone Aligned doors give privacy and control	Curtains on doors give privacy	Visibility with respect to each zone Aligned doors give privacy	No
Activity/Use Day, Night				
Courtyard	Ventilation and light	nil	nil	nil
Thinnai/Verandah	Social interaction day and evening Talk to neighbours	Entry and leave footwear. Social space during day and evening for social activities and receiving guests and children play space.	Entry and leave footwear. Social space during day and evening for social activities and receiving guests and children play space.	Entry to house; leave footwear.

Conclusions

The paper has focused on transition spaces in South Indian houses. Transition spaces as employed exist, as in between spaces between realms as opposite as inside and outside and between interior spaces subtly using architectural elements to delineate them. The significance of the alignment of openings and transition spaces and the play with levels to further establish interval has proved an interesting area of study. For a comparison, please refer to Table 1. It has been noted that courtyards themselves form useful transition spaces and habitable spaces. In short the rural Hindu habitat has been shown to be carefully constructed spatially on a system of transition spaces which maintain cultural norms and formal relations. Transition spaces not only create privacy but make possible a sense of continuity of the house with the surrounding and context (Table 2). The house remains protected but within context of its geography and part of its community. It has been noted that a sense of modernization and deviation from the traditional Hindu norm as seen in the Christian house has shown a tendency towards compartmentalization of space while still maintain a distance and hierarchy from the street. In Musri Subramaniam's house an opening up of space was visible and the kitchen and eating areas which earlier were sacred spaces have become less ritually pure via the concept of open kitchens and the utilization of transition spaces to spatialise the notion of privacy to now specifically labeled sleeping spaces. Privacy, the division of public and private spaces and creation of identity as "placemaking" are thus shown consistent with house design today. Their articulation spatially may change but they are constants to our way of living. Points of entry are also vital as context plays a large role in entry and to ensure privacy entry must be carefully orchestrated.

In South India even with modernization and negotiating boundaries of common spaces as in apartments it is shown how identity is at all times sustained through articulation of thresholds ,through ornamentation on frame or symbolic references of personal space on floor.

To conclude transition spaces remain vital and essential to our living patterns.

Acknowledgements

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Bibliography

Ananthalwar, M. A. A. *Indian Architecture*. Chennai: V. T. Iyer & sons, n.d.
Asquith, L. and M. Vellinga. *Vernacular Architecture in the Twenty-First Century*. Great Britain: Taylor and Francis, 2006.
Boetteger, T. *Threshold Spaces*. Basel: Birkhauser, 2004.
Cooper, I. and B. Dawson. *Traditional Buildings of India*. London: Thames and Hudson, 1998, 163.
Desai, M. *Wooden Architecture of Kerala*. India: Mappin Publishing, 2018.
Hanson, J. *Decoding Homes and Houses*. Cambridge: Cambridge University Press, 1998.
Jain, K. *Thematic Space in Indian Architecture*. New Delhi: India Research Press, 2002.
Pandya, Y. *Elements of Spacemaking*. India: Mappin Publishing PvtLtd, 2007.
Raporport, A. *House Form and Culture*. USA: Prentice-Hall, 1969.

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Cyberspace as the Public Space of Virtual Communities: A Study of Virtual Communities Members' Behavior as an Approach to the Physical Version of Cyberspace

By Raed Salem Al Tal[*] & Reem AliBarakat[†]

This research deals with the cyberspace as the public space of virtual communities. It assumes that the involvement in virtual communities has changed people's conception towards their response to the sense of space. It aims at investigating the effective properties of the cyberspace, and then the possibility of translating these properties into applicable and efficient features in the reality of the physical space. To examine the assumptions of the research, an e-survey was conducted on a sample of architectural students at Jordan University of Science and Technology (JUST), who share the same physical space in their college and a cyberspace of their Facebook group – "ArchiGroup". The research reveals students' tendency to feel the reality of the virtual communities, and its milieu –cyberspace. Based on the results, the findings of the research recommend designers to consider the success of cyberspace while designing the physical versions. In addition, the research seems applicable on different models that employ different variables to investigate a mechanism of producing a physical space as productive as the cyber version, achieving the real version of participation.

Introduction

Early researchers, like Hollingshead 1949, discovered that the social stratification was, inequitably, the most effective factor, which hides the true concept of community under the nominally cohesive communities within specific spaces.[1] Relationships within societies were generally hierarchical, with specialized exploitation bonds, with a deep divide between factions.[2] It produces a distorted conception of community.[3] The idea of a local community implies the potential basis for mutual participation and involvement between people who live in an area which develop some sense of shared identity.[4] Contemporary sociologists prefer to rely more on the social processes of interaction and reciprocity operating within groups, rather than the boundaries of locality.[5] It is

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1. A. B. Hollingshead, *Elmtown's Youth, The Impact of Social Classes on Adolescents* (New York: John Wiley and Sons, Inc., 1949), 49.
2. B. Wellman and S. D. Berjowitz (Editors), *Social Structures: A Network Approach* (New York, London: Cambridge University Press, 1988), 2.
3. S. Brint, M. F. Contreras and M. T. Matthews, "Socialization Messages in Primary Schools: An Organizational Analysis," *Sociology of Education* 74, no. 3 (2001): 157-180.
4. G. Crow and A. Graham, *Community Life: An Introduction to Local Social Relations* (New York, USA: Harvester-Wheatsheaf, 1994), 70.
5. Ibid, 75.

just because communities are no longer restricted by geography. Community became more than a place.

Towards a New Concept of Community – Imagining a Community

Mass media demonstrated that virtually all of the hallmarks of geographic community could be simulated. In a mass-mediated world, it will be substantially, if not wholly, replicated.[6] The changes in computer-mediated communication currently under way are no different in this regard. The concept of community becomes much larger than place, and a transmutation of the concept of *'community'* into *'social networks'* is produced.[7] This connection to the new concept of social network analytic perspective of community has stresses the functioning of primary ties over notions of local solidarity. It is as Bender (1978) defined it: "a network of social relations marked by mutuality and emotional bonds."[8]

Physical Public Space

Space is a continuous area or expanse that is free, available, or unoccupied. It is a mathematical concept generally regarded as a set of points having some specified structure with the dimension of height, depth, and width within which all things exist and move. This definition has a social dimension of freedom to live, think, and develop in a way that suits one. Physically, this concept is applied to both architectural and urban spaces, which are occupied to exist and move within, creating opportunities to establish a social network and to hold activities. In the urban context, this word takes the conception of 'open space': An area of land that is not occupied by buildings. This area has a social dimension that tied its notion to people who access and use it. According to Rakhshandehroo et al. (2017) public space is a social space that is generally open and accessible – either physically (roads, public squares, parks …etc.) or visually (advertising facades), to people.[9]

Towards A New Concept of Space – Cyberspace

Cyberspace, the world that lies beyond our computer screens in the vast network of computers, is a new space, a new home of mind, which is being created now.[10] It became an essential part of our lives. More than a decade after

6. A. M. Muniz, Jr. and T. C. O'Guinn, "Brand Community," *Journal of Consumer Research* 27, no. 4 (2001): 412-432.

7. Ibid.

8. T. Bender, *Community and Social Change in America* (New Brunswick, New Jersey: Rutgers University Press, 1978).

9. M. Rakhshandehroo, M. J. Mohd Yusof and A. Sahrakar, "Terminology of Urban Open and Green Spaces," *11th ASEAN Postgraduate Seminar, APGS 2017* (Faculty of Built Environment, University of Malaya, Malaysia, 2017).

10. S. Doyle, M. Dodge and A. Smith, "The Potential of Web-Based Mapping and Virtual Reality/Technologies for Modelling Urban Environments," *Computers, Environment and Urban Systems* 22, no. 2 (1998): 137-155.

the portals of the World Wide Web opened to the public, cyberspace is now witnessing the true emergence as a powerful personal and social phenomenon as described by William J. Mitchel with "Spatial" and "Antispatial."[11]

The limitation on computer networks uses, in its early days, made the describing of Internet as a space and sites as places seems far-fetched. This has changed with the accelerated growth of the computing process, converting the cyberspace sites from a places where we just look *'at'* them, to those we feel present *'in'* them.[12] It is now a space, albeit an abstract and virtual one, but an endless expanse of space: open, free, replete with possibility.[13] The cyber-version of the communities, which started with the spread of e-mail using, has burgeoned and continued to grow as the possibilities of used features developed. The expand of possibilities of visual, vocal and text-contacting, and the chances to share statements, photos and videos have developed several versions of communities on blogs, wikis, messengers and social network sites - e.g. Facebook and twitter. The main turning point, which has transformed social communication in the history of social network sites, was the foundation of Facebook.

Literature Discussions – Cyberspace Meets/Vs. Reality

Cyberspace and Architecture

According to Marcos Novak "cyberspace itself is architecture but it also contains architecture", yet he states, "the relationship between architecture and cyberspace so far is not yet complete."[14] Some of these relationship aspects could be seen in the freedom of *Liquid Architecture* from the factors like gravity, structures, materials, etc. Cyberspace exhorts and motivates the utopian architect to design spaces in the real world; spaces of great cybernetic influence, that is to say, spaces not only affected in appearance, but also in function by the ideas developed in cyberspace. Cyber spatial environment can't be, in any way, substitution for architecture in a real environment and needs to be recognized as a type with self-rights, but, the architecture of the "physical" will be influenced by the architecture of the "virtual."

As a space, we can envision virtual worlds as an extra dimension and not only as an alternative to the real world or a substitution of it. This allows us a new freedom of movement in the natural world. The transcendence of the physical "being" to the virtual world allows us to expand our way of *operating* in the physical world. While dealing with spaces we need to take into consideration that there is no presence of sensorial experience in the world itself but it only exists through the existence of the own body living now and here.

11. W. J. Mitchell. *City of Bits: Space, Place, and the Infobahn* (The MIT Press, 1996), 8.
12. Ibid.
13. D. Hunter, *Cyberspace as Place and the Tragedy of the Digital Anticommons* (California: California Law Review, Inc., 2003).
14. M. Novak, "Liquid Architectures in Cyberspace," in *Cyberspace: First Steps* (ed.) Michael Benedikt (Cambridge, Massachusetts/London, England: MIT Press, 1993), 248-251.

We should assume then, that Tele-presence is possible only when separating the body and the mind; sending the mind to a virtual environment while the body stays in the real environment. We have the possibility to exist simultaneously in the physical world as in the virtual world, since we can send our mind miles away, but hopelessly our body should remain in the same place. Therefore, the imagination of utopian architecture is not limited anymore by the physical reality." In addition, it is now the time of cyber effect on physical space. It is time to (actualize) the "virtual" in the "real" space.

Objectives of Research

This research focuses specifically on the understanding of the cyber communities' properties through the study of their members' behavior. The results are to be exploited in the defining of communication canals that allow individuals to act in this motivation in their cyber communities, and then translate them into physical synonyms. The final goal is to investigate a mechanism of producing a physical space as productive as the cyber one, and thus an access to the architectural version of 'participation.'

In terms of achieving the goal of this research, it is obvious the importance to examine the success of a community based on the intellectual and emotional convergence without physicist, or the efficiency of the long-term contact within high-density and short-term configurations pushed successively to be replaced by other configurations, in a very short and limited-effectiveness impact timeframe. These questions bear different possibilities which help us to recognize that the cyber community as a concept is still amorphous, especially with the fluctuations occurring in the development of this technique, developing a somewhat ambiguous vision to cyber communities.

Finally, in term of results, it is good to examine the reality of cyber communities' contribution in strengthening social relationships between individuals - such as thinking – in a way to appear as a process of enhancing the split views in the public sphere, versus their contribution in reducing cyber communities members' chances to interact with other members of the larger community. In addition, it is not deniable the mixing between the desire to communities of interest with the hope of a more erect and equitable one. The cyber communities' effect and adverse effect on the collectivism are to be discussed.

The Applied Survey – Research Methodology and Result Discussion

Both traditional and virtual communities are connected, since a well-based traditional networks can introduce more solid cyber one. At the same time, the opportunities of the cyber networks can overcome several obstacles in the traditional versions of social networks. Therefore, the personal and collective social experience of members is enhanced. This reciprocal relationship of affecting and affected by, is reflected on the members' conception of the space maintain

their experience – both physical and cyber. Cyberspace users experience the superseding of traditional communication objects by the electronic one, keeping up the notion of space that saturates their ordinary everyday lives. People can, now, describe and assess their new space in a reference to that which they used to be more familiar.

Universities provide a milieu for social spaces, which are as important as the study spaces for students. Student social spaces are places where socializing and/or study occur in a relaxed setting that is not rigid and where a variety of social activities may co-exist with study and coursework. These social spaces are primarily in common areas, but also include spaces that are departmental controlled.

There are four types of activities hold in student social spaces: study, social, public assembly and casual activities. The characteristics of space change for each activity. For example: quite solitary spaces which are fit for long time use are suitable for study, while they have to be more flexible and changeable spaces which gather small groups to be a social activities holder space. Public assembly spaces have to be multipurpose which gather larger groups. Finally, casual meetings spaces are transitory in nature, which are founded usually at the edges of circulation routs. Each space may have any of these spaces, but it will be clearly characterized for one of the mentioned categories.

Like all public spaces and other common areas, student social spaces rely on the community to keep it satisfied and continuously developing in a flexible way. In such spaces, the community is the expert. They are a possible partner who could help to create a vision for the social space and be a source of feedback.

A group of the students in the College of Architecture and Design at Jordan University of Science and Technology (CAD) were selected to apply an e-survey, which aims at helping to find the relationships and differences between the imagined and real space and their communities. This group is shared members of both a traditional community, of the college family. The group acts in a physical space of the college's different facilities, and a virtual community, of the *ArchiGroup* – which acts in a cyberspace of Facebook.

The students interact formally and casually in the physical space of their college that was established as a part of the College of Engineering in 1979 and announced as an independent college in 2008. The college consists of three academic departments: Department of Architecture, Department of Urban Planning, and the Department of Design, offers different types of space for 988 students, 15 post-graduate students and 38 academic staff members to interact.

There are three main physical spaces: lecture rooms, indoor hallways – casually known for the students as *'Squares'*, corridors and outdoor plazas. The students of this college are familiar with two types of educational spaces: lecture rooms and design studios where they can learn and interact (Figure 1).

Figure 1. *Design Studios where they can learn and Interact*
Source: Authors.

This interaction, sometimes, extends to take place in the corridors and indoor hallway *'the square'*. Nevertheless, these spaces seem to be more casual, and students used to interact within in nodes of sub-groups. Limited events are applied in the college indoor hallway, and larger ones are extend to take place in the outdoor plaza. In such events, interaction takes the form of direct and multi-directional channels (Figure 2).

Figure 2. *Interaction, Sometimes, Extends to Take Place in the Corridors and Indoor Hallway 'The Square'*
Source: Authors.

In 2012, the students have created a virtual version of their community in the Facebook, within which they act almost most of what they do at the college. The *ArchiGroup* is a Facebook group of the students, x-students and the staff of their college. This group is continuously growing and consists of 1438 members of the college family managed by five administrators (Figure 3).

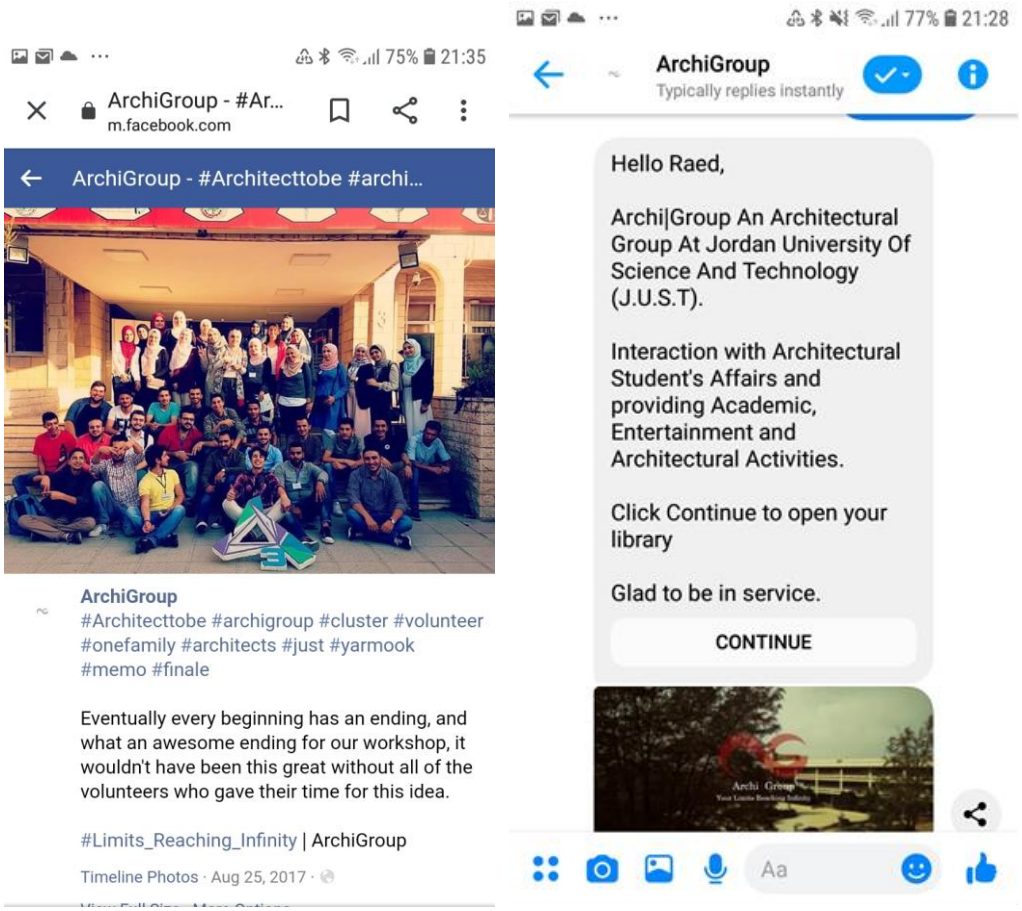


Figure 3. *The ArchiGroup Facebook*
Source: Authors.

As well as a member, open the *ArchiGroup*, user's interface will be the group's wall. On this space, almost all interaction happens, since members can equally post whatever they want to share with their virtual community (Figure 4). Files are uploaded, questions are asked, news is announced, opinions are shared and social quotes are exchanged. All comments and replies are posted on the same wall. An extra feature is given for the group administrators to pin a selected posts to be seen at the top of the group's wall. Otherwise, members' interaction decides the arrangements of posts on the wall. Members also contact directly with another member or sub-group of members through their *inbox*. This adds another direction of communication between members, enhancing the social network and creating nodes of interaction. The last aspect of *Sharing* in the group's interaction is the spaces of: Events, Photos and Files. Members share several kinds of information within these interfaces. Nevertheless, the group's wall seems to be the most active interface. The tested sample was students of those who interact (or used to) both: virtually in the *ArchiGroup* cyberspace, and traditionally in the College of Architecture and Design physical space.

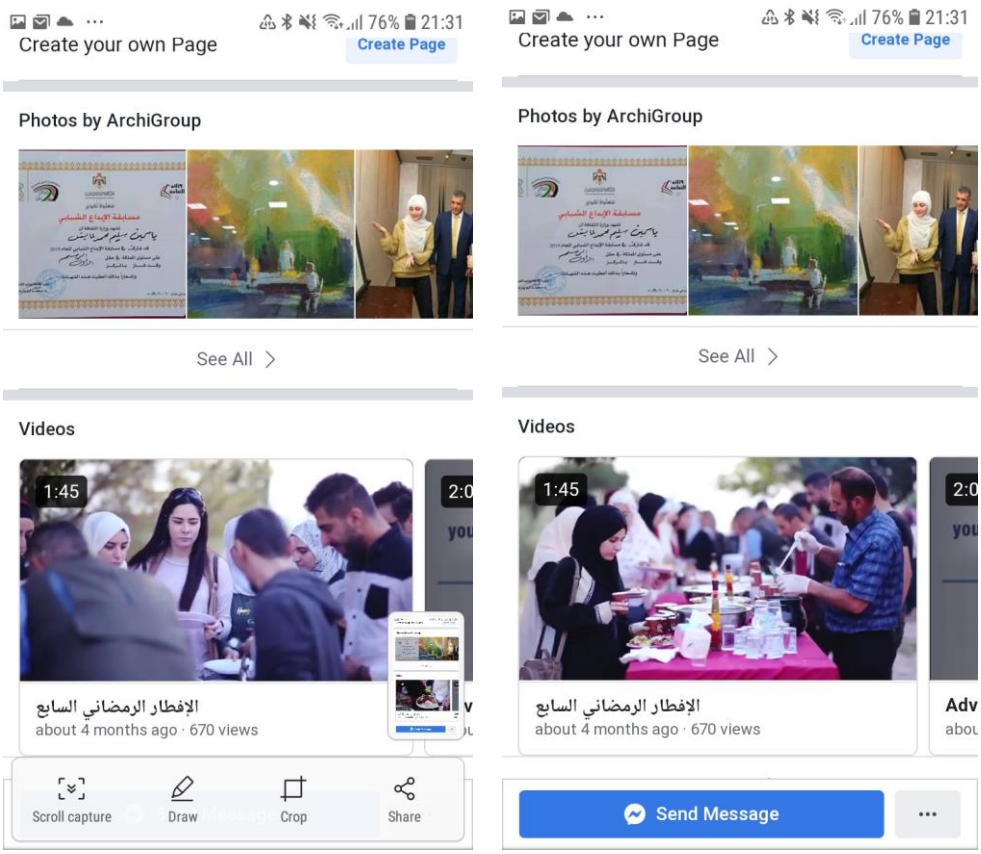


Figure 4. *The Group's Wall of the ArchiGroup*
Source: Drawing by Authors.

Study Tool

The study has been built on an e-questionnaire of two main sections: The first section: investigates the demographic properties of the sample, and the second section: investigates their responses towards five main hypotheses. The questionnaire consistency – the harmony between each section's content with its target hypothesis, has been calculated. Cronbach's alpha has been founded to exceed the needed 99% to consider enough consistency. 93.8% shows that the questionnaire results are dependable.

Testing

Pearson and Spearman correlation, the regression coefficient, the coefficient of internal consistency (Cronbach's alpha) and the One Sample T-Test have been used to check the study hypothesis. Also the descriptive methods have been used to reach some information about the study. For each, the repetitions, percentages, related measures of central tendency (the arithmetic mean and mediator) and measures of dispersion (Standard deviation and Interquartile range) were calculated.

Demographic Properties of the Sample

In terms of investigating the sample properties, some demographic features were analyzed in the first section of the questionnaire. This section contains questions of general data about the sample and its effectiveness in the study, as shown in Table 1.

Table 1. *The General Properties of the Sample*

Question number	The question	Possible answers	Number	percentage
1	Gender			
		Female	122	61%
		Male	77	39%
				100%
2	Year			
		First	10	5%
		Second	51	26%
		Third	39	20%
		Fourth	21	11%
		Fifth	29	15%
		Graduated	49	25%
				100%
3	Are you a member in the Archi-Group on Facebook?			
		Yes	157	79%
		No	42	21%
				100%
4	If not, then why?			
		I do not have a Facebook account	0	0%
		I do not have time to interact	7	20%
		I do not like such interaction between colleagues	1	3%
		I prefer interaction in the university	4	12%
		I do not care about	8	24%
		I do not know about it	4	12%
		Other reasons	10	29%
				100%
5	What is your role in the group?			
		An administrator	7	4%
		A member	159	96%
				100%

As noted in Table 1, 71% of the sample has been in the investigated community for three years or more, which means that the sample was qualified enough to describe their experience. On another dimension, all samples still or were members of both communities, and at least the traditional one of them.

The specific scope of the sample is the shared members of both communities the real and virtual. Therefore, a question about the membership of the virtual community was used to find out the target group of the sample. 79% of the sample is shared members of both real and virtual communities of the architectural department students at the Jordan University of Science and Technology. In the real community, where students interact face-to-face at the university, their communication network is mostly horizontal. At the virtual community of the same group of the students are different. 4% of the students are administrators who care about regulating the interaction between the others.

This section of the questionnaire contains also an elective question for those who are not members of the virtual group about the reason not to be. This question was answered by only 34 students (almost 81% of those who said NO) who mentioned several reasons. The lack of interest and time were the main reasons of 24% and 20% of them – respectively, while the other students were distributed between several other reasons.

Next sections of the questionnaire were answered, totally, by shared members of both communities. All mentioned indicates that the sample responses are dependable.

The Descriptive Analysis of the Sample Responses and the Hypotheses Testing

Testing the First Hypothesis: Facebook Users Can Create a Community where they Feel a Kind of Membership

The arithmetic mean and the standard deviation for the sample responses about their membership feeling of their Facebook community are shown in Table 2.

As shown in Table 2, the sample shows a tendency towards the agreement with the different statements which indicate the sense of membership in the virtual communities. As shown in the statements 1-3, the sample feels that they are part of their virtual community, where they care about and can spend time to support. The sample shows that its members intend to establish and enhance a solid network of relationships within the virtual version of their group as well as they do with their real one (statements 4-6). In addition, they prefer to hold this network when they join other virtual communities (statement 7).

