Narrating Spatio-Visual Experiences: Comparitive Study on Two Museums of North India

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Abstract: The architecture of a place is characterized by users associated with it, making it more diverse. To make a space additionally expressive, architectural elements play a significant role. The experiences within a building are an integration of spatial and visual correlation that is overseen by user-space relationship. This research aims to examine gap between designer’s intentions and experienced realities through an in-depth analysis of spatio-visual experiences. Two museum buildings Jay Prakash Narayan Maueum