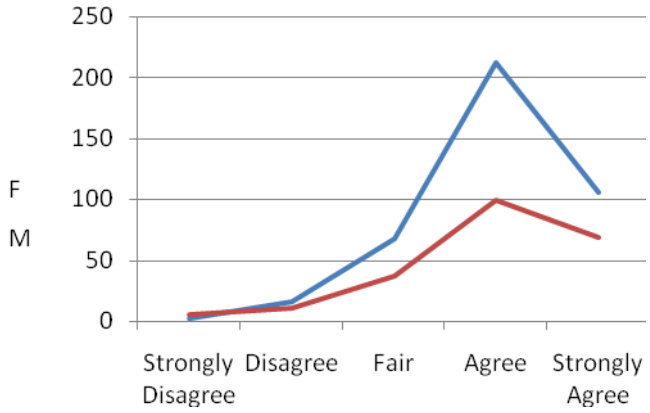
Table 2. *1st Hypothesis Statements Analysis – Mean and SD*

	The statement	Mean	Standard deviation
1	I feel as part of this community	3.800	1.184
2	I do care about what is going there	3.395	1.249
3	I really want to spend time supporting different activities there	3.720	1.106
4	Contacting people there remembers me that all community members are connected to each other	3.834	1.170
5	I do trust some members to solve several issues	3.870	1.156
6	There are some members who I can ask for an advice in important issues	3.728	1.088
7	I prefer to be with theses members while joining other groups	3.210	0.858
All statements		**3.728**	**1.116**

Table 3. *Applying the Decision Rule on the 1st Hypothesis*

The arithmetic mean	Standard deviation	Calculated T-value	Scheduled T-value	Statistical significance	The Result
3.728	3.728	5.866	2.58	000	Rejected

Table 4. *Facebook Users Can Create a Community where they Feel a Kind of Membership*



	Means of Responses	
	F	M
Strongly Disagree	1.857143	4.857143
Disagree	15.71429	10.57143
Fair	67.71429	36.85714
Agree	212.5714	98.85714
Strongly Agree	105.7143	68.57143

As shown in Table 3, the calculated T-value (5.866) is larger than the scheduled one. Then, according to the decision rule note that H_0 is accepted if Calculated T-value was less than the Scheduled T-value, H_0 is rejected if Calculated T-value was more than the Scheduled T-value, the zero hypothesis (H_0) is rejected and the alternative one (H_1) is accepted, which means that Facebook users can create a community where they feel a kind of membership (Table 4).

Testing the Second Hypothesis:
Space on Facebook can overcome the Time Limitations in the Physical Synonym

Table 5. *2nd Hypothesis Statements Analysis – Mean and SD*

	The statement	**Mean**	**Standard deviation**
1	I enter the group after finishing my day at the university	3.280	0.914
2	The group enables us to keep in contact all the time	4.128	1.326
3	I feel it is kind of extension of the university environment in this group	4.206	1.357
4	I get benefit as much as I do in the university	3.485	0.977
All statements		**3.775**	**1.144**

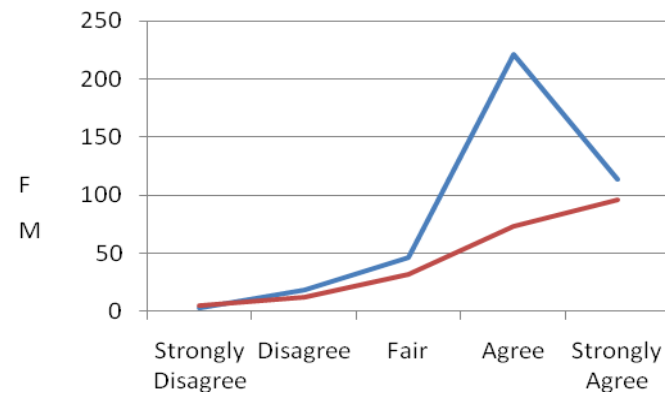
The second hypothesis aims at investigating the perception of time value in the cyberspace of the *ArchiGroup* on Facebook. Cyberspace can overcome the time limitations in the physical synonym. That what the sample indicates. The sample agrees that the group enables them to keep in touch all the time (statement 2), and to feel an extension of the university environment and many of its benefits (statements 3-4). That is why the group becomes an attractive environment to enter after finishing their day at the university (statement 1) (Table 5).

Table 6. *Applying the Decision Rule on the 2nd Hypothesis*

The arithmetic mean	Standard deviation	Calculated T-value	Scheduled T-value	Statistical significance	The Result
3.775	1.144	6.076	2.58	000	Rejected

As shown in Table 6, the calculated T-value (6.076) is larger than the scheduled one. Then, according to the *decision rule*, the zero hypothesis (H_0) is rejected and the alternative one (H_3) is accepted, which means that Space on Facebook can overcome the time limitations in the physical synonym (Table 7).

Table 7. *Space on Facebook can overcome the Time Limitations in the Physical Synonym*

	Means of Responses	
	F	M
Strongly Disagree	2.5	4.75
Disagree	18.5	12.5
Fair	46.5	32.25
Agree	221	73
Strongly Agree	113.75	96.25

Testing the Third Hypothesis:
Facebook Members Feel the Importance of Temporal Dimension in their Space

This section includes two questions of descriptive analysis (Table 8).

Table 8. *3rd Hypothesis Statements Descriptive Analysis – Number and Percentage*

Question number	The question	Possible answers	Number	percentage
1	During the week, I join the group…			
		In the morning, before going to university	10	6%
		While being in the university	9	6%
		Just after arriving home from university	19	12%
		In the evening	94	59%
		After mid night	10	6%
		I do not check the group during the week	17	11%
				100%
2	During the weekend and other vacations, I enter the group…			
		In the morning, just after waking up	6	4%
		Several times during the day	84	52%
		In the evening	48	30%
		After mid night	4	2%
		I do not check the group during the weekend	19	12%
				100%

The sample responses indicate their tendency to extend their environment out of the college borders. This explains the majority (77% in total) joining the group after being in the college during the week, and all along the day on the weekend. Only 11% and 12% seem to be satisfied with the physical space of the college, and do not join their cyberspace during the week and the weekend respectively. The variety in responses shows different perceptions for joining the group according the temporal factor. This factor was the target of the next two questions (Table 9).

Table 9. *3rd Hypothesis Statements Analysis – Mean and SD*

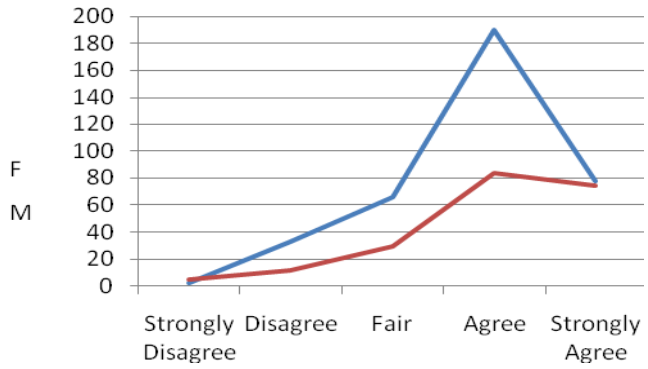
	The statement	Mean	Standard deviation
1	If I want to share a post, I choose a specific time to do	3.213	0.838
2	Members interaction changes along the day	3.944	1.224
All statements		**3.578**	**1.031**

The sample responses indicate their agreement of the temporal time effectiveness in the cyberspace. They agree that member interaction changes along the day (statement 2). That is why they choose specific time to ensure enough interaction for their posts (statement 1).

Table 10. *Applying the Decision Rule on the 3rd Hypothesis*

The arithmetic mean	Standard deviation	Calculated T-value	Scheduled T-value	Statistical significance	The Result
3.578	1.031	5.311	2.58	000	Rejected

Table 11. *Facebook Members Feel the Importance of Temporal Dimension in their Space*



	Means of Responses	
	F	M
Strongly Disagree	2	5
Disagree	33	12
Fair	66	30
Agree	190	84
Strongly Agree	77.5	75

As shown in Table 10, the calculated T-value (5.311) is larger than the scheduled one. Then, according to the *decision rule*, the zero hypothesis (H_0) is rejected and the alternative one (H_6) is accepted, which means that Facebook members feel the importance of temporal dimension in their space (Table 11).

Testing the Fourth Hypothesis: Facebook Members Feel their Space

Table 12. *4th Hypothesis Statements Analysis – Mean and SD*

	The statement	Mean	Standard deviation
1	There is more intimacy on the virtual group than the real one	2.714	0.665
2	There is more openness on the virtual group than the real one	3.550	1.027
3	Students interact more on the virtual group	3.694	1.150
4	The college staff is closer to the students on the virtual group	3.338	0.943
5	The virtual group members do not accept the opposite opinions as they do in real one	3.125	0.826
All statements		**3.284**	**0.922**

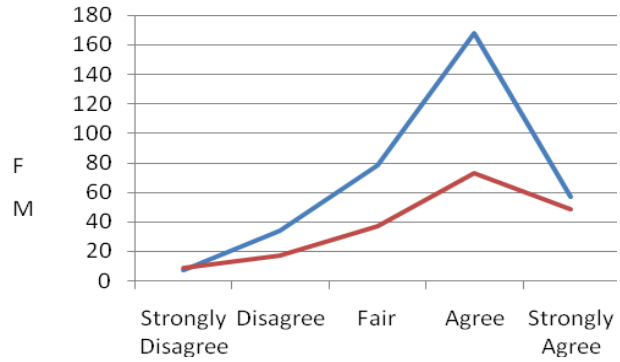
The forth hypothesis aims at investigating the sample sensation about their cyberspace. The statements of this hypothesis asked the sample to compare their cyberspace to their physical one in terms of: intimacy, openness, interaction and perceived distances between members. The sample responses show that the cyberspace seems to be more open than the physical one (statement 2), so that they interact more within (statement 3). This openness encourages the students to step closer to the college staff (statement 4), but that did not make it more intimate (statement 1) or increase the acceptance of the different opinions (statement 5) (Table 12).

Table 13. *Applying the Decision Rule on the 4th Hypothesis*

The arithmetic mean	Standard deviation	Calculated T-value	Scheduled T-value	Statistical significance	The Result
3.284	0.922	4.423	2.58	000	Rejected

As shown in Table 13, the calculated T-value (4.423) is larger than the scheduled one. Then, according to the *decision rule*, the zero hypothesis (H_0) is rejected and the alternative one (H_8) is accepted, which means Facebook members feel their space (Table 14).

Table 14. *Facebook Members Feel their Space*

	Means of Responses	
	F	M
Strongly Disagree	7	8.4
Disagree	34	16.8
Fair	78	36.6
Agree	168	72.8
Strongly Agree	57	48

Testing the Fifth Hypothesis:
Facebook Members Feel the Physical Features of their Space

After the sample indicates that, they feel a spatial dimension of their cyberspace, the last hypothesis aims at investigating their responses towards the physical features of this space. The statements of this hypothesis varied to include some statistical and descriptive responses (Table 15).

Table 15. *5th Hypothesis Statements Analysis – Mean and SD*

	The statement	**Mean**	**Standard deviation**
1	I feel connected to the space which contains the group virtually	3.385	0.975
2	I feel this space is very similar to its physical synonym in the college	3.300	0.922
3	Generally, I feel the reality of this cyberspace of the group	3.559	1.076
4	Facebook uses one single interaction surface form for its all pages, regardless of its topic or content. If you were asked to re-design the Facebook interaction surface, would you categorize the different pages according to its uses?	3.200	0.919
5	I feel some architectural features	4.025	1.263
6	I feel the physical reality of the space	3.870	1.210
7	While dealing with such questionnaire, I prefer the e-form	4.261	1.419
All statements		**3.657**	**1.112**

Seven statistical statements support this hypothesis through investigating the sample's attitude towards the physical featuring of cyberspace. The sample shows a kind of connecting to a space which they feel, somehow, real and similar to their physical one at the college (statements 1-3). The sample noted negatively the total similarity of the Facebook pages regardless their content and they would to redesign them into more identified themes (statement 4). Their attitude to feel the cyberspace as a real space encourages them to show a tendency towards using architectural features in redesigning Facebook pages (statement 5). That is an approach, as the sample says, to increase the feeling of cyberspace reality (statement 7).

Finally, a question was added to compare both spaces in a simple specific example of activities. The sample was asked to compare dealing with the questionnaire form physically or in a cyber version. The sample significantly prefers the e-forms.

Table 16. *Applying the Decision Rule on the 5th Hypothesis*

The arithmetic mean	Standard deviation	Calculated T-value	Scheduled T-value	Statistical significance	The Result
3.657	1.112	5.686	2.58	000	Rejected

As shown in Table 16, the calculated T-value (5.686) is larger than the scheduled one. Then, according to the *decision rule*, the zero hypothesis (H_0) is rejected and the alternative one (H_9) is accepted, which means that Facebook members feel the physical features of their space. Also, this section includes questions of descriptive analysis.

Table 17. *5th Hypothesis – A – Statements Descriptive Analysis – Number and Percentage*

Question number	The question	Possible answers	Number	percentage
6	What features you will use to identify the different pages? (you can choose more than one)			
		Page elements	69	18%
		Page layout	104	27%
		Available features	65	17%
		Color theme	80	21%
		Page photo	55	15%
		Other (please mention)	8	2%
				100%

As the sample shows a tendency towards giving some architectural features, they were asked to choose out of some possible features. The page layout was the first choice with a 27% of the sample, followed by the color theme with 21%. The page elements and available features were the choice of 18% and 17% respectively. In the last rank, the page photo was the choice of 15% of the sample. 2% of the sample had other alternatives. Their suggestions varies to include virtual

sketching tool, audio or video hangout for important advertisements, viewer for e-books (like pdf viewer), highlighting tool for coloring text or formatting it, graphical tools for expressing thoughts, special zones, backgrounds, applications, and other elements to identify the page more specifically (Table 17).

Lastly, the sample was asked to compare their cyberspace with different physical spaces. The statements included specific activities members usually apply effectively on their cyberspace. For each, the sample was asked to choose a physical space to hold the activity within for two cases of 50 and 200 participants. Five alternative physical spaces were given as a synonym for the cyber milieu which contains them usually: outdoor plaza, theater, lecture room, public space and an indoor square (Table 18).

Table 18. *5th Hypothesis – B – Statements Descriptive Analysis – Number and Percentage*

	Participants	Possible answers	Number	percentage
8-A	(Social) The group members meet in a celebrating day includes several activities to enhance the personal relationships between the members. The day is prepared after some personal events for a number of members. Sharing common statements in such events is dominant in this activity.			
	50	Outdoor Plaza	27	17%
		Theater	14	9%
		Lecture Room	10	6%
		Public space	11	7%
		Indoor square	96	61%
				100%
	200	Outdoor Plaza	66	43%
		Theater	39	25%
		Lecture Room	8	5%
		Public space	14	9%
		Indoor square	28	18%
				100%

The first example was for a social event. Social statements are widely exchanged on the Facebook group. The members find their cyberspace effective to share several quotes in different events. It lets them be closer to each other and to contact casually. This question aims at describing a physical space, which acts as effective as the cyber one for social interaction.

50 participants, the sample, significantly (78% in total), preferred casualty and horizontality in describing the space to contain such activity. Their attitude was clear in choosing indoor square and outdoor plaza respectively. The other three alternatives were less preferred since they miss the mentioned casualty and horizontality, when talking about theaters and lecture rooms, and the privacy of the group when talking about public spaces.

Even when the participants have been doubled, the horizontality in contacting network still was preferred. It was only moved to outdoor with 43% who chose outdoor plaza. Even indoor square still works for 18% of the sample. Selecting the

theater to be the preferred alternative of 25% of the sample indicates their tendency to ensure a kind of management carried by a selected sub-group. This indicates a transition in the notion of horizontality into more hierarchal network.

Table 19. *5th Hypothesis – C – Statements Descriptive Analysis – Number and Percentage*

8-B	(Cultural) The group members are preparing for a seminar for a subject related to their age group. It is not related to the professional theme which gather them. The seminar is managed by the members themselves. There is no VIP guests.			
	50	Outdoor Plaza	14	9%
		Theater	21	13%
		Lecture Room	78	50%
		Public space	12	8%
		Indoor square	32	20%
				100%
	200	Outdoor Plaza	22	14%
		Theater	95	61%
		Lecture Room	11	7%
		Public space	12	8%
		Indoor square	16	10%
				100%

Table 20. *5th Hypothesis – D – Statements Descriptive Analysis – Number and Percentage*

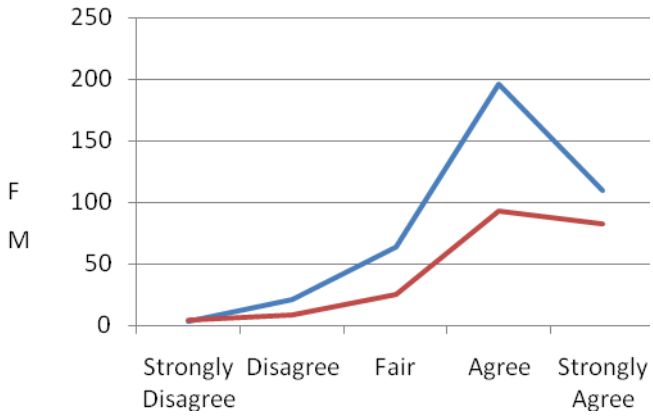
8-C	(Academic) The group members prepare for a day in which they will show some of their projects to share a communal feedback. Every member is allowed to show a poster which include shots of several design projects, give and get comments of other members.			
	50	Outdoor Plaza	17	11%
		Theater	11	7%
		Lecture Room	50	32%
		Public space	10	6%
		Indoor square	68	44%
				100%
	200	Outdoor Plaza	44	28%
		Theater	47	30%
		Lecture Room	27	17%
		Public space	13	8%
		Indoor square	26	17%
				100%

The second example was for a cultural event. This is a very important sector of discussions on cyberspace. Usually, Facebook users meet online to discuss a topic of interest. The given example aims to transfer this discussion into a physical space. The sample were asked to select the one where they think a successful discussion could be hold as well as in the cyberspace. In such activity, the sample

shows a significant tendency towards spaces where every participant can get a space as equal as to everyone else, talk and listen regularly. That is what the responses, which choose the lecture room (50%) and theater (61%), for a 50 and 200 participant cultural event, indicate (Tables 19 and 20).

The second choices of the sample, indoor square (20%) and outdoor plaza (14%) for a 50 and 200 participant cultural event, show the dominancy of the horizontal relationships on the members' perception of their cyberspace success.

Table 21. *Facebook Members Feel the Physical Features of their Space*



	Means of Responses	
	F	M
Strongly Disagree	3	4.285714
Disagree	20.57143	8.285714
Fair	63	25.28571
Agree	196	93.14286
Strongly Agree	109.2857	82.85714

The professional ties are very essential in the case of *ArchiGroup*. Their physical space contains most of their academic activities. Facebook users usually share their products – design projects in this case, to get communal feedback virtually. The last example aims at transferring this experience into a physical space, saving the communality as a major feature of sharing comments. The sample choices were not very clear. They give convergent percentages for the different alternatives. However, the main shared factor of them that everyone want to get a space just as everyone else, and the casualty still strongly appears (Table 21).

Results

The sample responses of the students of College of Architecture and Design in Jordan University of Science and Technology indicated their ability to create virtual community, where they feel a kind of membership, and which affect them positively. This community is contained with a cyberspace, which they can feel. This space can overcome the time limitations in the physical synonym, providing more liberal opportunities of interaction. The sample describes their cyberspace,

where they found temporal factor to be essential, as an affordable space. In different levels, the cyberspace meets their needs in: general discussions, advertising, professional and emotional interaction.

Finally, the sample responses indicate their ability to feel the physical features of the cyberspace. They have the ability to compare it to several types of physical spaces, indicating many features they see as a source of success for the cyberspace. The only hypothesis which has been rejected by the sample is that talking about the feeling of control on their cyberspace. There were no gender-based differences in the sample responses. For some hypotheses females seem to be more motivated than males – have a larger mean motivational level, for other hypotheses males were more motivated

Conclusions

The research discussed the forming of community with a spatial sense. In Facebook, users start to establish a property through which they enter several networks of interest. Initiating relationships is found to be a significant use of Facebook, but maintaining them is the dominant. These relationships have a good chance to maintain, even while being in distance. But, most of them are found to be casual without enough intimacy for maintaining close relationships.

The research also reveals Facebook intersections with real communities, through which users feel the reality of their networks. New online connections are created on Facebook, and in many cases they take place in offline relationships. On the other hand, offline relationships are enhanced while users employ Facebook's surveillance to find out information about people with whom they have any sort of connection. For these purposes, Facebook users are provided with both, public and private areas for all types of needed contacting (according to their personalities and experiences on network). Therefore, Individuals can communicate and share information instantly and independently from their geographical location, with selected networks of different sizes.

Based on the results, the findings of the research recommend designers to consider the success of cyberspace while designing the physical versions. In addition, the research seems applicable on different models that employ different variables to investigate a mechanism of producing a physical space as productive as the cyber version, achieving the real version of "participation".

Bibliography

Bender, T. *Community and Social Change in America.* New Brunswick, New Jersey: Rutgers University Press, 1978.

Brint, S., M. F. Contreras and M. T. Matthews. "Socialization Messages in Primary Schools: An Organizational Analysis." *Sociology of Education* 74, no. 3 (2001): 157-180.

Crow, G. and A. Graham. *Community Life: An Introduction to Local Social Relations*. New York, USA: Harvester-Wheatsheaf, 1994.

Doyle, S., M. Dodge and A. Smith. "The Potential of Web-Based Mapping and Virtual Reality/Technologies for Modelling Urban Environments." *Computers, Environment and Urban Systems* 22, no. 2 (1998): 137-155.

Hollingshead, A. B. *Elmtown"s Youth, The Impact of Social Classes on Adolescents.* New York: John Wiley and Sons, Inc., 1949.

Hunter, D. *Cyberspace as Place and the Tragedy of the Digital Anticommons*. California: California Law Review, Inc., 2003.

Mitchell, W. J. *City of Bits: Space, Place, and the Infobahn*. The MIT Press, 1996.

Muniz A. M., Jr. and T. C. O'Guinn. "Brand Community." *Journal of Consumer Research* 27, no. 4 (2001): 412-432.

Novak, M. "Liquid Architectures in Cyberspace." In *Cyberspace: First Steps*. Edited by Michael Benedikt. Cambridge, Massachusetts/London, England: MIT Press, 1993, 248-251.

Rakhshandehroo, M., M. J. Mohd Yusof and A. Sahrakar. "Terminology of Urban Open and Green Spaces." *11th ASEAN Postgraduate Seminar, APGS 2017*. Faculty of Built Environment, University of Malaya, Malaysia, 2017.

Wellman, B. and S. D. Berjowitz (Editors). *Social Structures: A Network Approach*. New York, London: Cambridge University Press, 1988.

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Somatic Landscapes and Urban Identities: Mapping Emotional Engagements through Site, Dance and Body Connections in Raval, Barcelona, a Case Study

By Ana Maria Moya Pellitero[*] & Victoria Hunter[†]

The historic neighbourhood of Raval, in Barcelona presents a multicultural urban landscape. It contains a sense of both tangible and intangible identities influenced by a high level of social mobility arising from migration, tourism and urban gentrification processes. In April 2018 we led an exploratory workshop with neighbourhood residents, our objective was to observe the multisensorial nature of this urban landscape with locally-based participants. Through an arts-based residency we explored body-site relations by drawing attention to the body, human movement in space and its relation to and reflection of the urban landscape. Our methodology involved a five-day movement workshop with 14 participants in site-based movement experimentation through which we explored urban affects, engagement, familiarity, and senses of belonging to space. We focused our attention on the creation of emotional and sensorial landscapes through our bodies, using site-specific movement explorations in space and experimental modes of cartography in which we 'mapped' the neighbourhood according to our experiences, senses and emotions. We considered the communicative role of the body as a producer of non-verbal and non-representative language that expressed experiences of the sites in which we moved. The mapping of urban space through the body enabled us to understand the participants' subjective engagement with space (feelings, emotions, rhythms, movements, intensities, memories, wishes, visions). We explored landscape as an active and predicative creation arising from subjective and vital experience, conscious, cognitive and sensorially filtered and shaped by memories, emotions, narratives and perceptions. Through sharing experiences and "co-mapping" bodies and urban sites we explored the intra-active nature of these engagements through New Materialist lenses, spatial theory and discourses of urban flow and mobility.

Introduction

The workshop; "Site, Dance and Body: Explorations of Movement and Emotional Geographies in Raval", took place from 9th to April 13th, 2018 and engaged 14 participants over a five-day period. This paper contextualizes the workshop design, methodology and implementation through a sociological, historical and morphological urban theoretical framework. It presents the key research objectives and questions and discusses the workshop methodology, organization and results. Working with intergenerational, mainly female residents, we explored body-site relationships, associations and connections to urban spaces through movement research, and individual articulations to everyday lived places.

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We paid attention to the difference between what the mind expresses (memories, values and mental connections) and what the body feels (tempos, rhythms, flows and energies), reviewing both memories and mental responses and the systems and structures of the body in relation to the material nature of the urban space. Through material engagement with particular places the participants were able to acknowledge their own body as the key mode of processing and responding to urban environments.

The participants came from diverse cultural backgrounds. Through shared practical tasks they were encouraged to create landscape through the movement of their body in space. This creative process involving shared participation was at the same time a work of social construction in which participants explored affective processes of adaptation, integration, commitment, familiarity and belonging to space, using body movement as a common language. Throughout the residency we worked with the emotions, the psychology of perception, and the intimate and collective imaginaries of daily, lived spatial experience to review and promote the feeling of belonging, the predication of the affections and memories of place. Participants explored how the articulation of their physical, sensorial and emotional experiences combined with their affective responses to site redefine their personal and collective construction of place and identity. The project fostered mental and sensorial connections to urban sites through movement exploration and produced a 're-mapping' of sites through which the participants situated themselves, strengthened existing links and forged new-found relationships and identities with space and place in Raval.

The workshop emerged from a transdisciplinary research collaboration and international joint venture between Dr. Ana Moya, integrated researcher in landscape perception and heritage, at the Center of Art History and Artistic Research (CHAIA), in the University of Évora (Portugal), and invited researcher at Group of Anthropology and Artistic Practices (GRAPA), Anthropology Department, from the University of Barcelona (Spain), and Dr. Victoria Hunter, practitioner-researcher and Reader in site dance and choreography at the University of Chichester (United Kingdom). The workshop, therefore, constituted an empirical case study laboratory for both researchers, and their respective and independent present research projects. Regarding Dr. Ana Moya's research, this workshop belongs to a wider project co-develop at the research Centers GRAPA/ CHAIA and funded by the Ministry of Science and Technology Portugal and the Social European Funds (SFRH/BPD/101156/2014), with the title *The Somatic Landscape of the urban multiculturalism: Identities, Heritage and Cultural Tourism in the historical centers of Lisbon and Barcelona*, which studies the somatic and multisensorial urban landscape of two consolidates historical centers with multicultural communities, mobility processes, city tourism and migration. Her present research studies the predication and creation of landscape as a community construction process of cultural exchange, built on performative and empiric body experiences. Concerning Dr. Vicky Hunter's present research, this workshop informs a wider research project that explores site-specific dance and performance and examines the body's engagement with space and place through the consideration of the individual's corporeal, spatial and kinetic engagement

with their environment. Her research focuses attention on how the body's materials, and body systems (i.e. skin, circulatory and skeletal system) relate to the nature, materials and morphology of space (surfaces, textures, structures, etc.). This research informs the development of a forthcoming monograph *Site, Dance and Body: Movement, Materials and Corporeal Engagement* for Palgrave publishers (forthcoming, 2020).

Sociological Contextualization

The historical neighborhood of Raval, is located in the city center of Barcelona, inside the district of Ciutat Vella, with an area of 95 ha, and with a 1,6 Km in its North-South longitude axis and 0,9 Km East-West. From the 1940's to the 1980's, it was a historical district stigmatized and known as "Chinatown" due to a working and migrant population with low income, with conflictive areas of prostitution and drug trafficking. In the 1990's, this neighborhood profited from urban regeneration strategies, and the requalification of urban public spaces, strategic public buildings for the city and infrastructures. Consequently the processes of real estate gentrification took place, elevating the costs of living and profiting investments.

At the time of writing, Raval is a multicultural urban landscape that contains a patchwork of spaces informed and formed by differentiated cultural heritages and identities. From the 2000's onwards, the historical tangible and intangible identity of its urban heritage has been transformed greatly due to the increased movement of people and communities arising from increased levels of social migration, immigration and city tourism. Raval includes 47,617 inhabitants (stats. from 2015 data) with 122 different nationalities and 47.9% of its population is from other countries outside of Spain (Barcelona's Statistics Department, 2016). The main places of origin are Pakistan (10,8%), Philippines (8.5%), Bangladesh (5%), Italy (3%), Morocco (2.8%) and India (2%). The European citizens living in Barcelona tend to be young qualified residents (60% of them have between 25 to 40 years old with University degrees), and they correspond to 30.8% of the foreign population living in Barcelona. What emerges from this data is a picture of an ethnically rich and diverse area where a wide range of nationalities, customs and traditions converge and coexist. Raval has an open institutional atmosphere of intercultural dialogue and integration. This intercultural identity is an important asset with associated attractive values for urban tourism and the consumption of urban experiences. Raval has a wide network of local associations and public institutions that influence social cooperation and the cultural life in the city center with 112 cultural associations and 10 social community associations (Ciutat Vella Economic Development Plan, 2016-2021.)[1] Our workshop's open call reached cultural and migrant associations in the neighborhood. However, our final participants did not wholly represent these multicultural demographics.

1. Pla de Desenvolupament Econòmic Ciutat Vella 2016-2021 [Ciutat Vella Economic Development Plan 2016-2021]. Ajuntament de Barcelona, Districte Ciutat Vella. Barcelona Activa. (http://ajuntament.barcelona.cat/ciutatvella/pla-desenvolupament-economic/ca/home).

Only two participants were born in other EU countries, one had a Pakistani family background, while nine of them were Spanish nationals that moved to Barcelona, in different waves of migration in the 1950's and 60's or for different mobility reasons in subsequent years. This fact determines that ethnic communities in Raval have their own trusted social networks and therefore, isolated individuals infrequently participate in activities that are not promoted within their community networks.

Regarding the economic activities in Raval, statistical data in 2015 determine that the majority of activities at street level were services (46.4%), commerce (31.8%) and empty spaces (15.7%). Service activities were restaurant businesses and lodging. The area contains, at the present, a large number of touristic residences, with 9.896 accommodations including hotels, hostels, touristic apartments and youth hostels (Economic Development Plan for Ciutat Vella 2016-2021). In 2016, the sociological indicator of touristic presence in the neighborhood demonstrated 123.2 tourists for every 1000 inhabitants (Socioeco-nomic indicators 2016, Raval, Ciutat Vella District.)[2] Raval is divided in two municipal management sectors, Raval North and Raval South. Raval South is an under privileged area with high levels of poverty, and social exclusion. The unemployment rates moves between 11.1% and 13%, with low family incomes between 63-79 in an index of 100. Urban gentrification processes and real estate investment with a tourist pressure for those existing apartments of first residence, has created a vulnerable situation for this fragile population, with eviction levels averaging between 9.1% to 19.7% (Map of Neighborhoods South Raval and South Gothic, 2017.)[3] From the fourteen workshop participants, two members lived and worked in Raval North, three of them worked in Raval, specifically in cultural and administrative services, and nine of them regularly participated in leisure activities and social engagements in the neighbourhood, but lived in other parts of the city.

The socio-economic indicators in 2015, specify that 12.3% of Raval's population is 65 years old and older, compared to 21.6% of the rest of the city. These indicators of Barcelona's ageing population are similar to other large capitals in Europe such as Milan (23.3%), Berlin (19.3%) or Paris (15.3%.)[4] This trend was reflected in the demographic of participants responding to the open call for workshop participants. Six of our participants were over 65, four of them over 40, and four over 20. With the exception of one male participant, the group was made up of women despite the fact that the call for participants did not include age or gender limitations. The participation demographic suggests therefore that dance and movement activities might have greater appeal for women

2. Indicadors socioeconomics 2016, districte de Ciutat Vella. Barri el Raval [Socioeconomic Indicators, 2016, Ciutat Vella District, Raval neighbourhood. (http://www.bcn.cat/estadistica/castella/dades/inf/barris/a2016/barri1.pdf).

3. Pla de Barris el Raval Sud i el Gòtic Sud, 2017. [Map of Neighborhoods South Raval and South Gothic] Ajuntament de Barcelona. Districte Ciutat Vella. (http://pladebarris.barcelona/plans-de-barri/raval-sud-i-gotic-sud).

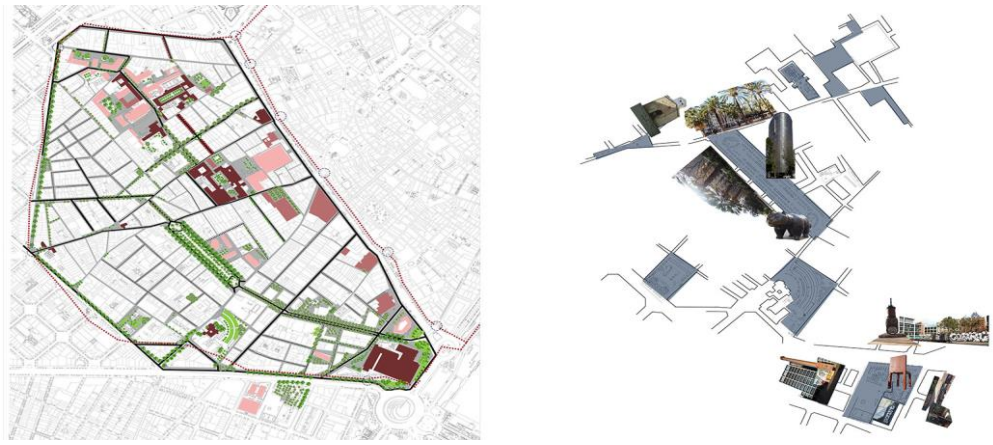
4. Diagnòsi per a l'Estratègia sobre Canvi Demogràfic i Envelliment (2018-2030), Ajuntament de Barcelona (2018) [Diagnosis for the Strategy on Demographic Change and Aging (2018-2030)] (https://bit.ly/2mUfWsB).

participants unless they are targeted or designed in a particular manner that might attract a wider and more diverse range of participants.

Historical and Urban Contextualization

In order to study the historical and morphological characterization of specific locations in Raval for the movement explorations, we edited a small booklet for practical consultation titled "Survey and characterization of Raval's neighborhood, Barcelona" that contained the elaboration and creation of thirty maps. This graphic material was gathered through field-work leading to the design of maps that depicted and analyzed the nature of the public urban space arising from in situ observation, photographic data and aerial photography. This cartographic material, developed during a two-month period prior to the workshop, helped us to select specific locations and itineraries for the dance-movements activities.

Looking at Raval's urban morphological characterization, these maps analyzed the formal and functional nature of space, isolating the green structure (green areas, parks, tree-covered areas and tree typologies), hierarchies of traffic infrastructure, pedestrian and public open spaces including pavement typologies and finally the historical classification of heritage and buildings of cultural interest (Figure 1). The booklet also contained the scenic-formal analysis, and ambience description of fourteen public spaces in Raval (Plaça de Blanquerna, Baluarte Gardens, Three Chimneys Square, Folch i Torres Square, Sant Pau del Camp Gardens, Rambla del Raval, Rubió i Lluch Gardens, Sant Agustí Square, Patio Labouré's School, Vicenç Martorell Square, Joan Coromines Square, Angels Square, Terenci Moix Square and Castilla Square). Each cartography illustrated the geometric dimensions of space, scale and configuration structure and built elements composition (Figure 2). The maps depicted key architectural features and buildings, iconic and relevant references in space, together with small-scale details such as textures, surfaces, colors, and materials.



Figures 1-2. Left: *Raval (Traffic and Pedestrian Network, Green Spaces and Relevant Built Heritage);* Right: *Study of Public Squares, Parks and Gardens in South Raval*

Source: Graphic Material Workshop Site, Dance and Body (2018), © Moya and Hunter.

The booklet contain maps with information about the historical evolution of the neighborhood's urban morphology from 1250's to 1600's, from 1700's to 1900's, and from 1920's to 2010's. From 1250 to the1600's, Raval was a walled perimeter suburban area of Barcelona with a rich agricultural land and wetlands with *Cagalell* pond located in the South, collecting the water of seasonal streams called *rieras* or *ramblas* (Riera de Collserola, Riera de Magòria, and Riera de la Font del Gat.)[5] The third city walls that enclosed Raval (1348), enabled urban growth and provided agricultural land for self-subsistence in times of siege. Within the enclosure, existing hospitals and convents remained along the main accesses of circulation (Carme Street, Hospital Street, Tallers Street, and Sant Pau Street). Sant Pau del Camp Monastery, which dates from the 10th century, is the oldest religious nucleus that still exists and maintains a religious use today. Two important Gothic infrastructures have a prominent and symbolic presence in the neighborhood. One is the shipyard building *Drassanes*, rebuilt in the 16th century in the same location of the medieval 11th century building. The second is the Old Hospital of Santa Creu, dating from 1401. This was the only city hospital until the beginning of the 20th century, following which the hospital moved to the city outskirts and at the present is the Library of Catalonia (Figure 3). During the second half of the 16th century to the first of the 17th, Raval consolidated as a territory of convents and monasteries encompassing a wide diversity of religious orders.[6]

Figures 3-4. Left: *Scenic-Formal Analysis of Sant Agustí Square and the Old Hospital of Santa Creu;* Right: *Palimpsest of Historical Layers in South Raval*
Source: Graphic Material Workshop Site, Dance and Body (2018) © Moya and Hunter.

At the start of the 19th century, Raval underwent a gradual change in its physiognomy from a green food supply and lung of the city to a polluted and dense industrial area with hundreds of chimneys of cotton textile factories (Figures

5. P. Banks, "El Creixement Físic de Barcelona, Segles X-XII," in *Barcelona Quaderns d'Història,* no. 8, (2003): 17.

6. A. Garcia Espuche and M. Guàrdia Bassols, *Espai i Societat a la Barcelona Pre-Industrial* (Barcelona: Magrana, 1986), 43.

4-5). In 1835, most of Raval's convents were demolished, and expropriated, such as Sant Josep Convent, replaced by *La Boqueria* food market or Mare de Déu de la Bonanova Convent, torn down in order to build *Liceu* Opera House. Other convents survived but changed their use such as Sant Guillem d'Aquitania Convent, now Labouré School; or Angels Convent and Natzaret Monastery which were reconverted and at the present are the cultural buildings of the Museum of Contemporary Art of Barcelona (MACBA) and the Center of Contemporary Culture of Barcelona (CCCB) respectively. The textile industry developed the city through the concentration of intense urban, commercial and manufacturing activity in the neighborhood. Migrant peasants escaping from the agricultural famine of Catalonia (1765-66) became the main working force. Factories and residential buildings for workers appeared, including factory-homes, where workers had also their residence. In 1829, Raval had 74 textile factories (spinning and weaving mills, and print factories), which increased to 242 factories in 1860.[7] It became densely populated and suffocated by its walls because the city could not grow outside the limits due to military impositions (Figure 6). The only open spaces in the neighborhood were Sant Agustí Square, Del Pedró Square, and the public gardens of the Old Hospital of Santa Creu. The main industrial arteries were Carretes Street, Riereta Street, Nou de la Rambla Street, Hospital Street, Carme Street, and Tallers Street. Following the demolition of the city walls in 1859, the industrial interests moved out of the city center. During the beginning of the 20th century, Raval became a lower working class residential neighborhood and home for a number of national immigrants who arrived to Barcelona for the construction of the Universal Expositions of 1888 and 1929.

Figures 5-6. *Raval's Historical Cartographies. Left: Fragment of the Plan of the City and Port of Barcelona, in which we Can See Raval's Area with Vegetable Gardens Connected to Religious Buildings by Moulinier (1806)* Right: *Fragment*

7. M. Fernández, *Matar al Chino: Entre la Revolución Urbanística y el Asedio Urbano en el Barrio del Raval de Barcelona* (Barcelona: Virus Ed, 2014), 52.

of the General Plan of Barcelona and its Urban Expansion, City Council (1900), with a Dense Urban Fabric without Open and Green Spaces
Source: © Institut Cartogràfic i Geològic de Catalunya [Cartographic and Geological Institute of Catalonia].

Analyzing the period from the 1920's to the 2010's, we detected that Raval up to the 1980's remained a densely populated neighborhood with a proliferation, especially in South Raval, of brothels and nightlife establishments. After the Civil War (1939), Raval had an intense national migratory growth. During the dictatorship and until 1974, the area was considered one of the most dangerous neighborhoods in the city. Urban plans were implemented in the 1980's, with the approval of the General Metropolitan Master Plan to develop the area. The vertical axis of Drassanes Avenue was opened in South Raval, which gave an urban frame to the first city skyscraper, Colon Office Tower (1970) and other institutional buildings, with the creation of squares and gardens. Two new public green spaces were built following strategic demolitions of obsolete infrastructures, such as the National Prison for the construction of Folch i Torres Square or Can Ricart Factory for the construction of Sant Pau del Camp Gardens. New infrastructures were also built leading to the celebration of the Olympic Games (1992), with the construction of the different Faculties and services of the University of Barcelona in North Raval, and MACBA facilities in Angels Square.[8] Following the economic crisis of the mid 1990's up to 2004, and later from 2008 onwards, the combination of urban renewal, economic development and social cohesion initiatives became problematic. The most emblematic interventions in this period are the demolitions of buildings in the heart of the neighbourhood to open the following public spaces: Rambla del Raval, Salvador Seguí Square and Vázquez Montalbán Square, with cultural, public and private infrastructures, such as Hotel Barceló Tower, the Film Library of Catalunya, and the Liceu Conservatory. One of the latest interventions in 2015 has also been the remodeling of Gardunya Square at the back of *La Boqueria* market and the construction of the new facility for *Massana* art's school.

Specific Objectives and Research Questions

The 'Site, dance and body' project explored the participants' affective responses to space and place and mapped their sense of place-related identity emerging from their personal embodied experiences in Raval. We explored processes of urban space identity, as both an individual and collective construction arising from the participants' physical and emotional identification with the environment through performative body experiences, and responsive and subjective sensorial connections. The project design stemmed from a perspective in which the urban landscape is experienced as somatic and multisensorial arising from subjective relationships and engagements with the material specificities of

8. J. Busquets et al., *The Old Town of Barcelona: a Past with a Future* (Barcelona: Ajuntament de Barcelona, 2003), 93-134.

urban spaces. The urban space is therefore constructed for the experiencer through this practice as sensible matter, experienced through psychological, qualitative and sensorial processes arising from an awareness of the body's experience and movement through space. Through this practice we aimed to analyze and observe the participants' phenomenological experience of site and their creative interactions, performative expressions and constructions of a meaningful and emotional urban landscape fostered through embodied movement practice. We aimed to encourage the transformation of the participant's daily, inhabited space into an existential space, where their imaginaries and personal identities could be articulated.

This project explored body-world relationships through materially based site-dance and movement practice. Through movement explorations in the urban sites of Raval the project explored how the moving body can engage with the materials, textures and spatial dimensions of site to effectively 'map' spaces through the body and instigate new modes of knowing spaces and places through the body. The five-day-movement workshop engaged participants in site-based movement experimentation through which we addressed the following questions:

- How are affective processes of, adaptation, integration, engagement, familiarity and belonging to urban space redefined through the body?
- How might interaction between mapping representation and body urban experience enrich each other?
- How does the body interact with the materiality of the environment?
- What might we learn about our bodies and their relation to the spaces we encounter through this practice - what insights and imaginaries might emerge?
- How might this process 're-map' urban sites and foster an individual sense of engagement, familiarity and being 'at home' in familiar/unfamiliar spaces?

Theoretical Research Framework

Through practical and theoretical approaches the workshop aimed to produce a body of empiric research regarding the creation of urban landscape as a process of social construction, community participation, identity enquiry and reformulation of urban space. The workshop feeds into a wider research project exploring body-site relationships by drawing attention to the 'co-mapping' of bodies and sites and the potential intra-active nature of these engagements through New Materialist lenses,[9] spatial theory,[10] discourses of urban flow and mobility,[11] the

9. K. Barad, "Posthumanist Performativity: Towards an Understanding of How Matter Comes to Matter," *Signs: Journal of Women in Culture and Society* 28, no. 3 (2003): 801-831; D. Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham, MA: Duke University Press, 2016).

10. H. Lefebvre, *The Production of Space* (Oxford: Blackwell Publishing, 1991).

11. T. Cresswell and P. Merriman, *Geographies of Mobilities: Practices, Spaces, Subjects* (London: Ashgate Publishing, 2011); T. Etchells, "Foreword," in *Theatre and the City* (ed.) J.

workings, systems and structures of the body and their relation to/reflection of urban infrastructures. In particular the practical work drew on theoretical approaches to bodily relations with urban environments as explored by Richard Sennett in his influential text *Flesh and Stone: The Body and the City in Western Civilisation* (1994) in which a sense of porosity between body and environment is proposed.[12] Similarly, the workshop design was informed by non-representational theories[13] and approaches to 'worlding' processes brought about through lived-body encounters with the materials, forms and textures of urban environments through which the 'affective nature' of the world in which 'non-human agency' comprising of 'forms, rhythms and refrains' (for example) reach a point of 'expressivity' for an individual and develop a sense of 'legibility.'[14]

Landscape, in this context, is considered as an active and predicative creation formed from subjective and vital experience, conscious, cognitive and sensorial. Through this process we are not concerned with contemplating and observing space from an objective or abstract perspective, instead we are interested in how individuals 'produce space' through body-site interactions. This production of space is related to a spatial practice of body gestures and performative movements in space, translating the body-space relationship into a perceived experience.[15] We worked with three different categories inside the perceived space: looking at physical boundaries, relevant buildings, streets, and public open spaces (absolute space category); experiencing circulations, urban flows and movements in space (relative space category); and finally observing the own participant's sensorial experiences in their body interaction with space (relational space category.)[16] The body's action in this perceived space creates an intervention that simultaneously reformulates the nature and identity of space and of the self. The performative body actions and emotional engagements with spaces inform these experiences and build and redefine individual and collective identity in a reflexive manner.[17]

In this project we developed new perspectives on body-world entanglements through site-dance and site-based movement explorations. In doing so we considered three concepts related to the construction of urban-body space relations: the sense of belonging, affective engagements, and the revision of the

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Harvie (London: Palgrave Macmillan, 2009); P. Merriman, *Mobility, Space and Culture* (London: Routledge, 2012); D. Harvey, *Revel Cities. From the Right to the City of the Urban Revolution* (London: Verso, 2012).

12. R. Sennett, *Flesh and Stone. The Body and the City in the Western Civilization* (London: Norton and Company, 1994).

13. N. J. Thrift, *Non-Representational Theory: Space, Politics and Affect* (New York: Routledge, 2008); B. Anderson and P. Harrison, "The Promise of Non-Representational Theories," in *Taking-Place: Non-Representational Theories and Geography* (Farnham: Ashgate Publishing, 2010), 1-36.

14. K. Stewart, *Tactile Compositions*, presented at Affective Landscapes Conference (University of Derby, May 2012).

15. Lefebvre, *The Production of Space*, 1991, 38.

16. Harvey, *Spaces of Global Capitalism. Towards a Theory of Uneven Geographical Development* (London: Verso, 2006).

17. M. Castells, *The Power of Identity. The Information Age: Economy, Society, and Culture* II. (Oxford: Wiley-Blackwell, 1997), 9-10.

memories of place. Regarding the sense of belonging, the participants recognized, interpreted and recreated their emotional and personal world through the body. Within the construction of narratives and personal stories we studied participants' emotional projection and appropriation of urban spaces. Concerning affective engagements, we also explored the redefinition of affective place responses by reformulating the gestural presence of the body in space through which the affective bonds between individual and place were redefined in a process of personal discovery. Participants' new awareness of subjective sensorial body affects, lead them to discover and observe new emotional and psychological responses to urban and architectural spaces. In some instances, through revising the memories of place, participants also reported experiencing a personal confrontation with the sense of a loss of place, of spatial dislocation or relocation, cultural de-contextualization or a hopeful expectation yet to be discovered.

We worked with three types of memory: the memory of place, understood as a historical and identity value in the landscape; the conscious memory of the subject, which determines lived temporal and personal references;[18] and the autonomous memory of the body, which builds the sensorial references in the self. In this sense, the place talks as it contains stories, narratives from the past. It is the container of history, which gives value and weight to space. The mind experiences as the participants established a mental connection to particular places. They developed their own narratives, memories, images of particular sites linked to their own past, regardless of whether this sense of past was related to a very distant or recent past (i.e. a few months, few days or few hours). The group concurred that there were certain cultural experiences associated with a place common to all of them, such experiences and images can be conceived as belonging to the collective memory and the collective cultural-historical experience of space.[19] Arising from these perspectives is a conception that the body 'thinks' as a result of individual embodied memories that resonate as significant in the form of flows, rhythms, tempos, which influence corporeal responses and articulations in the here and now and reveal somatic-environmental responses to space. These findings align with Doreen Massey's research on space and place in which she discusses place as presenting 'intersections of stories so far' combining multiple stories, memories and associations brought to the fore through human interaction.[20]

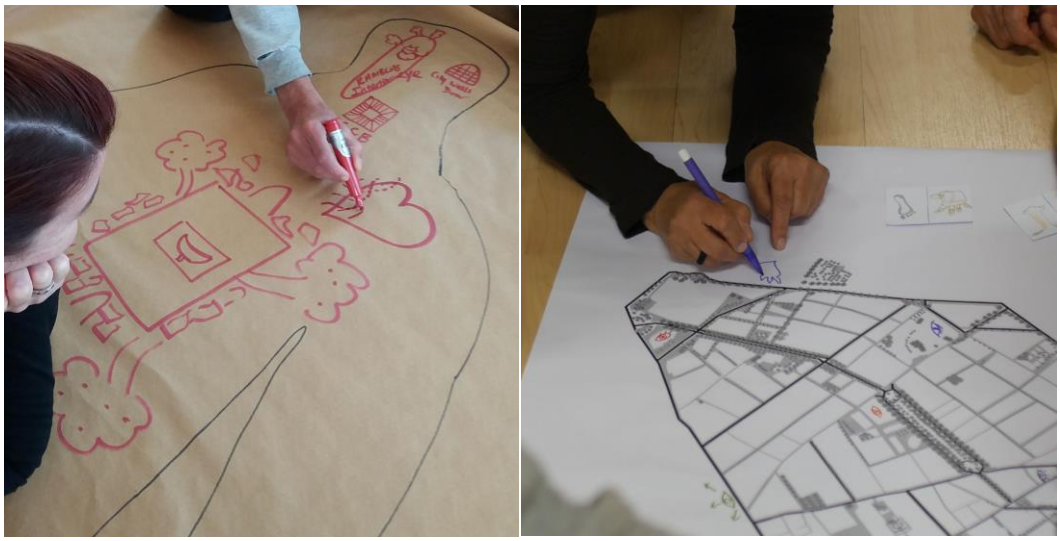
Through the workshop tasks and exercises we developed localized interactions between individuals and their lived environments. We used the device of cartographies to represent, map and explore individuated and collective constructions of human-place relations. These cartographies represented the participant's sensorial experience of Raval. The mapping of urban space using the sensorial memories of the participants allowed us to understand the participants' subjective engagement with urban space. We asked them which were their

18. H. Bergson, "Matter and Memory," in *Zone Books* (trans.) N. M. Paul and W. Scott Palmer (Cambridge: The MIT Press, 1990).

19. Ibid; M. C. Boyer, *The City of Collective Memory: Its Historical Imagery and Architectural Entertainments* (Cambridge: The MIT Press, 1994).

20. D. B. Massey, *For Space* (London: Sage, 2005).

feelings, emotions, rhythms, movements, intensities, memories, wishes, and visions in specific spaces in Raval related to these multisensory body experiences[21] and to draw them in a map, effectively creating a form of subjective and creative ephemeral urban landscape through the body (Figure 8). Drawing on the conception of landscape from Chinese tradition, influenced by Taoist philosophy, that asserts the human body as comprising an inner natural landscape that corresponds to the outer world and conversely, the earth as a living organism built up of elements similar to those of the human body,[22] we explored and mapped Raval's urban spaces as a human body comprising different body parts. We drew the body of the participants as a complex universe of urban spaces that reflected multisensorial memorial encounters with Raval (Figure 7).



Figures 7-8. *Mapping Raval as a Sensorial Body.* Left: *Raval as a Human Body Comprising Symbolic Public Spaces as Body Organs.* Right: *Mapping Multisensorial Encounters in Raval; drawing Raval as a Collective Construction of Multisensorial Engagements and Memories.*
Source: © Moya and Hunter.

We also worked the mapping of sensorial experiences of the participants' past experiences of space and place. We represented them as a personal and intimate entity, with the use of symbolic images. These memories and emotional-sensorial experiences were later emulated through body movements in exploratory indoor exercises. Both activities allowed us to explore personal recollections of past spaces (Figures 9-10). Through this work a form of embodied mapping developed that fostered individual connections with place through the movement practice. Through their engagement with particular tasks and movement exercises new associations and connections emerged for the participants as the Raval

21. Harvey, *Spaces of Global Capitalism. Towards a Theory of Uneven Geographical Development*, 2006.

22. O. Sirén, *Gardens of China* (New York: The Ronald Press Company, 1949); K Schipper, *The Taoist Body* (trans.) K. C. Duval (Berkeley: University of California Press, 1993).

area was effectively put 'on the map' in a different way for individuals in a manner that informed subsequent, future encounters with space and place.

Figures 9-10. *The Construction of Memory Boxes.* Left: *A Childhood Memory with the Sun as a Symbol of the Experience. Drawing Representing a Beach and the Sea Waves.* Right: *A Childhood with a Red Lace as a Symbol of the Experience. Drawing Representing a Small Girl Walking with her Pet in the Streets*
Source: © Moya and Hunter.

Movement improvisation as opposed to 'taught' or didactic dance activity was selected as the main means of inquiry. In movement improvisation sessions, participants can move as they wish with whatever physical skill or movement experience they might possess. Movement improvisation enables participants to physically respond to instructions, suggestions or ideas offered by the session leader in an impromptu manner. Participants were offered a task or 'score' incorporating a simple set of instructions from which they engaged with particular sites through their own movement responses drawn from their own way or moving and processing site-based information through the body. In this way participants were free to choose their own path of creative inquiry loosely housed within a generic task framework. This approach draws on a lineage of site-based improvisation that can be seem in the site-specific movement explorations of Anna Halprin in the 1960's in which she encouraged 'movement exploration' in non-theatre spaces to occur in a focussed and creative manner.[23]

Logistics, Organization, Participants and Locations

Part of the workshop took place in the indoor municipal facilities of Drassanes Civic Centre and Folch i Torres Centre, located in Raval. For the dissemination of the workshop, via social media, we had the support of cultural local associations in the neighbourhood - Inca Catalunya and Ateneu Raval -, and the foundation Tot Raval, which reaches fifty social entities in the neighbourhood. We also disseminated our workshop using the contacts of the dance associations La Caldera and La Poderosa, and the music and scene association Xamfrà, this last one located in Raval. We also contacted the migrant associations addressed to

23. R. Kaplan, *Moving Towards Life: Anna Halprin, Five Decades of Transformational Dance* (Middletown, CT: Weslyan University Press, 1995), 191.

women in the neighbourhood: Women Dialogues [Diàlegs de Dona], Cultural Association of Pakistani Women, and the Association of Moroccan Women of Catalunya. None of them answered to our petition of contact or to the information of our workshop. We also contacted two lusophone associations, in order to obtain the participation of some migrants from lusophone countries: Opá, Lusophone Association and APEC, Brazilian Students and Researchers in Catalunya. Both of them answered positively and participated in the dissemination of the workshop among their members. To promote the activity we placed posters in public facilities and associations and distributed fliers. We also opened a Facebook page, @"llocdansacos", to which we added information, videos, and cartographic material. During the week of the workshop we invited the visual artist Françoise Girardeau to record the workshop sessions and produce and edit a video documentary of our work. This audio-visual material is linked in our Facebook page.

We received an e-mail from 22 people from our open call, and 14 participants registered and participated during the dates proposed. We asked all the 14 participants to register using an enquire template in order to know their personal background and migrant and mobility profile. Only four of them were born in Catalonia, eight in the rest of Spain, and two in other European countries (England and Portugal). For two participants, their family's place of origin was Catalonia, nine came from other areas of Spain, two from other European countries (Portugal and Germany), and one outside Europe (Pakistan). Related to their education background, five of them had primary studies, two secondary studies and seven of them university studies. Six participants were retired, three were students, and three had a profession (two dancers and one architect). Six participants were over 65, four of them over 40, and four over 20. Two members of the group have lived in the area for less than a year, three between 10 to 16 years, two between 20 to 35 years, three between 40 to 50 years, and four over 50 years. Two members of the group currently live in Raval, three of them work in Raval, and eleven of them know very well Raval as they regularly participated in leisure activities and social engagements in the neighbourhood. Eight members of the group had lived in countries other than Spain.

We selected four historical sites from 1250's to 1600's period: Sant Pau del Camp Monastery, Drassanes shipyard building, the Old Hospital of Santa Creu and the old 14th century city walls in Raval South. We explored the historical narratives and the physicality of history encountered in these buildings and sites through bodily resonance and bodily engagement exercises. We entered these sites and allowed our bodies to be present and open to their atmospheres and rhythms and explored the metaphorical 'weight' of history encountered in the present. Through responding to our felt experiences of these historic sites we developed improvised movement responses that processed these sensations through the body from which a slowly evolving 'dance' with the sites emerged. From the 1700's to 1900's period, we also selected three historical sites: Sant Guillem d'Aquitania Convent, now Labouré's School; Natzaret Monastery, now Terenci Moix Square, and the public space of the partly demolished Sant Agustí Convent, all located in Raval North. From 1920's to 2010's period we selected a

site in the heart of the historical densely industrial tissue of Raval. We danced in the public space of Rambla del Raval, which is nowadays an important open public space axis, due to the demolition of industrial and residential historical blocks in 2000. In this exploration we played with themes of weaving in which the participants wove themselves in an out of formations and played with a sense of tension between bodies as they gradually travelled up the 'spine' of the Ramblas del Raval in a weaving formation emulating the movement patterns of an industry long passed. From this last historical period, we also selected Vázquez Montalbán Square in front of Hotel Barceló Tower. In this area, participants explored their felt sense of surveillance and observation prompted by the tower's dominance over the surrounding streets. They placed themselves at the foot of the tower and, led by their gaze slowly moved their bodies to follow and 'map' the outlines of the vertical structures and buildings surrounding the tower. Whilst rooted to the spot their optical exploration led them to explore the spaces above the street and consider the skyline architecture processed through their bodies.

Methodology

The five-day movement workshop, took place from Monday to Friday (9-13th April 2018), in morning and afternoon sessions of two and a half hours each. It engaged the participants in site-based movement experimentation in public urban spaces of Raval. Prior to the start of the site-based workshop a Facebook group "@llocdansacos" was created in which participants could begin to forge a community link to the working group. During the week we included introductory and warm up exercises in indoor facilities in the neighborhood and outdoor exercises in site-dance exploration in public urban spaces. Prior to the first outdoor exercises, participants created experimental cartographies to identify the neighborhood they remember and recognize through the senses. We asked them to map Raval as a sensorial body, and relate those public spaces they recognize to sensorial memories of taste, touch, smell, vision, and hearing. We also asked them to transform their own body into an urban landscape that contains those public spaces of Raval that could be considered eyes, nose, mouth, heart, dorsal spine, lungs or the watery system. Our indoor dance activities were also accompanied by related artistic work such as drawing and the design of personalized boxes to contain memories and site-based stories and associations (Figure 11).

Our methodology encompassed three distinct yet interrelated approaches to the study of the urban landscape through body movement. The first approach, addressed developing awareness of the perception and experience of urban space through the body using exploratory itineraries in the neighborhood; a second approach addressed physical training and the raising of embodied awareness of the body and its environmental responses to space (Figure 12); a third approach guided participants' creation and communication of their emotional experience of and associations with space through expressive movement. The five workshop days were also divided into five themes through which we

approached the embodiment of space, and the articulation of body and urban landscapes. The themes are identified as: matter, rhythm, memory, connectivity and body.


Figures 11-12. *Workshop Indoor Activities.* Left: *Plastic Arts Exercises Related to the Representation of Past Sensorial Memories and the Construction of Personal and Secret Memory Boxes.* Right: *Warming Up Body-Exercises related to the Sensorial Historical Memory of Raval's Textile Factories and the Body Movements of Weaving Space*
Source: © Moya and Hunter.

Matter addresses the physicality of the city built on the primary element of stone. In a poetic and associative sense Raval's stone holds history. There is always a narrative related to a historical site, and at the same time the physical structure of the built environment expresses the physical properties of its materials. From this perspective stones became conceived as living, mobile and porous entities. Our challenge was to let the participants experience their bodily engagement with site materials such as stone, tree bark, leaves and surface textures and allow their 'intra-actions'[24] with site materials to resonate in and through their body. For this purpose we chose three locations in Raval: *Drassanes* shipyard building, the remaining 14th century city walls at Sta Madrona Door, and the Old Hospital of Santa Creu. In these locations, the stone allowed us also to experiment with the sub-themes of spatial transitions in which we considered body-adaptation, body-temperature, body-weight, and body-journey through a series of movement tasks (Figures 13-14). Engagement with site materials also enabled us to investigate the felt sensation and embodied significance of the absence of matter, the void, and the disappearance of part of a building, of columns, arches, or roofs in which corporeal experimentation related to the awareness and attending to the memory of the void was left behind (Figure 15). For this particular task we

24. Barad, "Posthumanist Performativity: Towards an Understanding of How Matter Comes to Matter," 2003.

chose the location of Sant Agustí Arch Street, next to the partly demolished Sant Agustí Convent.

Figures 13-15. *Approaching the Embodiment of Space through the Theme Matter.* Left and Right (above): *Bodily Engagements with the Stone in the Old Hospital of Santa Creu.* Right (below): *Bodily Engagement with the Absence of Matter in Sant Agustí Arch Street*
Source: © Moya and Hunter.

Rhythm as a theme, is related to spatio-temporal relations and intensities. Rhythms were conceived as sequential relations in space from which there are many types of rhythms that differ according to parameters such as amplitudes, energies, frequencies, intensities, tensions, or actions in space.[25] Rhythms are built on fluxes of energy, the dynamic movement of bodies and matter, subordinated to the use, nature, morphology and design of urban space. Every location contains a specific spatio-temporal relation: a rhythm that we experience through the body. Consequently we explored moving with participants according to the rhythm of space and considered how rhythms in space are related to the mechanics of the body. Our challenge was to use rhythms in space to increase the participants' awareness of how their body thinks, moves and interacts in space, depending on the energy flows of a particular site. We investigated the different energy flows and rhythms in two different spaces of Raval, Rambla del Raval and Patio Labouré's School, with the same body movements in both of them related to the weaving of space through the body, and we observed the differences in quality and texture of each iteration (Figure 17). Rhythm also enabled us to investigate the concept of stillness in spaces of shelter, where time stops and energy flows slow down. These movement exercises were located in the historical buildings of Sant Pau del Camp Monastery and the Old Hospital of Santa Creu, which

25. Lefebvre, *Rhythmanalysis: Space, Time and Everyday Life* (London: Continuum Press, 2004).

were spaces of social transition during previous centuries (hosting sick people in quarantine, helpless and outcast, pilgrims and walkers for example).

Reflection on individual connections with the present moment, and with the past, allowed participants to linger in spaces and make use of their memory, taking pleasure when they communicated and shared it with others in the group. The past is as diverse as the participants' cultural experiences and influences. Further activities were linked to the concept of the memory of place, the evolution of places through time and the importance of the communication of memory and emotional-sensorial experiences arising in the form of body movement. From this perspective we questioned how body memory guides the experience, evocation and visualization of a physical space in the present or in the past and we explored memory to visualize and perform personal recollections of past spaces. We also worked with collective memory to explore particular sites. In the historical waterfront of *Drassanes* shipyard building, for example, we collectively performed a movement tableaux that evoked images of the bodies of travelers arriving by boat to the city port. The participants also worked a ritualized experience of offering to the city their personal memories inside a memory box (Figure 9-10). Participants wrote or drew particular embodied recollections of past places and took the object on a journey through the city before leaving the box at the city gates of Sta Madrona, in the old 14th century city walls (Figure 16). Through this task they explored themes of detachment, absence and leaving behind sensorial memories in space.

The theme of connecting with the surrounding environment was explored through a movement task concerned with capturing space, bringing space inside our body, acknowledging a sense of spatialised energy before releasing the force back into the environment. Subsequent exercises explored observing, selecting, copying, and reacting to surroundings, to other bodies in movement, to the shapes, rhythms and morphology of the architectural space. Through these tasks we explored how the body establishes a dialogue with the urban space through processes of action-reaction, question-response, selection-imitation, or observation and body re-interpretation. Through this approach we aimed to link the participants' bodies to a particular space in which they observed and responded to the complex environment, with its multiplicities and intersecting trajectories (Massey, 2005). We moved to Terenci Moix Square, a communal space of leisure and play and positioned ourselves looking from an elevated balcony down to the Square. In this exercise the participants were required to memorize movements of people, shapes and rhythms from a particular building around the square, both individually and in couples, and subsequently repeat their embodied responses in a short choreographed phrase (Figure 18).

Finally, towards the end of the residency we worked with the concept of the city as a body. Through site-based activities, we drew experimental cartographies of bodies containing particular public spaces of Raval or architectonic references as their body parts. We explored how the body organs of Raval mirror and reflect the make-up of the human body and we made parallels between the 'body parts' of Raval (heart, dorsal spine, lungs, eyes, skin for example) and the body of the participants. In one exercise we experimented with synergies between the human

heart and the heart beat or arterial rhythm of the ancient Sant Pau del Camp Monastery. We explored the 'dorsal spine' of the central Rambla del Raval main street with the vertebras of our spinal column; the 'eyes' of Hotel Barceló with exercises of body rooting, head-torso rotation and eye observation; experiencing the 'lungs' of the Old Hospital of Santa Creu cloister embracing the space with exercises of chest opening and breathing; and finally we experienced the 'skin' of the stone walls of the Hospital relating them to the edging of the skin of the participants.

Findings/Results

Over the five-day period a core group of participants returned on a daily basis to deepen their movement explorations and discover more regarding their corporeal responses to the Raval neighbourhood. Many participants reported that their sense of engagement with the neighbourhood had deepened as a result of the practice and for some the work had produced some profound and significant affects. The movement exploration session located in the 15th century Antic Hospital de la Santa Creu building and courtyard provides a useful example. In this workshop session, participants were provided with a very simple score to explore a particular stone wall surrounding the site's periphery. The ancient stone was warm to the touch and participants were encouraged to engage with its texture, temperature, density and form as they made a simple journey along the wall. As they progressed along the wall's expanse participants rolled their bodies, slid their hands and rested their cheeks, foreheads, hands and feet along the wall's forms and textures. Participants played with exchanging weight between their body and the building and played with recesses and window frames as points of contact and micro sites of rest and repose. Movement explorations were executed in a slow and contemplative manner as the site's atmosphere and function as a place of repose and reflection infiltrated the movement exchanges between body, stone and structure.

For one participant in particular this movement exploration produced a profoundly moving affect. She appeared to immerse herself in the movement task and entered a free-flowing state of moving-meditation through which she reported a strong sense of synergy developing through the practice. In phenomenological terms, her absorption within the unfolding exploration relates to Maurice Merleau-Ponty's notions of reversibility and chiasmic entwining between the fleshy body and the flesh of the world in which 'corporeal boundaries are simultaneously erected and dismantled'[26] and illustrates the immersive context of human-nonhuman intra-actions. Following the task, the participant was elated and reported that this work metaphorically transported her to her childhood place of birth in Galicia (North-West Spain) where the predominant materials of the town consisted of similar stone. She expressed to the group that she was 'a woman of stone' shaped by her materially-informed place identity infused with

26. G. Weiss, *Body Images: Embodiment and Intercorporeality* (London: Routledge, 1999), 119.

recollections, images and impressions of the stone-scape of her childhood. This work transported her to a place of recollection invoked through the body-material exchanges encompassed within the site-based body practice.

Three of the participants insisted that the body and movement exercises outdoors made them more aware of their sense of smell, indicating that they discovered in Raval, for the first time, the existence of the fragrance of orange blossom trees. One participant asserted that this fragrance transported her back to Seville, and to her life there many years ago. She articulated a sense of unhappiness through her engagement with Raval's spaces and expressed her wish to move back to the South. Many of the senior participants were very interactive with trees when moving in space and seemed to embrace the space that surrounded them; an act that included the sound of the water and birds. When asking them to articulate their impression of the exercise, one of them answered that during the exercise she had initially felt a heightened sense of loneliness, however, through touching the tree trunk and its textured exterior she felt as though it was human skin, and as a result she repeatedly hugged and caressed the tree.

At the end of the workshop, when asking the participants what surprised them the most from this experience, many of them agreed that their experience of familiar urban spaces changed depending on the particular aim or theme of each exercise. For example, one of the participants insisted that she experienced the Rambla del Raval differently in each of the two exercises we performed. When she was working with the rhythms of weaving the space she imagined she was pulling and turning a rope, and she felt her body had an active role in space; whereas, when she explored the image of the Rambla route as a 'spine' in relation to her own corporeal make-up she felt the opposite in space, feeling her passive role and feeling pulled by the imaginary axial energy of Rambla del Raval. Another participant observed that she experienced Sant Pau del Camp Monastery in a completely different way through two different body movement tasks. When exploring notions of stillness and stasis her body slowed down and she felt more aware of the weight of her body, additionally she reported that her vision changed as she developed a profound and scanning vision, and her movements, disconnected from her rational mind, were guided and pulled by this vision. However when we explored a task in the same space that investigated notions of the pulse and impulse beating of the heart, her body performed trance-like repetitive movements that she equated to propelling the energy blood of the place. In this sense her movement practice evolved from the visual and became more sensorial and through working with the sense of touch, her sense of vision became blurred and less dominant. These examples and outcomes illustrate how physical sites can be interpreted and conceived in a myriad of ways through improvised movement practice and navigated according to individual desires and needs. This type of work contributes to the animation of space and place through which, as Tim Etchells observes, the city presents as 'a model of dynamic relativism, a space where everything means more than one thing – a nondescript doorway, invisible for some, is for others the gate to a magical garden, a place of work, worship or otherwise.'[27] Extending Etchell's

27. Etchells, "Foreword," 2009, xii.

observation here through the model of site-based movement practice reveals the city as a potential space open to interpretation and corporeal engagement from which new meanings and associations may arise.

For example, some of the participants reported being surprised by their body reactions, one of them observed how during the activity in which we scanned the area around the Hotel Barceló in a task based on visual perception the heightened act of visioning made her feel more rooted into the ground, as if her feet were anchored on the floor. Another participant indicated that when she was creating a shape with her arms over her head during the 'void' task, she felt very anxious when she left that void behind, equally, when creating a small 'void' shape and then subsequently moving on, she felt sad to leave something so small and unprotected behind.

Figures 16-18. From Left to Right: *Three Different Sensorial Engagements in Space through Memory, Rhythm and Connection Exercises in Sta Madrona Door, Rambla Del Raval and Terenci Moix Square Respectively*
Source: © Moya and Hunter.

It is interesting to observe the common opinion of the participants related to how their senses and emotions changed depending on the physical nature of the public spaces they were moving and performing in. In the terrace of Terenci Moix square for example all of the participants agreed that their mood was lifted and they felt positive and lighthearted (Figure 18). The senior participants said that they felt very energetic and open to the environment, feeling extrovert like children performing playful movements, concentrating on the sport activities of youth around them, and forgetting all their problems and restrictions. However all of them agreed that, conventionally, in this type of public space, senior people can feel discriminated by the presence and activities of younger people and can feel that their presence doesn't 'fit' with the dominant activities and actions played out in such places.

Conclusions

The urban environment is transformed into a meaningful somatic landscape when we engage in an intimate and reciprocal predicative body-world dialogue. In an era in which our urban environments are undergoing periods of accelerated change that produce patterns of dislocation, social atomization and isolation, the forging of somatic-landscape relations can help to promote individual and social connections to space, place and meaning, with the subsequent construction of a present sense of identity and engagement encountered in the here and now. Through this project, affective processes of body-site integration, engagement, and subjective familiarity with urban spaces were fostered through body sensorial responses. Embodied memory and sensory dialogues forged new-found nodes of connectivity with the environment. The mapping of the body in space enhanced the participant's knowledge of their lived environments, adding a layer of information to existing emotional interpretations and bodily experiences of space and place developed over time. Processes of engaging with the materiality of space open up previously unknown journeys of discovery regarding the body-self in space and place. When such a journeying practice is experienced and developed slowly the body can create an enhanced sense of relation to and attachment with space and place and develop new-found body memories, experiences and affections. Encompassed within this process however is an acknowledgement that the body-self is a container of memory, which reappears and unfolds evidenced through the participants' revival of past body experiences encountered in distant locations re-invoked and re-located in the present. This memory material reaffirms unconscious positive and negative emotional reactions and behaviors caused by the existence or the absence of site-based components such as familiar smells and sounds, the sense of touch of a specific type of material or texture or the vision of specific urban or architectonic elements. Whilst positioned as a pilot project, some of the participant's responses and interview accounts of their experiences would indicate that this work does prove useful in forging new associations with space and place and revealing body-site connections through non-verbal means. Some participants reported increased sense of wellbeing invoked through the movement tasks and through the shred exchanges of stories, experiences and memories encompassed within intergenerational exchanges and discussions. Many participants shared stories of their lives and their places of origin beyond the scope of the workshop design that influenced their orientation towards the Raval region and towards their habitual approaches to space and place. In doing so, the workshop space offered a space of exchange through which new social connections were also fostered as group members stayed in contact with one another and pursued similar movement and dance opportunities beyond the life-span of the project. Therefore this workshop, enhanced a process of constructing identity, because the participants created and shared personal meanings to the whole realm of urban experiences. This construction and expression of new individual and

collective identities, linked to a specific local reality redefines the bonds of belonging to the place in the present,[28] and in our case to Raval's neighborhood.

As a mode of working this collaboration between site-based movement perspectives and landscape-architecture approaches to urban exploration proved fruitful in revealing a deep-mapping approach to urban inquiry. Both researchers gained valuable insights into perceiving sites drawn from interdisciplinary exchanges and discovered new modes of evaluating and recording site-based experiences through discursive methods. The fostering of significant relationships with the environments in which we live and work present a key factor in developing and sustaining wellbeing[29] and enhance our sense of belonging to space. It is hoped that the work discussed in this paper will develop further in future years through the design and implementation of subsequent workshops with participants through which the affective potential of this work and its ability to invoke new-found connections between individuals and sites through the moving body might be encouraged and developed.

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Bibliography

Anderson, B. and P. Harrison. "The Promise of Non-Representational Theories." In *Taking-Place: Non-Representational Theories and Geography*. Farnham: Ashgate Publishing, 2010, 1-36.

Banks, P. 2003. "El Creixement Físic de Barcelona, Segles X-XII." [The Physical Growth of Barcelona, X-XII Centuries.] In *Barcelona Quaderns d'Història,* no. 8, (2003): 11-33.

Barad, K. "Posthumanist Performativity: Towards an Understanding of How Matter Comes to Matter." *Signs: Journal of Women in Culture and Society* 28, no. 3 (2003): 801-831.

Bergson, H. "Matter and Memory." In *Zone Books*. Translated by N. M. Paul and W. Scott Palmer. Cambridge: The MIT Press, 1990.

Boyer, M. C. *The City of Collective Memory: Its Historical Imagery and Architectural Entertainments*. Cambridge: The MIT Press, 1994.

Busquets, J. et al. *The Old Town of Barcelona: a Past with a Future*. Barcelona: Ajuntament de Barcelona, 2003, 93-134.

28. Castells, *The Power of Identity. The Information Age: Economy, Society, and Culture*, 1997, 10.

29. D. Smith, P. Metcalfe, M. Lommerse, "Interior Architecture as an Agent for Wellbeing," *Journal of the Home Economics Institute of Australia* 19, no. 3 (2012): 2-9.

Castells, M. *The Power of Identity. The Information Age: Economy, Society, and Culture* II. Oxford: Wiley-Blackwell, 1997.

Cresswell, T. and P. Merriman. *Geographies of Mobilities: Practices, Spaces, Subjects.* London: Ashgate Publishing, 2011.

Etchells, T. "Foreword." In *Theatre and the City*. Edited by J. Harvie. London: Palgrave Macmillan, 2009.

Fernández, M. *Matar al Chino: Entre la Revolución Urbanística y el Asedio Urbano en el Barrio del Raval de Barcelona.* [Kill the Chinese: Between the Urbanistic Revolution and the Urban Siege in Raval Neighbourhood, Barcelona.] Barcelona: Virus Ed, 2014.

Garcia Espuche, A. and M. Guàrdia Bassols. *Espai i Societat a la Barcelona Pre-Industrial.* [Place and Society in Pre-Industrial Barcelona.] Barcelona: Magrana, 1986.

Haraway, D. *Staying with the Trouble: Making Kin in the Chthulucene*. Durham, MA: Duke University Press, 2016.

Harvey, D. *Revel Cities. From the Right to the City of the Urban Revolution.* London: Verso, 2012.

____. *Spaces of Global Capitalism. Towards a Theory of Uneven Geographical Development.* London: Verso, 2006.

Kaplan, R. *Moving Towards Life: Anna Halprin, Five Decades of Transformational Dance*. Middletown, CT: Weslyan University Press, 1995.

Lefebvre, H. *The Production of Space.* Oxford: Blackwell Publishing, 1991.

____. *Rhythmanalysis: Space, Time and Everyday Life*. London: Continuum Press, 2004.

Massey, D. B. *For Space.* London: Sage, 2005.

Merriman, P. *Mobility, Space and Culture.* London: Routledge, 2012.

Schipper, K. *The Taoist Body.* Translated by K. C. Duval. Berkeley: University of California Press, 1993.

Sennett, R. *Flesh and Stone. The Body and the City in the Western Civilization.* London: Norton and Company, 1994.

Sirén, O. *Gardens of China.* New York: The Ronald Press Company, 1949.

Smith, D., P. Metcalfe, M. Lommerse. "Interior Architecture as an Agent for Wellbeing." *Journal of the Home Economics Institute of Australia* 19, no. 3 (2012): 2-9.

Stewart, K. *Tactile Compositions*. Presented at Affective Landscapes Conference. University of Derby, May 2012.

Thrift, N. J. *Non-Representational Theory: Space, Politics and Affect.* New York: Routledge, 2008.

Weiss, G. *Body Images: Embodiment and Intercorporeality*. London: Routledge, 1999.

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Architectural Drawings New Uses in the Architectural Design Process

By Amos Bar-Eli[*]

Architectural drawings role as a source of inspiration as well as a means of interpreting the past has always been key within the architectural design process. Unique to the 21st century is the increase in the sheer amount of existing drawings attainable. This abundance is manifested by the aspects that drawings are: accessed, collected, and manipulated. Consequently, it becomes crucial to critically engage new possibilities of using images of architectural drawings in the design process. The paper explores this by posing design exercises which correlate to each of the issues mentioned above i.e. - accessing, collecting, manipulating. Each of the exercises is targeted specifically for new tools unique to each. Accessing - sketching with drawings, using existing drawings as sketch models. Collecting - creating personal association boards, which serve as triggers for the subsequent studio project. And finally, an exercise of altering and changing an existing photograph is conducted to challenge the issue of manipulating. The three exercises conducted in a design studio teaching environment over the past three years were analyzed by visual qualitative research methods and design process understandings. The exercises served as case-study to examine translations, understandings, and possible new uses of existing architectural drawings in the architectural design process.

Introduction

Architectural drawings role as a source of inspiration as well as a means for interpreting the past has always been key within the architectural design process. Unique to the 21st century is the increase in the sheer amount of existing drawings available. This plenitude is manifested in the aspects by which the drawings are: accessed, collected, and manipulated. This situation does not unfold without problems or complexities, such as rights of use, the distinction of quality, authenticity, and deciphering meaning. Either way, this prolific state enriches and challenges the impact drawings have on every aspect of society, much more so on visually-based disciplines such as architecture. Consequently, it becomes crucial to critically engage new possibilities of using images-of-architectural-drawings in the design process. The two most imperative questions that arise in relation to the process of architectural design are: what is the impact that the immensity of images have on it? And in what ways can we utilize the reality of image abundance more efficiently?

The paper explores these questions by posing 3 design exercises which correlate to each of the issues mentioned above i.e. accessing, collecting, manipulating. Each of the exercises is targeted specifically for new tools available and emerging understandings unique to each. Accessing is challenged through

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sketching with drawings, using existing drawings as sketch models. Collecting is challenged through an exercise of creating personal association boards, which serve as triggers for the studio project. And finally, an exercise of altering and changing an existing photograph is conducted to challenge the issue of manipulating. The manipulation is conducted in several stages and is used to trigger the initial phase of the design process. This 3-stage exercise, with minor modifications, was conducted repeatedly during the past 3 years with various groups of students engaged in an architectural design process. Some of the groups were 1st year students, and some were more experienced 4th year students. The exercises conducted in a design studio teaching environment were analyzed by visual qualitative research methods and design process understandings. The exercises served as case-study to examine translations, understandings, and possible new uses of existing architectural drawings in the architectural design process.

Images

The discovery of photography and cinema, and especially their reproductive qualities, has brought about a true revolution in the way culture evaluates and produces art and visual imagery.[1] Today digital imagery production, even of very high quality, is readily available by almost any common type of smart-phone. Technical production, which required expensive equipment and complex technical skills until a few years ago, is available today at the fingertips of any computer user with basic skills. The ease of producing, storing, transmitting, and sharing images, has advanced tremendously in the period of the last few decades. Images are represented on a multitude of devices and projected in varied ways. Digital imagery technologies have by no means exhausted itself, on the contrary, all indications suggest that we will experience more diverse manifestations in common use. The influence of this digital-imagery-overload is central to understanding contemporary society and culture. This reality is transforming society, art, and not the least architecture.

Photography and the ability to copy reality is relatively a young technology. Earliest photos were first taken around the mid-decades of the 19th century. Cameras and modern age film evolved rapidly making photos rising in popularity over the following decades of the 19th and early 20th century. A first digital photograph was taken at 1957 making the traditional film almost obsolete. Toward the end of the 20th century, the ‘web’ became a popular place to store and share images.[2]

Coping technology marked what can be referred to as the image revolution. This revolution is characterized by the way images are accessed, collected, and manipulated. The concept of searching the mass number of images was introduced with the launch of “Google”-image-search at 2001. At this time, it including a modest 250 million images indexed. This number continued to rise reaching over

1. S. Moses, *Walter Benjamin and the Spirit of Modernity* (Tel-Aviv: Resling, 2003).
2. Wikipedia. History of Photography, 2019.

100 billion images by 2010.[3] As images became so readily to produce and transmit, their presence in the web rapidly increased. Exchanging images through varied social networks has immensely multiplied the amount of images existing in the web. Today any figure between 5-20 trillion images can be considered as an accurate estimate for the number of images that will be added yearly.[4] Smart-phones as we know them today, with wide screens and the ability to view and fast scroll images, were initially introduced by "apple's" "iPhone" at 2007, merely a dozen years ago. Today it is estimated that about 66% of people on the plant own a smart-phone. This makes a colossal incalculable number of images readily available, rather literally, at the fingertips of most of us.[5]

The ability to store, index, and retrieve images in personal and self-organized collections has evolved alongside the multiplication in image numbers and accessibility. The availability and ease of creating, organizing, and indexing, huge personal collections mounting many thousands of images is not uncommon. Ignoring the meaning, quality, and relevance of such collections, still anyone wishes to do so, can do it in very simple and accessible means. The third most relevant issue regarding images is the ability to manipulate them. Computer editing software is readily available. Ranging from professional editing software to automated filters that allow complex and sophisticated manipulation created effortlessly. Some such editing capabilities are built-in to social networks applications making image manipulation, distortion, and refabricating an effortless, common action, as immeasurable number of images are transmitted and exchanged.

One interesting example which is a direct result of the image revolution and the way it transforms culture is the revolutionary act of Amsterdam's Rijksmuseum. In a controversial and exceptional decision from 2013, the museum made digitally available and completely free for any use its entire collection of artworks. It is not only free, the museum actually takes great care to digitize, in high quality, its approximately 1 million art objects and goes so far as to encourage the public to copy and use it. Rijksmuseum officials claim that this business and strategic model makes viewers more interested in art and also encourages people to visit the museum, as an opportunity to view the real works of art. It makes the works much more popular, e.g. Vermeer's Milkmaid receives about 3,000 downloads a month on average. The high-quality free rights use makes people appreciate more the trustworthy web site of the museum and as a consequence use and observe better quality of the original rather than poor quality and in other ways mistreated images of works of art.[6]

3. Google Official Blog, 2010.
4. Mylio.com, 2017.
5. Bankmycell, 2019.
6. Made with Creative Commons, 2017.

Theory of the Image

Society gives preference to the sense of vision. Starting from Renaissance understanding of the ability to portray the visible in precise perspective mathematical method, as is pointed out by Finnish architect Juhany Pallasmaa:

> *"The dominance of vision over the other senses - and the consequent bias in cognition - has been observed by many philosophers. …western culture has been dominated by an ocular-centric paradigm, a vision-generated, vision-centered interpretation of knowledge, truth, and reality."* [7]

This preference is an ever-accelerating movement, culminating in a never-ending process of technological advances related to manufacturing images. The consequences of the proliferation of images on society are profound and have been central in research and discourse already early in the previous century, emerging from seminal critical texts like that of Georg Simmel's, the German sociologist and philosopher, and that of Walter Benjamin's "The Work of Art in the Age of Mechanical Reproduction", 1936. Benjamin suggests that the copying abilities of the camera and the cinema have changed significantly the role of art. Benjamin points to the fact that any work of art can have an endless number of copies. This eliminates the crucial essence of authenticity, which until that point was essential for any work of art. The ability to mass-copy the work of art eradicates its metaphysical\religious attributes to something that belongs to the masses, and as such social and political.[8]

The American philosopher and filmmaker Susan Sontag published in 1977 her book titled: "On Photography", in which she argues that the proliferation of photographic images had begun to establish within people a "chronic voyeuristic relation" to the world around them. Among the consequences of photography is that the meaning of all events is leveled and made equal. Sontag claims that the individual who seeks to record cannot intervene and that the person who intervenes cannot faithfully record, for the two aims contradict each other. With this text, she explores critically a range of artistic, moral, and cultural issues related to modern society and the interaction between reality and its image through the set of dimensions arising through the camera and its uses.

French semiotic philosopher Jean Baudrillard is best known for his analysis of media, contemporary culture, and technological communication, as well as his formulation of concepts such as simulation and hyperreality. In 1981 he published "Simulacra and Simulation", Simulacra refers to copies that depict things that either had no original, or that no longer have an original, and by Simulation he means the imitation of the operation of a real-world process or system over time. In the text, Baudrillard seeks to examine the relationships between reality, symbols, and society, in particular, the significations and symbolism of culture and media involved in constructing an understanding of shared existence. In the realm of architecture, the manifestation of such process became explicit in Rem

7. J. Pallasmaa, *The Eyes of the Skin* (Great Britain: Wiley-Academy, 2005), 16.
8. Moses, *Walter Benjamin and the Spirit of Modernity*, 2003.

Koolhaas's "Delirious New York". First published in 1978 it interprets Manhattan as a continuous attempt to establish in reality an illusion, based on a multitude of images, not specifically formulated in a program but rather a manifestation of the will to establish sort of simulacrum. An urban reality completely man-made extracted from delusions and made-belief popular agendas.

More contemporary thinkers continue a pessimistic view of the consequences that countless images have on society. Like British architectural theorist Neil Leach's analysis of images influence:

> *"In the media society of today, technological advances in telecommunications and in methods of visual reproduction ensure that we are constantly being inundated with images. … (screens, computers and copiers) … have become the virtual windows of the age of the information highway, … the modern office and home are deluged with reproduced images and information… it is the culture of the copy, a society of saturation, the second flood. The world has become "xeroxized" to infinity."*[9]

His ideas tend to be prophetic warning against the hazards of image overload:

> *"We live in a world where there is more and more information, and less and less meaning."*
> *"…the function of the image shifts from reflecting reality to masking and perverting that reality."*
> *"in sum, the surfeit of the image - the excess of communication and information - implies the opposite, a reduction of communication and information."*[10]

Culminating to the ultimate and unavoidable conclusion:

> *"A society awash with images will experience a consequent reduction in social and political sensibilities, as the intoxication of the image leads to a lowering of critical awareness, the saturation of the image will therefore promote an uncritical acceptance of the image."*[11]

Leach's statements, already almost 20 years old, are arguable, regardless more then everything else, they are a testimony for the un-denied change the world has gone through as a consequence of the 'flood' of images. More than a reliable analysis of a condition or even an educated prophetic assumption it is rather a farewell to a reality in which the image was not so dominant, a world where it was not so accessible. It is rather more impartial to assume that the image has established a different reality, a different layer that has assimilated our reality. It is not dystopia nor devoid of meaning, yet it is definitely different.

9. N. Leach, *The Anaesthetics of Architecture* (London, England: The MIT Press, 1999), 1.
10. Ibid, 1, 5, 7.
11. Ibid, 55.

It is crucial to acknowledge that a profound understanding exists in the discourse about the image. The visual is not merely the content of the seen, it is always about potential, of unfolding, of possible interpretation, of a hint toward something else that resides elsewhere. There is mental depth in what is seen. As such images cannot be thought of as mere copies or a thin cover, nor they are distortion or a mask of reality. On the contrary, images, invite, penetrate, resonate with complex truth, with ambiguous possibilities, with irreconcilable truths of reality. Images can expose things that reality does not show. Images do not really copy, they rather obscure, make things lose their undeniable and concrete manifestation while in turn, they gain an existence as potential, as open to interpretation. The image opens up windows toward new ideas and feelings which the visible cannot unveil. As such the image and the copy cannot be ignored; we cannot turn back to a world with no images, and we cannot un-live its social engagements. Yet, we are obliged to understand its influence and to explore its possibilities and pitfalls.

Architectural Experiments

Architectural thinking is experimenting with the conceivable consequences of the integration of images, projections, data, computer-generated forms and methodologies, and their influence on architecture. Works of Toyo Ito, Marcus Novak, Kas Oosterhuis, among others, has aimed toward finding the integration of form, methods, and production for this new era. It is of importance not only to point toward the current state of affairs but also to mention the transforming concerns of architectonic issues: the position of nature, the transition from outside to inside, the facade, design methodologies, the role of data, the architectural coherency and visibility of the architectural object, the symbolic characteristic of the architectural object, and more. It is not contended that these values and ideas have disappeared but rather that their importance and dominance are in a radical state of transformation. This takes place on the expense of the submergence of the individual in, a mixture of the real and the images to a point that neither can claim to have complete authority over the other.[12]

Many architects have tried to explore the possibilities of an image-saturated world. Viennese architect Adolf Loos, active in the early decades of the 20th century, was much concerned with the gap between the experience of space and images of space.[13] He was well aware that images cannot convey the full extent of experience of the real, especially in relation to space. Yet he was aware of images un-denied force to engage the viewer and carry complex visual concepts. Loos used to manipulate images of his architectural projects. He refused to let his designs be published un-edited, and in most cases, his published designs were accompanied by carefully staged photographs. For him, the experience of space

12. P. Gregory, *New Scapes: Territories of Complexity* (Basel, Switzerland: Birkhäuser, 2003).

13. A. Loos, *Spoken into the Void Collected Essays 1897-1900*, (trans) Newman and J. Smith (London, England: Oppositions Books, The MIT Press, 1982).

and the image of the space were not the same, and photographs of a space should not be understood as mare copies of it.[14]

First designs that experimented with the sensory indeterminacy of image projections were conducted by the Eames couple. During the late fifties of the 20th century they designed large multi-media exhibitions. Their metaphoric model was the circus, an event which offers a multiplicity of simultaneous experiences. They used many screens of extremely large size, with multitude of image sequences projected on them, choreographed and synchronized, with the aim to:

> *"... produce sensory overload ... The audience drifts through a multimedia space that exceeds their capacity to absorb it."*[15]

American architect and critic Robert Venturi, does not rally against the superficial world of the commodified image, he rather embraces and celebrates it. He sees it as a source of inspiration for architecture. In his already seminal research, he reversed the notion that image saturation is a source of alienation and superficiality. He analyzed reality generated from images as a carrier of meaning and form, not to be disregarded but rather to be a source for understanding and education, not something to be avoided but rather an object for revelation.[16]

American architecture firm Diller, Scofidio+Renfero (DS+R) created thought-provoking projects that question the relationship between digital media and architecture. Among them many screening installations, moving screens and shifting viewpoints, and carefully sequenced projections that are choreographed with spatial and architectonic conditions.

American architecture researcher Sylvia Lavin discusses the emerging relationship between the projected images and the architectural surface. Her notion of the interaction between solid form and materiality - architecture, and the 'soft', transformable nature of the projected media, is correlated to the act of kissing. This superimposition transforms both the architecture and the projection. The projection receives a unique context, and the architecture gains new visibility. Lavin refers to this as a kiss-like relationship:

> *"But their effect on architecture is to cause architectural facades to disobey notions of frontality, coherence, and transparency. Projected images break the planes of a building into parts that never come together again to compose an envelope."*[17]

14. B. Colomina, *Privacy and Publicity: Modern Architecture as Mass Media* (Cambridge, Massachusetts: MIT Press, 1994).

15. Colomina, "Enclosed by Images: The Eameses' Multimedia Architecture," *Grey Room*, no. 2 (2001): 19.

16. R. Venturi, D. Scott Brown and S. Izenour, *Learning From Las Vegas* (Cambridge, MA: The MIT Press, 1972).

17. S. Lavin, *Kissing Architecture* (Princeton & Oxford: Princeton University Press, 2011), 47.

Architectural Education

It is not a question of possible utopia or feared dystopia, the paradigm of either of them also lost much of its relevance. It is the here and now, the submergence experience of the body within the accumulated data and visual overload, with its shifting, fragmentary, partial, discontinuous nature. It is rather the reality with all its possibilities, endless occurrences, and constant undetermined conditions, which requires our utmost and constant attention. It is in the realm of the architectural education process that it becomes essential and possible to examine the consequences and prospects of new uses of images and drawings.

Design problems are problematic in their formulation and their meaning. This is, even more, the case in the educational format of the design studio.[18] Hence, the issue of how a problem should be stated or what problem should be defined in the design studio becomes very important. This is well put by British educator Nigel Cross:

> *"It is also now widely recognized that design problems are ill-defined, ill-structured, or 'wicked' … They are not problems for which all the necessary information is, or ever can be, available to the problem-solver. They are therefore not susceptible to exhaustive analysis, and there can never be a guarantee that 'correct' solutions can be found for them."*[19]

According to research in the field of design problem-solving, the state of uncertainty with respect to problems and their definitions is one that designers must learn to live with and even thrive under. Some researchers go so far as to claim that designers, both students and professionals, prefer uncertainty and even create it in situations where it does not exist.[20] Further, some researchers claim that the ability to overcome the stagnation caused by uncertainty is essential to ensure good designers and an efficient design process, as indicated in this statement from a study by Restrepo and Christiaans:

> *"The less successful students asked for large amounts of information, but for them, gathering data was sometimes just a substitute for any design work" . . . as some senior students also were trapped into information gathering for problem structuring. Instead, they suggested that the need to gather information (to structure the design problem) is related to the (in) ability of the designer to cope with uncertainty."*[21]

One of its main goals of design education is to teach and enhance creativity. The creative teaching process, taking place in the design studio, is sometimes referred to as "reflection-in-action", a term coined by American philosopher

18. R. Buchanan, "Wicked Problems in Design Thinking," *Design Issues* 8, no. 2 (1992): 5-21.

19. N. Cross, "Designerly Ways of Knowing," *Design Studies* 3, no. 4 (1982): 224.

20. J. Restrepo and H. Christiaans, "Problem Structuring and Information Access in Design," *Journal of Design Research* 4, no. 2 (2004): 1551-1569.

21. Ibid, 1556.

Donald Schön to explain the unique way designers are educated.[22] Creativity resides not only in the outcome of student work but also in the actions and definitions provided by design educators. As Wiley states:

> *"Altering the instruments, tools, and the process used during design increases the students' awareness of the influences exerted by their method, and such awareness could further the expression of an idea."*[23]

The 3 Exercises

As is marked by several researchers of contemporary architectural education current cultural reality is very much delivered and understood via the image, the visual rather than the haptic.[24] The influence and meaning of this condition on architecture and architectural education are vital for contemporary culture and society and are in the core of current research.[25] The rapidly evolving conditions of technology and the conceptual developments in architecture, and its relationship with the image described earlier in the paper, need to be researched. The aim of the paper is to address these issues via experimental intervention in the educational architectural design process. The case-study exercises presented confront the specific issues raised by current digital-imagery technology and their relationship with architectural spatial complexity.

The exercises were devised for, and positioned in, the initial phase of the design process, commonly referred to as "problem structuring" or the "analysis phase".[26] The proposed exercises were positioned in the initial phase of the design studio as they are more fitting to the origin of things, to the purity and mystery that may reside in the point of departure. This comes from the understanding that the starting point or method will have a considerable impact on the solution. It is believed that the starting point can encompass all possible continuations and outcomes. In other words, the beginning paves the way forward while at the same time serves as a reference for the resulting progression. The beginning stage is were the primary, preliminary and unformed concepts, are created. Hence the focus here is directed toward the process rather than the solution. A research study by Birer and Yazici provides an example, one of many, of a creative approach to presenting a design problem at the early stage of the design process. Their study explores the creative benefit of transforming concepts and methods from other

22. D. Schön, "The Architectural Studio as an Exemplar of Education for Reflection-in-Action," *Journal of Architectural Education* 38, no. 1 (1984): 2-9.

23. K. Wiley, "Re-Framed: Challenging Assumptions of Process and Making in the Design Studio," in *Intersections: Design Education and Other Fields of Inquiry: Conference Proceedings* (2006): 350.

24. H. Casakin and G. Goldschmidt, "Expertise and the Use of Visual Analogy: Implications for Design Education," *Design Studies* 20, no. 2 (1999): 153-175; A. Salama, *Spatial Design Education: New Directions for Pedagogy in Architecture and Beyond* (London: Routledge, 2016).

25. J. Ockman, *Architecture School: Three Centuries of Educating Architects in North America* (USA: MIT Press, 2012).

26. Restrepo and Christiaans, "Problem Structuring and Information Access in Design," 2004.

disciplines into architectural concepts. The researchers conclude that introducing students to "fantastic fiction" early in the studio will benefit their creativity:

> *"[It is] …safe to assume that starting design process with fantastic fiction and gradually increasing information that would improve visual perception would enhance creativity."*[27]

As such the beginning phase of the studio is understood as a fitting setting for experimental methodology.

In accordance 3 design exercises were prepared to correlate to each of the ways the 'flood' of images is manifested: accessing, collecting, and manipulating. The exercises were conducted as part of a design studio course with a group of about 20 students. The exercises, with some minor adjustments, were conducted over the past 3 years. Some of the groups were 1st year students, and some were more experienced students in their 4th year. The sequence of exercises, specific instructions, as well as, evolving outcomes were tuned in accordance with the different students' level of expertise.

Accessing

During initial meetings of the architectural studio, lectures consisting of architectural precedents were presented. The examples shown were aimed at enriching the students general understanding of the design problem they were about to be given. These presentations included images of section and plan drawings of some of the presented projects. Students were asked to draw\sketch using these images of architectural drawings as 'models', much in the same manner as 'still life' or 'nude models' are used in traditional drawing classes. A multitude of sketch\drawing exercises were employed: fast drawing, one-line-continuous drawing, improvisation (adding, altering stylistically), collage (cut & paste), as well as traditional drawing such as copying measuring, scale, shade and tone, some use of colors, etc. During this exercise students were encouraged to access, using their smart-phones or laptops, drawings of their choice to complete and enhance the drawing exercise, starting from accessing different drawings of some of the projects shown and then expanding to other drawings and projects of their preference. On the course of this activity, a wide range of issues were discussed freely among the group: Internet resources, the quality of the images, their meaning, relevance to their project and ideas, and more. This exercise, using drawing images as sketch-models was conducted several times during the semester and was used both as sketch exercise and a method to 'boot' students into working and creating.

27. E. Birer and E. Yazici, "An Analysis of the Fantastic Fiction on Conceptual Space," *World Applied Sciences Journal* 13, no. 5 (2011): 1102.

Collecting

Students were asked to collect and show a collection of images that were defined as "inspirational objects" (Figure 1). The collection was used as infrastructure for discussions, idea generator, and material to inspire creativity and to work with. The students' collection of images was the basis for creating 'metaphoric collages', triggers for creativity, and formed the basis for the students' initial conceptual ideas for their design project. The collection was allowed to expand, transform, and change its meaning during the first few weeks of the semester. The images were printed and then arranged and rearranged in an attempt to suggest, inspire, and reinterpret ideas and implications which in turn can be abstracted toward further developments as the architectural project evolved.

Figure 1. *Students Working in the Studio on Image Collections*
Source: Author.

Manipulating

Students were given 3 sets of 9 images, each of well-known photographer: Irving Penn, an American focusing on portraits, Ansel Adams, an American landscape photographer, and Henri Cartier-Bresson, a French humanist photographer renowned for street photography and the concept of the 'Decisive Moment'. The students were asked to select 3 images from at least two of the sets, present them and manipulate them according to their idea relating to the project. At the final stage, they were asked to alter a selected image by adding an additional 2 layers to it. One made of only transparent and reflective materials, and

the other made of a short video they made which was inserted into or projected on the image. The result was a complex multi-layered object\image manipulated with different methods. The final object carried with it many possibilities for further development of the student's architectural project (Figures 2 and 3).

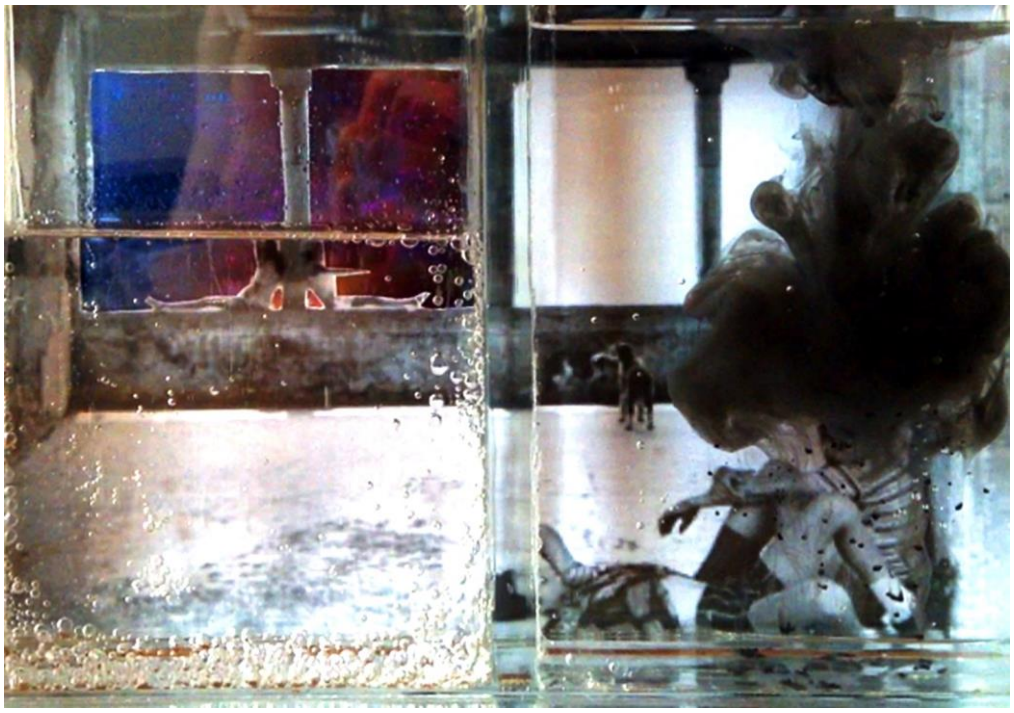

Figure 2. *Student's Manipulation Work on a Photograph by Cartier-Bresson. Water, Glass, Ink, and a Video Inserted into the Image.*
Source: Author.

Figure 3. *Student's Manipulation Work on a Photograph by Cartier-Bresson. Glass, and a Video Projected on the Image.*
Source: Author.

Methodology

The visual culture, discussed earlier in the paper that we experience and consume should be understood through research tools which arise from this condition, in which case the visual qualitative research is highly relevant toward a better understanding of current architectural education pedagogy and experimentation. The data collected, was created and used by the students as their design process developed. The research was almost ethnographic in nature, as I was involved with the process and part of it, both as instructor and researcher. As such it offered various engagements with the data, and the architectural design process. The data creation and collection process included these stages:

(1) Creation of the exercise (accessing\collecting\manipulating) expressing the participants' ideas.
(2) Verbal explanations by each participant of each exercise.
(3) Reflection:
    a. Dialog between instructor and participants about the different uses and meaning of the images in relation to the evolvement of their personal process.
    b. Group dialog, ranging from couples to the whole group.
    c. Informal discussions with colleagues in relation to the exercises and their results.
(4) Analysis, including an overview of the materials, and a comparative analysis of the visual and verbal data collected.

This qualitative analysis was conducted several times throughout the semester. The collection of data and its analysis gave less importance to the systematic collection and categorization and more emphasis on the intuitive reflections. While this resulted in less specific conclusions, it allowed openness of reflections and suggestive understandings of the process. It allowed the combination of a multi-disciplinary approach to flourish and gave room to, sometimes conflicting, ideas to co-exist. The qualitative visual research methodology allowed to engage with the students, and students work on various levels, and at different times in relation to the exercises and to the correlative advances in the architectural design process. This qualitative and 'ethnographic' observation and analysis allowed great flexibility in the treatment of the materials and necessary adjustments required from time to time.

Findings

Accessing

Students enjoyed the drawing and the activity. There was no specific advantage to drawing from architectural drawings over drawing from other models, such as other types of images or human figures. On the contrary figurative subjects gained more favorable response than 'abstract' subjects such as

architectural drawings. The understating of architectural precedents did not seem to benefit from the act of drawing the architectural drawings of the projects. This may be due to the gap between comprehending the architectural concepts and concentrating on the physical act of drawing.

Students drawings were more sensitive and accurate after training with sketching from architectural drawings. The gap between the hand sketching and the computer drafting and design process was not easily abridged and students' testimonies differed too much as to drew specific understandings. The drawings of drawings proved very interesting and had an apparent impact further into the project, although students rarely referred back to drawings and precedents they used. They seemed confused about bridging the gap between hand drawings and creating their own computer-generated drawings. Nevertheless, the act of drawing had many benefits. The design process seemed much less frightening, the sources of inspiration 'allowed' had broadened their ideas, the working and creating in the studio benefited from the exercise, and in general it had positive responses.

Students were all but too familiar with means and possibilities of accessing images through the internet, yet their search keywords and findings were somewhat limited. It seems that the need to direct them as to what to search for, and what is the relative quality of what they find, is essential for a productive 'search'. Once they understood the search capability as a relevant tool and a beneficial design skill, they became very exhilarated and effective. It seems that the tool of accessing images and specifically architectural drawings still has much potential and needs to be further defined as to carry more conclusive and relevant results toward the process of design, technique, and design process.

Collecting

Searching through the Internet was surprisingly hard. Specific sites were declared "interesting" but the search itself was not perceived as 'knowledge' or something useful such as a tool, it was not easily understood as a source relevant for the design process itself. Students many times were uncertain of what is it they are looking for, as a result, the collections were unimaginative and relatively confined to the known and the familiar. Students collections presented rarely exceeded a few images, many of them were existing personal collections or family related. Such as "this is my grandparents' collection of…" etc.

Students rarely used architectural-drawing-images as part of their drawing collections. They tended to select images that were a testimony of a known experience or images from a personal inventory, their initial images were presented and explained with personal statements, such as: "this is from a trip with my boyfriend…", or "this is the collection of toys of my brother…", etc. It seemed that the overwhelming possibilities that arise from the images available were not an opportunity but rather a burden. The images by themselves did not readily generate curiosity or triggered intrigue. Searching through the 'web', although a very common experience was not perceived as a working experience related to data collection relevant toward gaining material for their project. The haptic experience of material, the sensory response of experiencing objects, the context

of their initial use or environment was not transmitted solely through the images themselves.

On the other hand, students enjoyed telling stories through images they selected. They were motivated by the images and delighted to work with them, constantly being inspired and motivated by them. After working with the same images for some time they were not treated as mere 'ready-mades' but were referred to as if they were their own creations. Students tended to stick to the initial images they selected. Rather than expanding the image collections they created. They preferred to work with the same few images. As they became more and more fond of the images they already had, as they draw more and more understanding and inspiration from a few images rather than expanding and maybe losing interest.

Overall students' collections became richer and more complex only after they were directed toward specific ideas or connections or after they were given an explanation or incentive toward using this or that subject matter. When directed toward selecting and collecting architectural drawings many did so and responded positively. Students who did use architectural drawings in their collections tended to use them more, and in a more direct fashion further into their projects. The abstractness of the architectural drawings and the similarity of the visual language (plan\section) to that required in the design process proved very readily for them to use. They altered more freely and imaginatively the architectural drawings then they did figurative images. They changed scale, connected smilingly unrelated drawings, used plans as sections and vis versa, and more. It seems that the similarity of language was inspiring in itself and made more sense as the projects evolved (Figures 4 and 5).

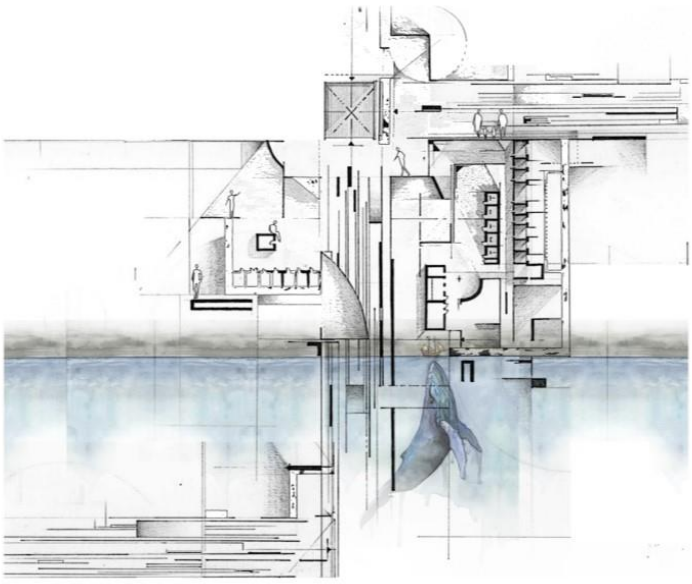

Figure 4. *Student's Conceptual Section, Using Existing Architectural Drawings*
Source: Author.

Figure 5. *Student's Conceptual Section, Using Existing Architectural Drawing*
Source: Author.

Manipulating

At the first stage, selecting known images from given existing photographs, the students were very intrigued by the images. On the one hand, they were given seminal works of art, and at the same time they were given a choice. This proved to be a successful method. They were not supposed to make a mindless selection, they were not judged about their selection, and they had a broad enough choice to make among interesting examples of which they were briefly introduced to. As a result, they made their choice in a very confident and intuitive fashion. They readily related to their selected images, and in a variety of ways, ranging from the personal: "she has freckles like mine…", to conceptual: "the woman's face is so strong and full of character…", to free associations: "the curve of the river feels a relaxing thing to me…", and so forth. Students were very communicative about the images, using many associative connections and drawing many inspirations from them. The students were very enthusiastic about verbalizing their responses and feelings about the images. In general, it proved to be a very useful tool to generate motivation, ideas, creativity, and inspiration.

This exercise had multiple stages asking the students to create different overlays of manipulation to the images they selected. This proved intriguing and challenging for the students. Most of them enjoyed the unfamiliar treatment of materials and working with the context of an image. The most interesting finding, however, was the ease and richness by which the students moved from the final objects they created into the continuation of the design studio project. This exercise proved as inspiring and encouraging creativity, allowing the students ease of coping with the uncertainty of 'wicked-problem' solving.

Design Project Development

As mentioned earlier in the paper the exercises were given at the early stages of the design project, i.e. the "initial phase of the design process". The 3 exercises overall aim was advancing the students projects and thought process in multiple

ways. Students were instructed to use the products of the exercises into three main issues: to develop a design language, a conceptual idea for the project, and a methodology for production of design materials (such as plans and sections). For the overall clarity of how the design project continued after the 3 exercises the following image is given as an example. Student's work shown in Figure 5 above (a 4th year student) was further developed to as a "Hit-man's Asylum" (Figure 6). The concept, the design language, and the methodology of mixed media, which evolved in the preliminary 3 exercises, were all utilized throughout the whole semester and reached their maturity in the final project developed.

Figure 6. *Student's Project: "Hit-Man's Asylum", Sections*
Source: Author.

While the same exercises were given to different groups of students (1st and 4th year students) the impact of this difference was insignificant, same results were found in both groups. This can be understood due to the fact that the exercises required no expert tools or experience. Nevertheless, it was understood that there were considerable differences to be expected in the continuation of the design project between those groups. That is due to differences in the overall semester objectives and experience of the students. For example, 1st year students were asked to design a specific and simple project while in the 4th year the design project was given for their own choice and continued throughout the semester.

Conclusions

Reflecting on the case-study and process, we came up with some understandings and questions. We registered many benefits of the constructed methodological use of sequenced exercises upon the architectural design process. It assisted creativity, generated design solutions, and prompted the evolution of ideas. The constant reflections and translation from the verbal to the visual stimulated discussion, sharing of knowledge, and overall encouraged a much-improved process. We strongly believe that it provided the students with improved design skills and a tool of great visual stimuli which reflected throughout their design process. Overall the students enjoyed the use of the availability and richness of using images. It gave them inspiration and confidence in dealing with the uncertainty of the 'wicked' design problems.

The gap between images of architectural drawings and the act of drawing itself remains, and it seems that much more research and experimentation is necessary. The scope of this paper was limited to the relationship between the images and the exercises, the precise influence of the use of images further into the design project can be examined in a continued research with additional parameters. Furthermore, exercises themselves can be adopted to better suite specific educational aims. For example, they can be utilized more into the design process, not only the initial phase, even to the final stages of the project design. They can be better tailored to specific knowledge and expertise of the students. Lastly specific tools for the use of images can be better incorporated into the design process methodology.

It is our duty, as architectural educators, to find creative and relevant methods to utilize the abundance and availability of images, as to enhance their meaning as an essential part of the design process. The present generation of architectural students, lives in a culture saturated by images in which the role of the image and the tools to consume it are multiplying almost daily. This reality requires to engage with the image intellectually, intuitively, critically, and creatively. Architects that will understand better the evolving relationship between society, culture, architecture and the image will be more suitable to interact with society and with contemporary design problems as more prolific architects. The dystopia and pessimistic critic aimed at the way society and architecture are failing at the light of the image overexposure, is missing the point. We are not at the final frontier protecting against an overwhelming flood, but rather fast surfers catching a tidal wave carrying us fast toward exciting, exhilarating horizons. It is for us, as a duty and joy, to embark on this journey and discover the new lands that enfold in front of us.

Bibliography

Bankmycell, 2019. [Accessed 5 May 2019]. https://www.bankmycell.com/blog/how-many-phones-are-in-the-world.

Birer E. and E. Yazici. "An Analysis of the Fantastic Fiction on Conceptual Space." *World Applied Sciences Journal* 13, no. 5 (2011): 1100-1105.

Buchanan, R. "Wicked Problems in Design Thinking." *Design Issues* 8, no. 2 (1992): 5-21.
Casakin, H. and G. Goldschmidt. "Expertise and the Use of Visual Analogy: Implications for Design Education." *Design Studies* 20, no. 2 (1999): 153-175.
Colomina, B. *Privacy and Publicity: Modern Architecture as Mass Media*. Cambridge, Massachusetts: MIT Press, 1994.
____. "Enclosed by Images: The Eameses' Multimedia Architecture." *Grey Room*, no. 2 (2001): 6-29.
Cross, N. "Designerly Ways of Knowing." *Design Studies* 3, no. 4 (1982): 221-227.
Google Official Blog, 2010. [Accessed 5 May 2019]. https://bit.ly/2Oogq4B.
Gregory, P. *New Scapes: Territories of Complexity*. Basel, Switzerland: Birkhäuser, 2003.
Lavin, S. *Kissing Architecture*. Princeton & Oxford: Princeton University Press, 2011.
Leach, N. *The Anaesthetics of Architecture*. London, England: The MIT Press, 1999.
Loos, A. *Spoken into the Void Collected Essays 1897-1900*. Translated by Newman & J. Smith. London, England: Oppositions Books, The MIT Press, 1982.
Made with Creative Commons, 2017. [Accessed 10 May 2019]. https://medium.com/made-with-creative-commons/rijksmuseum-2f8660f9c8dd.
Moses, S. *Walter Benjamin and the Spirit of Modernity*. Tel-Aviv: Resling, 2003.
Mylio.com, 2017. [Accessed 5 May 2019]. https://mylio.com/true-stories/tech-today/heres-how-many-digital-photos-will-be-taken-in-2017-repost-oct.
Ockman, J. *Architecture School: Three Centuries of Educating Architects in North America*. USA: MIT Press, 2012.
Pallasmaa, J. *The Eyes of the Skin*. Great Britain: Wiley-Academy, 2005.
Restrepo, J. and H. Christiaans. "Problem Structuring and Information Access in Design." *Journal of Design Research* 4, no. 2 (2004): 1551-1569.
Salama, A. *Spatial Design Education: New Directions for Pedagogy in Architecture and Beyond*. London: Routledge, 2016.
Schön, D. "The Architectural Studio as an Exemplar of Education for Reflection-in-Action." *Journal of Architectural Education* 38, no. 1 (1984): 2-9.
Venturi, R., D. Scott Brown and S. Izenour. *Learning from Las Vegas*. Cambridge, MA: The MIT Press, 1972.
Wikipedia. *History of Photography*. 2019. [Accessed 5 May 2019]. https://en.wikipedia.org/wiki/History_of_photography.
Wiley, K. "Re-Framed: Challenging Assumptions of Process and Making in the Design Studio." In *Intersections: Design Education and Other Fields of Inquiry: Conference Proceedings* (2006): 350-354.

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The Architecture of Knowledge from the Knowledge of Architecture

By Serdar Erişen[*]

At the verge of the crisis of production and knowledge, the discourse of university has shown how a modernist theoretical insight upon the nature of subjectivity could have been integrated with a social concern. It is this concern that also signifies the evolution of modern analysis throughout the inquiry of the socio-cultural and political collectivity. The discourse of university in the reinterpretation of the modernist production and knowledge, in that sense, not only gives way to understand the societal volatility because of the problems of disintegration but also reveals what is the real behind those problems. Although their coexisting circumstances do not directly correspond to May 1968 events, the engaged conjecture of the Free University of Berlin and Eishin Campus in Japan are two very distinct campus projects that can be analyzed with such an inquiry throughout the discourse of university. They are not only significant to take a traditional or cultural mode of making into account of practicing, as either modernist or vernacular, but also consequential for integrating the social concern of a collective demand that having a very active role in the design progress of those projects. It is such that, the projects give great clues about the re-interpretation of modern mode of making and generation of knowledge under the light of the transformation of subjectivity, as the discourse of university. Accordingly, the novel interpretation of the spatial production that coexists with the changing social and environmental conditions is necessary for the assessment of the information age.

Introduction

The information age emerges with the advancement in communication technologies and media, and with the revolutionary means of making all effecting the dynamic relations of individuals and the society in the production of meanings. By superseding the place of knowledge, information, thus, represents the transformation of the modernist internal, structural, and systematic organizations of society and the state, including institutional changes. This requires an ideological, hence, a critical gaze towards the hegemony of the networked relations of knowledge, production, and consumption. The question of power besides the challenge of hegemony, accordingly, is still relevant whether it is engaged with the condition of architecture throughout the considerable shift in the theoretical and epistemological set of values. So, the crisis of modernism, here, is a considerable lesson, as an aftermath, that can be reinforced better as a legitimate culture of production and knowledge with 'the discourse of university'[1]. It is because that the experience of modernity is still legitimate with some of its merits that further make the theoretical and practical actions even possible in the information age according

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1. See J. Lacan, *Écrits* (New York; London: W.W. Norton & Company, 2006).

to some of scientific or social principles. In this respect, the discourse of university carries consequential meanings in the re-interpretation of that modernity that may give the vestiges of scientific inquiry upon knowledge, which had missed the insights upon the nature of subjectivity in the volatility of those collective beings.

The agents of society in "the discourse of university" are historically destined to provide an alternative mode against the hegemonic faculties of the dominant order. The discourse of university, respectively, corresponds to an endeavor for the varied domains of theoretical excursions throughout the alteration of the scientific inquiry with the discourse of society. That also betokens for an epoch focusing on the autonomy of space, taking into account for the user demands in architectural praxis that have been reflected both on the design methods, and their implications. Looking from the lenses of the information age, then, it would be meaningful to come up with such spatial practices of knowledge production due to the cultural domain of modernity yet integrated with a social concern over the particular demands of the agents.

Modernity can be seen as the initial epoch of mass production that has been successfully distributed through the different geographies of practices. Engaged with the practical solutions of Taylorism, mass-production can be regarded as the practical result of scientific inquiries over the rules of nature that have been investigated through the age of industrialization. That gives concrete results upon the solutions of material practices including the field of architecture. The pragmatic approach of the mass-production in coming years, however, had some shortcomings of the rigidities of production and the problems in the roles and classification of labor heading towards the crisis of 1968 events.

Nevertheless, the revolution in industrial production has had great advantages of developing practical means and solutions grounding for the early modern architecture of the 20th century. Until the crisis of the economic and political conflicts raising the Second World War, the experience of the development of modernity in architecture had great progress. Le Corbusier denotes this progress as the practical revolution of modernity. This transformation is shared on the pragmatic rules of nature; and is conceptualized throughout the solutions of mass-production with an unseen universal scale of civilizational growth ever before:

> *In every domain of industry, new problems have been posed and new equipment created to solve them. We underestimate the extent of the break between our era and earlier periods; it is agreed that this era has brought great transformations, but what would be useful would be to compare its intellectual, social, economic, and industrial activity not only with the period prior to the start of the nineteenth century, but with the history of civilization in general. We would soon see that human tools, the automatic inducers of social needs, hitherto subject only to slowly evolving changes, have just been transformed with a fabulous speed.*[2]

2. Le Corbusier, *Toward an Architecture* (Los Angeles: Getty Publications, 2007), 293.

Based on the industrial revolution and the survey upon the natural sciences, a certain search for a 'modernist morality' was among the concerns of modernism.[3] Nevertheless, this was what made the modernist approach distant again from being successful especially after the World War II, due to its dependency to the rational mode of making that is engaged with the means for ends of the industrial revolution. Since the early modernist experience was almost the frontrunner of that rationality, the unsatisfied development of construction and architectural technology after the post-war period have revealed the increasing gap of the new scientific inquiry and the new technology, without giving shape to them.

When considering all of the CIAM gatherings, in another case, it is possible to trace out some critical points besides the merits and ideological points that are drawn at the meetings. Even according to Giedion, it is almost apparent to offer a general critique of modernism in the book *Space, Time and Architecture*, as becoming a tradition of making and thinking.[4] By understanding the rigidities in the modernist production and organizations, the resultant contradiction among particularities and universality becomes crucial to learn further from the rise of nationalism and the rise of the owner demands especially after the World War II, heading towards 1968 events.

These rigidities of the universal modernism had been reflected in the production relations and the organization of labor and their social and living conditions. The contradictions have moved to the intellectual and institutional circles; and even led to the upheavals in universities. In May 1, 1968, the well-known labor demonstrations have signified a new epoch that has transformed not only the socio-economic and political reactions accordingly but also initiated many novel theoretical interpretations of scientific and social research as well as the inquiry on the production of space.

The experience of modernity, nevertheless, is still legitimate with some of the merits that make further theoretical and practical accounts possible even in the information age according to some scientific or social principles. With its premises, The Athens Charter, for instance, could still claim its power of collectivity upon practicing. That reminds the necessity of the collective being of executive groups while they have been substituted with the networked consultancy companies and the large business agreement contracts in the information age. Therefore, what could be alternatively suggested in our own age is still a remarkable question.

The role of the institution as a modern idiom, such as 'university', respectively, still carries a consequential place in the major domain of the 'generation of knowledge' as well as in the embodiment of architectural knowledge which is re-substantialized for the spatialization of the scientific knowledge itself. Accordingly, the spatial practices of educational institutions in modern times are engaged to seek for an alternative mode of architecture as a cultural endeavor.

Starting from the late 1960s, the claim of the autonomous practice of architecture within the relations of socio-economic reproduction that are reflected

3. See also S. Giedion, *Space, Time and Architecture* (Cambridge, Massachusetts; London: Harvard University Press, 2008).

4. Ibid.

on spatial practices, accordingly, will be examined here through "the discourse of university" in the definition of the roles of subjects, the role of educational institutions and the production of knowledge. Two different campus projects: as one is, in Germany, the Free University of Berlin, and the other is Eishin Campus in Japan represent the culture of an architectural mode of making within an epoch of sensibility upon the subjective expectations and social meanings to find out the solution against the erasure of socio-cultural togetherness.

Towards the Theoretical and Practical Shift of Modernism: 1968 Events and 'The Discourse of University'

It is not strange to see the beginning of the contemporary architecture starting from 1968[5]. Because of the shift in political theory, practice and the history of philosophy, the knowledge of making has also been transformed according to the novel theoretical inquiries.[6] The consequential changes have also reflected on the replacement of the collective groups of modern times with the networked organizations of the oligarchic corporations under the relations of intra-national flow of information sharing mechanisms.

In this period, capitalism has achieved a new triumph against/over its precedent weaknesses with a deceptive run away from the material world, to ground the reality of itself. This retraction can be seen as a strategic withdrawal to control the whole substantialization process by the manipulation of evidential facts.[7] Thus, capitalism has reinvigorated its own top-down approach by the logical (computational) belief over certain materiality of the globally networked organizations. This can be seen as a recursion to all intermingled relations indicating a wicked problem that is hard to define and solve at first glance. The condition can be pictured as such: even though, the fact as an input for information can be sensed, it is intentionally manipulated and mutated into the desired form by these networks.

Information, thus, is the germane evidence for decision even though it is altered for the own sake of the power of/over technology as a peremptory force over the tiny data that is processed through the production and formation of objects, nature, goods, and utilities; changing directly the formation and the substantialization of the existent context.[8] It is here to argue that the necessity of a collectivity upon the truth of institutional knowledge, then, is compulsory over that instrumental information. So, it is still in a sense modern in interpreting the scientific knowledge upon the imagination and creativity that makes the universities also consequential. The social aspects of universities, respectively, are

5. M. K. Hays, "Introduction," *Architecture Theory since 1968* (ed.) K. Michael Hays (Cambridge, Massachusetts: The MIT Press, 1998).

6. Ibid.

7. This means that there is a polymorphous production process in the information age.

8. See also the book of P. Deamer, *The Architect as Worker Immaterial Labor, the Creative Class, and the Politics of Design* (ed.) Peggy Deamer (London; New York: Bloomsbury Academic, 2015).

expected to have such clarifications in a collective coherence in the information age.

That is to discuss here that besides the merits of the universal ideals and the representable power of architectural condition, the university, in its modern meaning, has still more potentials with respect to the architectural language that is attributed to it despite of its own debatable conflicts. This is an academic aspect in addition to being an aspect to be challenged with its own declarations on the humanitarian approach. The challenge is still also 1968 events; and their theoretical and socio-political backgrounds, which are closely connected with the condition of modernity, modern architecture, its production, and the production in general. After discussing the conceptual merits of the approach, it is here to remind the opening gap between the architecture and flexible production techniques since then the World War II, which have giving shape to society and culture. As a speculative criticism, architecture, accordingly, may be questionable in its own evolutionary progress for being either eligible to accommodate for the new expectancies, or inevitably dependent to the completely different and discrete additional interpretations of the novelties of production techniques. Therefore, the place of the discourse of university in this discussion is obvious with its re-interpretation of the modernist mode of insights upon the change of socio-economic and production relations focusing on the nature of subjectivity and its environment.[9] It is such that the discourse of university connects the modern

9. After the 1968 events, many theoretical changes have been revolutionized as implied that are directly related to the everyday life practices and the actions in societies. As a new interpretation of Freudian psychoanalysis, in this new epoch of reinterpretation of social exchange and knowledge, the French psychoanalyst and the follower of Freud, Jacques Lacan transformed his way of inquiry, in this period, under the project of 'psychoanalysis upside down'. See also Lacan (2006), which constitutes the seminal discourse of university among the four discourses. The modern inquiry of Freudian psychoanalysis, in that sense, could be re-evaluated under the lights of four historical discourses as similar to the four archetypes of Jung; and the discourses of Hegel that could gain the meaning of symbolic transmittance among the agencies of the society. It can be claimed further that after 1968 events, Lacan has also changed his focus on language and feminine sexuality in consequence with the rise of subjectivity.

Lacanian psychoanalysis had not been focusing on a Marxian interpretation of master-slave dialectic until the 1968 events; and Lacan himself did not even welcome the initial incidences in early 1968. (The inscriptions for this fact can be found in the eclipsed details of the fifteenth seminar book of Jacques Lacan in Psychoanalytic Act, The seminar of Jacques Lacan, v.15, accessed from http://www.lacaninireland.com/web/wp-content/uploads/2010/06/ Book-15-The-Psychoanalytical-Act.pdf.). If we return then the seminal description of the discourse of university, it may be enough to see the changing role of each agent in the production of knowledge that has been reversed from the discourse of Mastery in the affectation of modalities of the agencies (Figure 1). The place of the seminars as universities had such a great importance further subsuming for the theoretical meanings. Lacan seminally describes the merits of university and knowledge in 'Impromptu 1 at Vincennes' that cannot be found in the books of seminars yet described as an impression by Lacan's own words in 'The Other Side of Psychoanalysis'. In the version of Cormac Gallager's translation Gallagher himself gives a note on the background story of the emergence of four discourses as a result of the reactions of the audience in the notes for the 'Overview of the seminar of 1969-70'. Cormac Gallagher writes:

This seminar took place against a background of the on-going street violence and disruption of public services, which followed the "events" in Paris of May 1968. For Lacan personally it was a difficult period in that he had been expelled from the prestigious Ecole Normale Superieure

scientific knowledge with the scrutiny of collectivity and production to understand better the current age's circumstances in the generation of knowledge and its actions of spatiotemporal practicing.[10]

In Lacanian terms, the role of the institution such as 'university' is also the major domain in the processes of 'generation of knowledge.'[11] The role of the university,'[12] accordingly, provides to examine and judge the codes of the generation of the said socio-cultural and political epoch. By processing information in the social organizations, the discourse of university, then, can represent the existence of collectivity for cultural values. It also points out the bondage for the particularities of things and concepts used to be organized within the desired architecture including its subject-architect and its praxis in recent multi-disciplinary approaches.

According to the discourse of university (Figure 1), in short, the collective of signifiers have turned into the master agent: the society of university, in a way that produces messages or discourse in the production of knowledge. In this respect, the university can be seen as a domain that is producing subjects of knowledge from a mere subject with a log of rudimentary truth. The subject, here, is dominated by a collective knowledge such as modern science; and his/her truth has been transformed with the produced signs and codes.

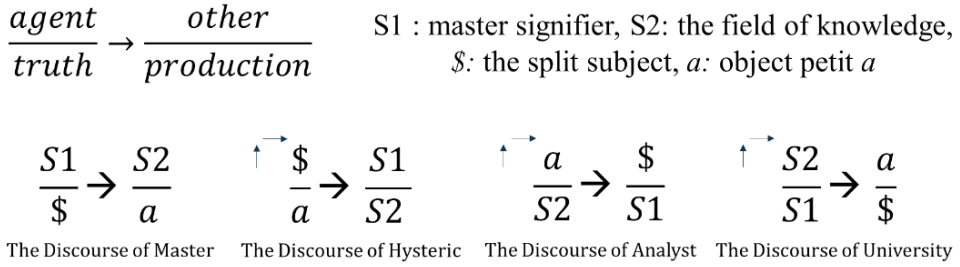

Figure 1. *The Four Discourses of Jacques Lacan*
Source: Author's composition from Lacan (2006).

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and had been confronted with the refusal of some of the most talented members of his School to go along with his Proposition on the formation and recognition of psychoanalysts.

His response was the production of the four discourses, which cast a cold eye on the underpinnings of a society, which has abandoned its foundations. The University, with the revolt of the students, offers the clearest example of what has gone wrong. But matters cannot be righted by the Hysterical dramatics of the protesters which will only lead to a reinforcing of the discourse of the Master. Hence, an attempt to re-articulate the position of the Analyst in terms of a discourse may contribute to the amelioration of the situation by tackling it from the reverse side.

(See also Lacan, "Psychoanalysis upside down. The Reverse Side of Psychoanalysis. Book 17," 2001).

10. See also G. A. Sargın and A. Savaş, "'A University is a Society': An Environmental History of the METU 'Campus'," *The Journal of Architecture* 21, no. 4 (2016): 602-629.

11. Lacan, *The Other Side of Psychoanalysis. The Seminar of Jacques Lacan, v.17* (trans.) Russell Grigg (New York: Norton, 2006).

12. University can be placed as the agent designating the collective battery of signifiers in the production of objective knowledge, in Four Discourses of Jacques Lacan. Op.cit, Lacan, 2006. University is also a socio-political term here representing the collective of intellectual university society during and after the 1968 events with respect to Lacanian Seminars.

It has such a consequential place, then, to evaluate the production of university environments not only with the mere schemata of the discourse of university taking into consideration of society and the learning subject but also the background story of psychoanalysis itself getting been transformed in that progress of volatilization and revolution as well. In this respect, some of the neo-modernist approaches as in the case of the Free University of Berlin during the epoch of 1968 events can be seen as one of the frontrunners of the mediation between the knowledge of architectural making and the new way of envisioning the social, cultural, and historical contexts. This idea can also be disclosed by the words of Hays, yet with a strong predilection of making an autonomous architectural practice as:

> *Certain criteria guided the choice of material in this anthology and, equally, characterize what I take to be the distinguishing features of architecture theory since 1968. First and foremost, architecture theory is a practice of mediation. In its strongest form mediation is the production of relationships between formal analyses of a work of architecture and its social ground or context (however nonsynchronous these sometimes may be), but in such a way as to show the work of architecture as having some autonomous force with which it could also be seen as negating, distorting, repressing, compensating for, and even producing, as well as reproducing, that context.*[13]

This also reminds for the endeavor of Christopher Alexander in Eishin Campus project,[14] on another side, especially focusing on the autonomy of architectural practice with an aim of the environmentally sustainable tectonics of space in the practice and generation of architectural knowledge, but still encountered with the problems of mass production.

The Free University of Berlin

The Free University of Berlin has revealed a peculiar interpretation of modernity in the post-war period. After the attentive CIAM experience that had been active in urban design especially before the war, it is such an important and exemplary project of contemporary campus design in the last half of the century. With the claim of being humanized campus environment formed by its users with an alternative educational approach after the post-war period, the Free University of Berlin shows a fine outcome of the new interpretation of scale in the modernist mode of producing environments in between singular architectural works, and the planning of urban plots and blocks. With respect to this, the project gets a role of infrastructural development between the plot and the society that it would

13. Hays, "Introduction," 1998, 1.

14. C. Alexander, H. Neis and M. Moore Alexander, *The Battle for the Life and Beauty of the Earth: A Struggle between Two-World Systems (*New York: Oxford University Press, 2012).

communicate. It is the idea of 'Stem,'[15] in that sense, not only taking into account for the user and social community but also generates a flexible use of the modest modernist interpretation of the tectonic aspects. The flexibility can be defined in such a tangible condition that the structural elements has been decided as demountable so that any change in the needs of space, tectonic aspects and structure could be responded with that decision.

> *We are concerned, not with 'architecture' or 'town planning', but with the creation of environment at every scale… The problems which we face in making our world are entirely new, for our society is entirely new… The concept of society towards which we strive: that of a completely open, non-hierarchical co-operative in which we all share on a basis of total participation and complete confidence… The realization, for instance, that the scene of action of reality is not a three-dimensional Euclidean space but rather a four-dimensional world in which space and time are linked together in-dissolutive sets our civilization apart from any others.*[16]

Shadrach Woods, one of the designers of the project, declared that the reality of changing perception of the world had been thrown into the relativity of things and subjects in time. Accordingly, the project realized shifting spatial production of changing scale and approach towards the practices of the built environment. So, the Free University of Berlin Campus carries the claim of being an alternative approach of modern designing – to show its capacity to accommodate the flexible kind of approach towards the produced space – interpreted later by its users. So, rather than directly dictating its functional propositions onto the user, it is designed hypothetically and intentionally as a building complex integrating the similar architectural qualities of modernity altered at the turn of the new mode of planning. What can be regarded as a potential in this designing approach of larger scale building complex within the smaller scale urban land is the elegance of this modernity having been carried through the spatial practice after the world war period.

Though similar to the idea of autonomy of the spatial production in the creation of environments as changing habitats, the design is rather humbler and introverted in its character of the architectural formation. So, it carries the idea of the refined instrumentality of architectural spaces opening-up new possibilities to its users rather than being a monumental structure or a mythical self-standing form. Nevertheless, just with this aim, it carries a monumental approach of being socially, and even politically conscious.[17] With this reclusive approach in

15. Architectural Association, *Free University, Berlin: Candilis, Josic, Woods, Schiedhelm* (London: Architectural Association, 1999).

16. A. Tzonis and L. Lefaivre, "Beyond Monuments, Beyond Zip-a-tone, Into Space/Time: Contextualizing Shadrach Woods's Berlin Free University, A Humanist Approach," in *Free University, Berlin: Candilis, Josic, Woods, Schiedhelm* (London: Architectural Association, 1999), 118-141.

17. See also G. Wagner, "Looking Back Towards the Free University, Berlin," in *Free University, Berlin: Candilis, Josic, Woods, Schiedhelm* (ed.) Architectural Association, 14-23 (London: Architectural Association, 1999), 118-141.

language, however, it can still be disputed that the design could further provide much more potentials of spatial experiences and a new phase for a cultural and aesthetic emancipation just to left behind the modern mass production that had already been experienced.

Apparently, it becomes also questionable that could a university space as well as its organizational system and the provisional production (of intellectual, physical, spatial) offer spatially novel environments; and even suggest some actions to the society. At that point, the standardized approach of the traditional 'precedents' of modernism becomes an inquiry to clarify whether the production of space could be transformed into the discoveries of new state spaces accommodating for the possibilities of other mode of substantialization in between thought and practice, between form and matter. As a precedent part of an idea of revolution that is discovered essentially in 1968 events, the mode of designing in the campus environment would show us the signals of being 'revolutionary' for future projections.

But looking from the larger scale architectural production that is integrated with an infrastructural development, as the designers called as "Stem", the building can also be seen within the rise of the sign value and the symbolic representation of the cultural change just stabilizing a modernity preserved against the euphoria of the postmodernist sign. In that sense, the predilection towards the modern mode of making can be seen as correlated rather with a cultural endeavor upon the user inquiry. In other words, the seminal attempt at the Free University integrates the modern culture of making with the nature of subjectivity of users as the battery of suggestions on the usage of space, which can be reconstructed through the analysis of the discourse of university.

To understand better the necessity of collective of modernist knowledge as a rehearsal, on one side, the return to the early history of changing modernity under the influence of futurism and the humanitarian approach in design may better dwell on the new scale of designing an urban environment after the inherited culture of the Athens Charter. Taking consideration into the Frankfurt Römerberg scheme, Woods, Josic and Candilis (Figure 2), have shifted the urban design paradigm into the possibilities of a development within a suburban environment. As a response to the lost conviction upon the collectivity with the absence of the urban context, the repeated patterns of that neo-futuristic scheme of the group members of Team X have been generated through by their compact design campus proposal, the design of the Free University of Berlin in 1973.[18]

18. K. Frampton, *Modern Architecture: A Critical History* (New York: Thames and Hudson, 1992).

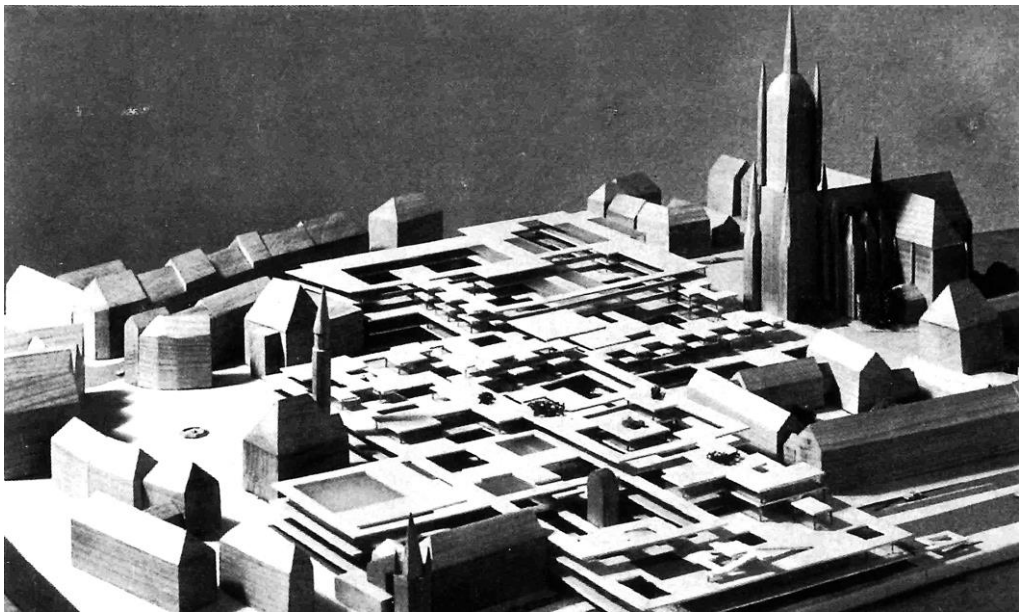

Figure 2. *Urban Design Proposal of Frankfurt Römerberg Scheme by Woods, Josic and Candilis, 1963*
Source: Free University, Berlin: Candilis, Josic, Woods, Schiedhelm (1999): 112.

The humbler modernist style in the Free University, hence, shows itself in the design as being organized only in two-story mass as well as in planar schemata implying for the organization of a matrix formation. The major impact of the design in that new epoch is the integration of a modest modernist style with the reformed principles of decision-making taking into account for the social and utility aspects as a whole. Being a project that is developed in a progress of competition of different phases, the authentic proposition focuses on a physical interchange of different faculties under the same proposal of interconnection of 'Stem(s),'[19] on the other side.

After winning the competition, and when the first phase was completed, the designers declared the direction of the spatial organization. Accordingly, it had still some considerations upon distinguishing main activity zones and academic areas for resting that are all connected, nevertheless with long internal 'streets' that are organized around the courtyards (Figure 3). That gives the ultimate recipe for the 'Stem', the connected grid that is matrix formed, which can also be described as a web-like scheme. It was such a proposal that the whole shape of design had been designed to communicate with the environment throughout the openings and voids of non-built areas. So, the spaces at the ground zero-level are organized through the vestiges of the internal streets that are organized according to the proposed 'Stem' connecting different academic areas.

19. Candilis, Josic, Woods and Schiedhelm, "Architects' Statement. Competition Project 1963-64," in *Free University, Berlin: Candilis, Josic, Woods, Schiedhelm* (London: Architectural Association, 1999), 25.

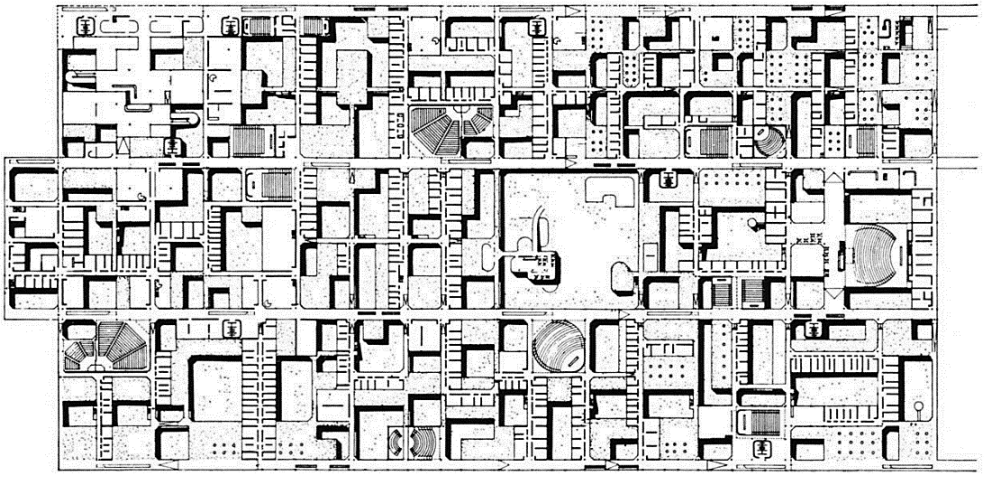

Figure 3. *The Free University of Berlin, Plan of Upper Level, 1963-64*
Source: Free University, Berlin: Candilis, Josic, Woods, Schiedhelm (1999): 28-29.

As the most outrageous aspect of the design, a group of students surveyed on the historical experience of social share of space throughout the excursion of the idea of 'street' in the old city beyond the modernist vulgarity.[20] The street was so important here to construct a critical point of view against 'the erosion of social life' in response to the industrialization of modernity. So, the idea of integrating street as a part of contextual exploration into the project can be seen as the pioneering force for the new interpretations of modernism, defining a scale of urban fabric *per se* for social interaction. It can be declared that with its voids, non-built environments of courtyards and streets, the university design has defined a new social ground for its users especially for the students so that it can be distinguished from the tradition of modernism. Just as in the transformation of modern psychoanalysis in a master-slave dialectic of Marxian thought upon the production and enjoyment of surplus value, the historical analysis of the street by the students occupy the mastery of the discourse of university. It is such a mastery over the construction of spatiotemporal experiences, as a *jouissance*, and their production of subjects as the ultimate product of that knowledge generation peculiar to the Free University of Berlin (Figure 4).

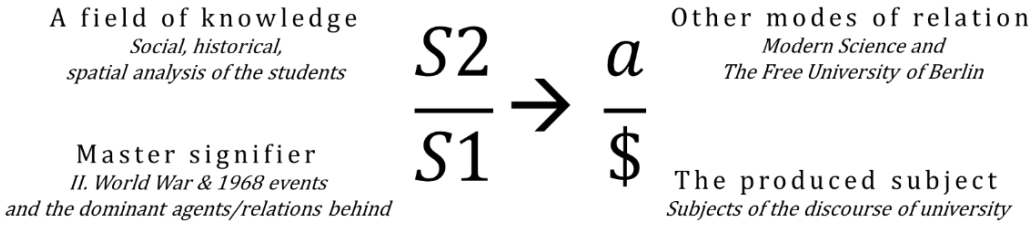

Figure 4. *Re-iteration of the Roles of Agencies according to 'The Discourse of University' (Author's own Analysis)*

20. G. Feld, "Shad's 'Idée Fixe': Berlin Free University and the Search for Principles of Organization." in *Free University, Berlin: Candilis, Josic, Woods, Schiedhelm* (ed.) Architectural Association, 104-117 (London: Architectural Association, 1999).

The 'Stem' had also the mission of developing an infrastructural solution that has been integrating the city and society with the complex itself. However, that was much more challenging than the expected since the environmental and economic conditions should also be on the way that had been expected for. The designers such as Schiedhelm also criticized the fact that the project had been designed with restricted sources of funds and property rights.[21]

The same problem of external forces showed themselves similarly in another project with the form of the rigid conduction of construction that made Alexander ponder upon the principles of autonomous production as well. Although the project of Eishin Campus, in that respect, was interpreted in a very different language, the concerns upon the assimilation and the integration of socio-cultural transformation have been persisting as the common merits of design that can be evaluated under the light of the discourse of university.

Eishin Campus in Japan

The intention behind the design progress might sometimes be far consequential and germane to scrutinize than its formalization practices. Eishin Campus designed by Christopher Alexander and built in Japan, carries such a meaning as not only being a part of interactive design decision mechanism together with its ultimate users but also with the concern of environmental awareness that is integrated with the vanishing cultural values of making in everyday life.

In the 1980s, the Japan economy has been transformed with a competitive industrial network that is integrated to the international market, with a JIT (just-in-time) approach,[22] after the crisis of Taylorism. This, however, resulted in the displacement of the capital in many new geographies including Japan as well with the extent of the vestiges of the popular culture. As a particular frontrunner that is resistant against the populism, conversely, Alexander's experimental approach pursued a new challenge. This design challenge, hence, was to testify an environmental approach but also to tout for a subversion grouching against the mass-production and its mundane procedures in construction (Figure 5).

21. M. Schiedhelm, "The Berlin Free University Experience," in *Free University, Berlin: Candilis, Josic, Woods, Schiedhelm* (ed.) Architectural Association, 96-99 (London: Architectural Association, 1999), 97.

22. M. Castells, *The Rise of the Network Society* (Cambridge, Massachusetts: Blackwell Publishers, 1996).

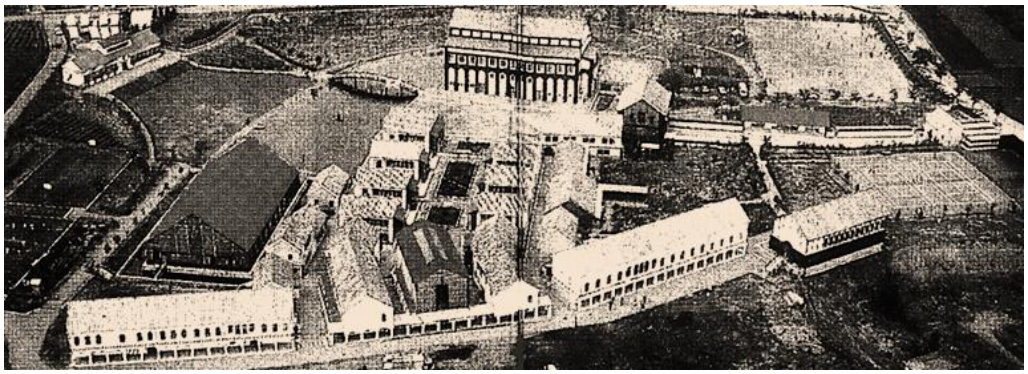

Figure 5. *The Campus of Eishin Gakuen in Japan, by Christopher Alexander, Realized in 1981-1989*
Source: Alexander & Neis & Alexander (2012).

Looking from that perspective, the human environment, which would be a part of emotional as well as a social life, required an alteration-in-change as a contradiction in the built practice. The users' predilections about the environmental experiences directed to the site were the common special values and forces that drive the design as similar to the Free University, interestingly, as a return back to the precedent tradition of making in everyday life. Accordingly, by organizing the college buildings around the green courtyard with the arcaded pattern of the entrances of buildings, the design of the Eishin High School (completed in 1985) was extended into a university campus (1981-1989), which is organized through the series of colleges that was added in 1987-1989 (Figure 6).

So, the resistance against the losing pattern of memories that is fading away has provided a new understanding of tradition as a project identity[23] that is described; associated with a collective enjoyment of social being. Having been able to simulate a romantic approach of the wishful past that is engaged with the shared cultural values, such kind of approach could gain resistance against the popular culture.

The discussion, however, becomes even more conditioned that is based upon the bases of design-decision mechanisms beyond the choice between the old and new, creating a contradiction by itself. Alexander describes the major dispute over the two world systems comparing the start of the any mode of mass production of the dominant with the desired effect of the autonomous production. So, there are two systems that Alexander divides the world views into basically two; and features them as either being oppressive in his description of the "System B"; or as liberalizing the thought and practice in the "System A."[24]

23. Castells, *The Power of Identity* (Malden, Massachusetts: Blackwell, 1997).

24. Alexander, Neis and Moore Alexander, *The Battle for the Life and Beauty of the Earth: A Struggle between Two-World Systems*, 2012.

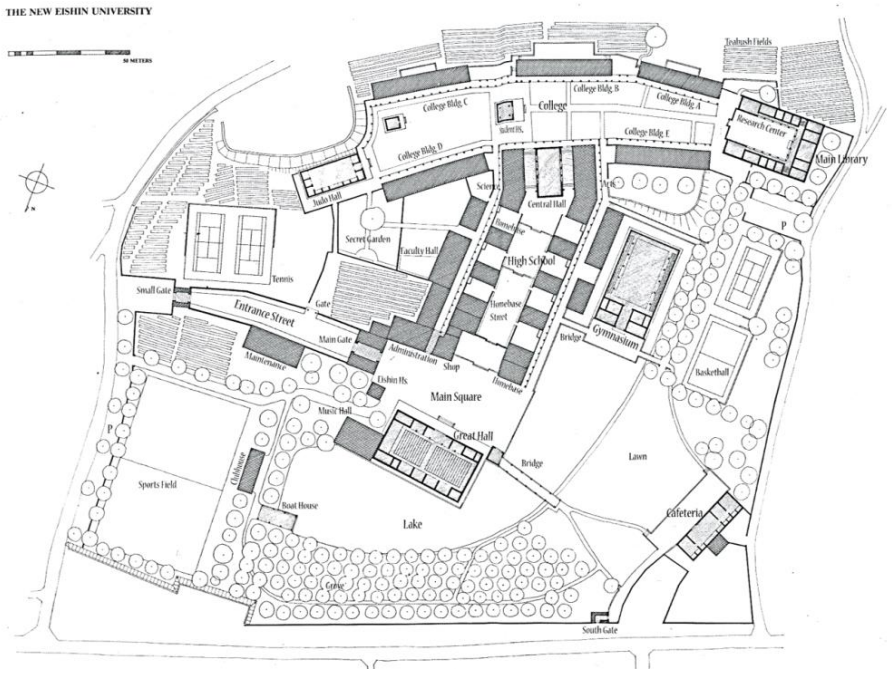

Figure 6. *Site Plan of the New Eishin University in Japan, by Christopher Alexander, after 1989*
Source: Alexander, Neis and Moore Alexander (2012).

Accordingly, the battle against the well-being of the cultural and natural environment is advocated on the side of "System A", as has been opposed to the "System B" in the aspects of size, speed, profit, efficiency, and the numerical productivity.

> *System-A is a system of production in which local adaptation is primary. Its processes are governed by methods that make each building, and each part of each building, unique and uniquely crafted to its context.*
> *System-B is, on the contrary, dedicated to an overwhelmingly machinelike philosophy. The components and products are without individual identity and most often alienating in their psychological effect.*[25]

It can still be claimed, however, that by the excursion upon the possible synthesis in between the "System A" and the "System B", 'the fourth revolution of production[26] can be seen as grounded upon the evolutionary way in gradual change in kind of making and utilizing structures. What makes the project invaluable here, accordingly, is the series of some conceptual principles that are derived through the reconstruction of knowledge in the flow of information of the post-industrial mode of production. Just to know about the principles that are drawn in the experience of humanizing this campus experiment into the knowledge of designing, it can be reasonable to remember the notes of Alexander.

25. Ibid.
26. K. E. Drexler, *Radical Abundance: How a Revolution in Nanotechnology will Change Civilization* (New York: BBS Public Affairs, 2013).

The nine corresponding operational elements that Alexander introduces, respectively, focus on the unity of the building with its essence adapted to the environmental condition.[27] Significant to provide a collectivity in the evolutionary conditions as a generative progress, any natural being would be reconsidered in a mode of making mastered by craftsmanship according to him. This can even be efficient to envision in the dynamics of information age to construct a collective reality to deal with the changing facts.

> *… In support of this new production system, there will need to be sweeping changes in human organization. These changes of organization will provide for involvement and coordination among the interested people and skilled workers, and thus give a level of deep involvement in decision-making by all concerned. Together, they will act on adaptation.*[28]

Living in the new technologies of intelligence and production enabling the possibilities of hyper-technological advances of coding immediately, these principles are concrete to re-evaluate them even in the condition of atomically precise manufacturing[29] today, just to close the described gap between the "*techne"* and the theory of architecture then:

> *… A major focus on the fragility of human beings and whatever enhances their well beings will be respected. This will always be considered as a source of feedback and evaluation.*
> *So, too, care must be given to all animals, insects, and plants, meadows, forests, ice-floes and other natural habitats. This intense care for all living beings and systems will be a priority.*
> *…A generative process (something like a pattern language) will always be seen as the key dynamic framework that gives generic instructions for all planning, design, and construction.*[30]

So, it is here to criticize the harsh incommensurability of the mechanistic geometry of the 20th century mass production that is engaged with the war industry, which disables the local adaptation of the built mass into the hosting environment.[31] The Eishin Gakuen Campus can be regarded as a place-making activity against the rising power of the dominant mass production again, rather by taking into consideration of the discourse and reality of a certain collective approach. In that respect, it can be said that the identity of campus again adopts the qualities of a common traditional inner street from the everyday life of Japan.

27. Alexander, Neis and Moore Alexander, *The Battle for the Life and Beauty of the Earth: A Struggle between Two-World Systems*, 2012.
28. Ibid.
29. Drexler, *Radical Abundance: How a Revolution in Nanotechnology will Change Civilization*, 2013.
30. Alexander, Neis and Moore Alexander, *The Battle for the Life and Beauty of the Earth: A Struggle between Two-World Systems*, 2012, 8-9.
31. Alexander, Neis and Moore Alexander, *The Battle for the Life and Beauty of the Earth: A Struggle between Two-World Systems*, 2012.

Since it is a challenge to interpret the project in the context of Japan, it is extremely difficult to find any relation that hardly repeats itself in European modernity except the idea of 'Stem' that is organized around the streets and courtyards, to be scrutinized under the discourse of university.

Discussing Architecture of Modernity within and without: The Spaces of Condensed Transference

The reality of 'the science of modernity' in practice makes us to re-concern about the hybrid solutions in the Free University of Berlin. It just evokes some discussions upon the theoretical manifesto of the discourse of university in the late period of the 1960's with the precedent spatial experience of futurism. The theme of freedom is the key term, in that respect, to think about the institutionalization of modernity in university and its spatiotemporal practices. Then, it is possible to make a series of analytic assumptions in the appraisal of the university space as a spatiotemporal experience.

Universities are conjunctive spaces of transition of accumulated knowledge that is transferred through the sublime substantialization of information meaning into the subject. They produce subjects that reproduce the connected flow of information into the knowledge that is charged with the collective responsibilities. Universities are the spaces for the transference between circulating knowledge through the target of science; the object of information (represented for the ultimate bastion of the people, with collective shares). Thus, the evidence is legitimized through the networked compounds of knowledge; through the faculties of perception, understanding, and judgment; and is transferred into the inherent information that is entangled with ideological competitions and the free will of the subject. The free will volatilizes the desire to attain the universal truth by questioning the world, the life, the reality, the existence. Universities are the sites placating the free will by the substantialization of thought through the encounter of flowing relations of life, matter, the motion of subjects and things.

Therefore, universities are territorialized by the desire of the scientific search for knowledge – by questioning the truth; and they have constantly been de-territorialized by the scientific information, subjects of knowledge, and flow of signs of communication. Since the ultimate agent – produced – is the subject itself, they construct the representational kernels of subjects in connection with the real; and present them to the realities under the idealized principles. So, the universities of today are the spatiotemporal practices of idealization – the free will – for truth by the transformation of science into knowledge or information; and are always challenged by the realities that having been shaped mostly by ideological interactions of society,[32] culture, economy, and politics.

Cultural (re)production of modernity is one of the major issues that having been shared the same common ideals of truth and production of knowledge. The

32. See also Sargın and Savaş, "'A University is a Society': An Environmental History of the METU 'Campus'," 2016.

emergence of the modern 'University' by Humboldt postulates and legitimizes[33] this claim. The desire of providing idealized spaces of knowledge, however, is constantly challenged by the ideologies of the sovereign production relations and the economic conditions. This tension can reveal itself in the embodiment of the real, in the background stories of the spatial practices of campus design and construction processes as well as in their history of architectural practice and theory with stylistic and cultural concerns. Therefore, it can be said that the idea modernity, hence, is established first according to the modern ideals, then, is challenged by the formalist-determinant innervations in a new mode of mass production.

It is possible to describe, then, the spatial-temporality of university as the site of the condensed transferences. The condensed transference describes the transitions between the ideals of humanity and the motion of the reality of the age. When we observe the precedent examples of the Free University of Berlin, respectively, it inevitably compels us to discuss the issues of modern architecture with its existence, its principles, and relation with the historic urban environment. With its alterations, contradictions as well as the re-visited principles of the CIAM, Team X's members' experience in the Free University of Berlin, nevertheless, differed from its lacking urban context with its construction process. That may still explain, accordingly, the encountered obstacles during the integration of the infrastructural development of the university to the immediate environment.

The hostility in the Free University of Berlin (as the similar concern can be seen in the creation of Eishin Campus) for the expectancy and the issue of utility by their users – academician and students are appraised, and taken into consideration as the primary factor. What is the most interesting issue to be discussed here is the additional library part in the Free University of Berlin (completed in 2005), for example, with a contemporary language that is settled within the courtyard of the modernist plan as a result of that flexible concern of usage.

Akin to this, the contemporary experience of Norman Foster at the Free University of Berlin (Figure 7) corresponds to a conjunction of the epochs emerged with the integration of his additional library part placed in one of the main courtyards. Altered from the experience of Candilis, Josic, Woods, Schiedhelm to Prouvé's façade design of steel Corten inspired by Le Corbusier's 'Modulor,'[34] and finally to Norman Foster's additional library part, the university's spatialization practices signify an evolution of making throughout the ages as a result of that described challenge.

Consequently, the production of institutional knowledge and its transformation into the data features of information are issued as essential discussions here as whether they can be reconstructed into the spatiotemporal knowledge or not. More clearly, it is rather to read the parallel relation of the rise of the scientific knowledge of the institutional endeavor of universities. As the sites of knowledge production, the universities are seemingly transformed with the

33. W. von Humboldt, *The Limits of State Action* (London: Cambridge University Press, 1969).

34. The data is accessed from https://www.fosterandpartners.com on 16 December 2017.

rise of technological production means and its information, which is superseding the knowledge production of the modern institutionalization.

Figure 7. *Additional Library of the Free University of Berlin, by Foster+Partners, Completed in 2005*
Source: Foster and Partners (2017).

What turns us concerned about the modernist planning and making is also related with the reality of the contemporary condition and its competitive ground so that it makes sense only when to be understood in the urban dynamics of society, economy, and space. This is another clause to be engaged with such kind of an expected effect of knowledge and of production that only exists within the globally significant universities in the 21st century. Just to get a little help from the dynamics of the university rankings of the recent decades, it becomes significant to understand the spatiotemporal production of institutionalization in the dynamics of urbanization, in connectivity with the desired praxis. Which can be inferred from the analysis of Castells & Hall with the insights of the sites of technology production,[35] the previously related knowledge-information conversion is still relevant in the dense environments of Boston, the New York City or in the state of California in the United States that are engaged also with the successes of the universities settled in.

Integration of the campus environment with the city as a critical discussion is relevant to reconsider the contemporary condition under the new concerns of information flow and speed but also to understand the role of the architect in the changing master-slave relationship. Evaluated in the hegemony of the technology and economic development, the described areas generally with "in-house

35. M. Castells and P. Hall, *Technopoles of the World: The Making of Twenty-First-Century Industrial Complexes* (New York; London: Routledge, 1994).

universities" are also depended upon the external funding sources as Castells reveals clearly.[36]

So, when evaluating the universities with their near environments, the current age requires to understand the ideological differences; and to reminisce about the densification strategies that can be distinguished between the different geographies. The driven suburbanization of the post-war period even in the case of the Free University for new architectural practices can be seen as an obstacle, in that sense, just preventing further successes of the described institutionalization of modernity via the proposal of the described infrastructural integration. Even though it can also be seen as a utopian desire to volatilize a new urban transformation around, the regional district that the Free University first located within can rather be evaluated as a reserved suburban part of Berlin. With the lack of density of housing, or any industrial - central business district areas, cultural, recreational, service and maintenance facilities, besides the restricted fund sources the near environment has had constrains for further development.

"Stem", as a pedestrian stand integrating the city with the campus, was imagined upon the interaction of the servant and the server, the city and the campus[37] socio-economically and culturally. Nevertheless, the faint architectural projections that could only be reflected in the complex building structure have not made further progress in the transformation of the environment, inhibiting further data facilitation to the campus. As a critical reconstruction of the experience in the campus design, the contemporary condition of the campus now can also be described as located at the green suburban housing district with some social and cultural facilities around. The campus can only be nourished by the adjacency of European Culture Museum and Ethnology Museum today; and the closest sign of the active production or service environment can be enlisted only as the latest additional parts of the university. The series of courtyard organizations in the campus to create a collective unity representing the formal organization beyond the segregation of classes has contradicted later with the further environmental development of the new 2-3 story-high houses. The new housing developments, hence, provide ample evidence to explain what could have been a factor of mitigating the further integration of the idea of campus with the urban fabric. By looking from the reality of the contemporary condition of 'global' universities, it seems rather significant, then, to organize the environmental development of universities in relation to the possible revolutionary flux of the local dynamics with certain socio-economic and cultural projections.

From an academic/professional perspective, it is clear that universities and the new technology campuses of the companies seem intricately contradistinctive and yet dependent to each other. With the rise of the information age, the increasing impact on the technology transfer, respectively, reveals the necessity to regard the special zones of such developments. Having the worldwide known universities around, Silicon Valley and Boston Route 128, for instance, are among those most remarkable sites of university-company relationships. These examples can be

36. Ibid.

37. Tzonis and Lefaivre, "Beyond Monuments, Beyond Zip-a-tone, Into Space/Time: Contextualizing Shadrach Woods's Berlin Free University, A Humanist Approach," 1999.

increased with many other cases from Far East, or even from Turkey such as ODTÜ Teknokent, and CYBERPARK of Bilkent University nearby even though the growth scale and the level of technology transfer cannot be compared compatibly with the precedent cases.

Relatively, the role of the architect, as the designer-subject, in this respect, in the design of environments should also be reexamined through the critiques and the potentials that are presented. Ideologically speaking, the further interpretation of the campus environments by their users seems revolutionary even against the discussion of class differences and the over-specialized labor specializations after 1968. However, the coexisting potentials of planning and the progress of culture seem to have been missed such that the progress has shown the weaknesses and possible crisis even about the role of the architect that is apparently attenuated. In some way, the rise of the service sector and the upsurge in the built environment has recovered the role of the architect to some extent with the series of expectations upon the working plans in the information age. Nevertheless, the mere expectations on the immediate detailing as well as the roles of the subject within a socio-cultural endeavor turn the architect solely draw something and yet still be engaged with the advertisement culture of the spectacle.

Conclusion: Towards the Inquiry of the Global Universities

> *Universities across the world in the early twenty-first century find themselves in a paradoxical position... They receive more public money than they have ever done and yet they are more defensive about their public standing than they have ever been… While in some quarters universities are heralded as engines of technological advance and economic prosperity – and developing nations rush to establish more of them in pursuit of these goals – elsewhere they are attacked for being 'self-indulgent', 'backward-looking', and 'elitist.'*[38]

The paradox upon the objects of knowledge and their spatial production once again evoke the arguments of the global condition. It is the dominant position of research universities that are majorly settled in the United States with high funding budgets; and some of those in England are again fueled with sponsor-funded fellowships.[39] What constitutes the reality of the educational realm is engaged with the technological and scientific production, on one side, and that is depended upon the capital funding of the externalities. As a result of the changing necessities of the imagery of the information age, the evolution of the MIT campus beginning from 1998 to the early 2000s with the new buildings, in that regard, has a story that best narrates the current tendencies as a model of growth. With this exceptional example of the transformation, the role of investment in this process also shows the dependencies of the desire of research universities aiming to develop.

38. S. Collini, What are Universities for? (London: Penguin Books, 2012).
39. Ibid.

William Mitchell in his book, *Imagining MIT* (2007), starts to explain the evolutionary transformation of the MIT campus with the classical roots designed by Thomas Jefferson under the influence of Classicism, Victorianism, and Taylorism. The desire behind the idea of the first campus design was to integrate a classical style with bucolic green environment just as in the campus design of Victoria University again designed by Jefferson in 1820.[40] Mitchell, then, presents the modern transformation of the campus by Saarinen and Aalto; and arrives to discuss the necessities of evolution of the spatial production that coexists with the creative knowledge production requiring new accommodation, working, studying, even leisure and sports facilities[41]. As Mitchell gives more details, each building that is constructed in the new stage was the end-product of the incentives of the foundations focusing on the search of high technology and its spatial developments to satisfy the programmatic needs.[42] Accordingly, he puts forth that each building in the campus as stand-alone edifices was part of the general development strategy.

Mitchell clearly presents the condition of the information age, accordingly, that pushed the commission of decision-makers at MIT to extend the campus with new architectural environments that are designed and decorated with the capabilities of new informational technologies. This proposes such a model that tries to strengthen the technology transfer between the companies and their built environments at the same time.[43] This strategy, on the other hand, also works in the way to get the human resources (so the power/product of the university) back that is fading away from the campus environments as a result of the appealing economy of high-tech industry/market. The transformation of collective design of university with its users, thus, has shifted towards the larger scale inquiry with the inclusion of the external dynamics to the campus, and the growth of the campus towards those neighborhoods. Mitchell vindicates the idea behind the programmatic extension of the campus:

> *This also represents a crucial shift in the economic role of research universities. In recent decades, they have increasingly served as core components of national innovation systems, centers of high-technology industry clusters, and producers of economic growth and nearby jobs- as in the Silicon Valley area surrounding Stanford, the Route 128 area on the outskirts of Boston, and the biotechnology cluster that has more recently developed in MIT's immediate Cambridge neighborhood. The key mechanism in this is the transfer of technology from on-campus laboratories to nearby off-campus startup companies that are largely run by entrepreneurial faculty members, part-time student employees, and recent graduates. Urbanistically,*

40. W. J. Mitchell, *Imagining MIT: Designing a Campus for the Twenty-First Century* (Cambridge, Massachusetts: The MIT Press, 2007).

41. Ibid.

42. Ibid.

43. The start-up companies that are specific at the sites of high technology such as Silicon Valley or Boston Route 128, for example, are among the necessary dynamics what are critically analyzed before for the growth and sustainability of research and investment.

> *the complex of new MIT laboratories defines the center of a growing high-technology neighborhood and reorients the campus to it."*[44]

It shows the evolutionary transformation of the (post)modern way of collective design that leaps into the design highly boosted by external funding. Accordingly, it is a transformation from the production of knowledge of the modern architecture into the mastery of the capital on the institutional desire. However, it can also be seen as distinctively pioneer approach when regarding the collective side of designing at institutional, economic, and regional scale.

Notwithstanding this, Mitchell also reminds the uncertainty and the difficulty of decision-making throughout those evolutionary processes among the confluential togetherness when especially considering the multiplicity of political and economic dynamics. On the other side of the educational realm, according to these, it can be said that the autonomy of the universities is under the threat of the control of state mechanisms or the paucity of the private donations. The examples of the classical type of universities, especially, are having the problems of the scarcity of the research environments as well as the human and funding resources.[45]

Although these result-based expectations have influenced the autonomy of the universities negatively, the freedom in the progress, however, is an advantage of the research since the governments with ruling councils cannot completely control the processes in libraries or in laboratories. Either in the singular or mostly in campus projects, what is significant to learn, then, is the interconnectedness of the spatial continuity in between the common university areas, in between the different faculties as well as the connection to the immediate surroundings as an economic and social infrastructure.

This emphasizes the evolution of the educational organization of the universities into a multi-disciplinary interaction of sciences creating new inter-disciplinary research areas as well as social and economic interfaces. Accordingly, the novelty of the unconditioned behavior 'in-between' makes the priority of the condition and already experienced rules of spatiotemporalities evolve. Respectively, the university space itself still provides the undiscovered relations and potentials of spatial action and the scientific development that is engaged with, as the performative task. The discovery of the dissolution of knowledge back again from the reconstruction of the essential features of things and structures, in that sense, enjoins us to explore the meanings and the knowledge back from the generation of the information, in this convolutional task.

Then, it is to reveal the concomitant transformation of the necessities of spatial production, which coexists with the society, culture, and education through the technological evolution in the information age. The relation of academia with technology and the transfer of knowledge into public and private zones of practices, hence, have more profound traces that ought to be revised when especially regarding the role of the university and the modality of 'collectivity' in the production of the knowledge and the subject of that knowledge as well as the urban/public environment.

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44. Mitchell, *Imagining MIT: Designing a Campus for the Twenty-First Century*, 2007, 99.
45. Collini, *What are Universities for?* 2012.

In the view of these arguments, it is the task of understanding the multiplicity of new design parties and the dynamics even though the transformed mode of collective design cannot be particularly drawn no more as clear as the ones like Lacan's four discourses. Nevertheless, these relationships can be mapped out as the intricate, even discrete, and yet correlational and networked environments of the agencies and their production of space. The new convolutional task of the analytical decision making for the production of space and its knowledge, respectively, cannot be achieved by solely mapping a singular schema or solely one discourse. Conversely, it can only be thrived by mapping the networks and the multiplicity of those interrelations through the exchangeable fertilizations with the matrix of the number of discourses and agencies, as also Flieger asserts.[46]

Analogous to this, the role of the collective decision among the multiplicity of those many parties and reference systems and the ground truth for the design and development procedures in the direction of certain principles are again to be originated, once again, from 'the discourse of university'. Mitchell similarly finishes his words by concluding remarks on the role of the institution, university and the role of urban space in the complex decision making of those foundations while describing the problems of real-time planning and budget-management:

> *Institutional structures that preserve a critical sense of campus history, urban context, and long-range goals can provide effective safeguards against these inherent dangers. These can ensure continuity of architecturally sophisticated thinking, expertise, and advocacy focused on overall campus design-providing, where necessary, the voice of cultural and urban conscience in the though debates that accompany a university's decision making on major capital projects. It helps, as well, to establish budgetary processes that give sufficient weight to long-term value and sustainability and not just short-term targets and constrains.*[47]

The dynamics of information age, hence, still open to be examined with respect to the collective mode of decision making to be based upon some of the merits of modernity as the basis of architectural knowledge. The evaluation of such knowledge together with its social and cultural dynamics necessitates the collective coexistence of executive groups with a control over the informational transformation beyond the pragmatic expectancies of the networked consultancy companies and the large business agreement contracts. The role of the institution such as 'university' in the information age, hence, can still be validated as remarkable concept that runs the spatial decision making mechanisms in those networked and complex relationships.

46. J. A. Flieger, *Is Oedipus Online? Siting Freud after Freud* (Cambridge, Mass.: The MIT Press, 2005).

47. Mitchell, *Imagining MIT: Designing a Campus for the Twenty-First Century*, 2007, 121.

Bibliography

Alexander, C., H. Neis and M. Moore Alexander. *The Battle for the Life and Beauty of the Earth: A Struggle between Two-World Systems.* New York: Oxford University Press, 2012.

Architectural Association. *Free University, Berlin: Candilis, Josic, Woods, Schiedhelm.* London: Architectural Association, 1999.

Candilis, Josic, Woods and Schiedhelm. "Architects' Statement. Competition Project 1963-64." In *Free University, Berlin: Candilis, Josic, Woods, Schiedhelm*. Edited by Architectural Association, 25. London: Architectural Association, 1999.

Castells, M. *The Rise of the Network Society.* Cambridge, Massachusetts: Blackwell Publishers, 1996.

____. *The Power of Identity.* Malden, Massachusetts: Blackwell, 1997.

Castells, M. and P. Hall. *Technopoles of the World: the Making of Twenty-First-Century Industrial Complexes.* New York; London: Routledge, 1994.

Collini, S. *What are Universities for?* London: Penguin Books, 2012.

Deamer, P. *The Architect as Worker Immaterial Labor, the Creative Class, and the Politics of Design.* London; New York: Bloomsbury Academic, 2015.

Drexler, K. E. *Radical Abundance: How a Revolution in Nanotechnology Will Change Civilization.* New York: BBS Public Affairs, 2013.

Feld, G. "Shad's 'Idée Fixe': Berlin Free University and the Search for Principles of Organization." In *Free University, Berlin: Candilis, Josic, Woods, Schiedhelm*. Edited by Architectural Association, 104-117. London: Architectural Association, 1999.

Flieger, J. A. *Is Oedipus Online? Siting Freud after Freud.* Cambridge, Mass.: The MIT Press, 2005.

Foster and Partners. n.d. https://www.fosterandpartners.com. [Accessed 16 December 2017].

Frampton, K. *Modern Architecture: A Critical History*. New York: Thames and Hudson, 1992.

Giedion, S. *Space, Time and Architecture.* Cambridge, Massachusetts; London: Harvard University Press, 2008.

Hays, M. K. "Introduction." In *Architecture Theory since 1968*. Edited by K. Michael Hays. Cambridge, Massachusetts: The MIT Press, 1998.

Lacan, J. n.d. The Seminar of Jacques Lacan Book XV, Psychoanalytic Act. Translated by Cormac Gallagher. http://www.lacaninireland.com/web/wp-content/uploads/2010/06/Book-15-The-Psychoanalytical-Act.pdf.

____. "Psychoanalysis upside down. The Reverse Side of Psychoanalysis. Book 17." In *Jacques Lacan in Ireland.* Translated by Cormac Gallagher. Dublin, 2001. http://www.lacaninireland.com/web/wp-content/uploads/2010/06/Book-17-Psychoanalysis-upside-down-the-reverse-side-of-psychoanalysis.pdf. [Accessed 20 May 2018].

____. *Écrits* [Writings.] New York; London: W.W. Norton & Company, 2006.

____. *The Other Side of Psychoanalysis. The Seminar of Jacques Lacan, v.17.* Translated with notes by Russell Grigg. New York: Norton, 2006.

Le Corbusier. *Toward an Architecture*. Los Angeles: Getty Publications, 2007.

Mitchell, W. J. *Imagining MIT: Designing a Campus for the Twenty-First Century.* Cambridge, Massachusetts: The MIT Press, 2007.

Sargın, G. A. and A. Savaş. "'A University is a Society': An Environmental History of the METU 'Campus'." *The Journal of Architecture* 21, no. 4 (2016): 602-629.

Schiedhelm, M. "The Berlin Free University Experience." In *Free University, Berlin: Candilis, Josic, Woods, Schiedhelm*. Edited by Architectural Association, 96-99. London: Architectural Association, 1999.

Tzonis, A. and L. Lefaivre. "Beyond Monuments, Beyond Zip-a-tone, Into Space/Time: Contextualizing Shadrach Woods's Berlin Free University, A Humanist Approach." In *Free University, Berlin: Candilis, Josic, Woods, Schiedhelm,*. Edited by Architectural Association, 118-141. London: Architectural Association, 1999.

Von Humboldt, W. *The Limits of State Action.* London: Cambridge University Press, 1969.

Wagner, G. "Looking Back Towards the Free University, Berlin." In *Free University, Berlin: Candilis, Josic, Woods, Schiedhelm*. Edited by Architectural Association, 14-23. London: Architectural Association, 1999.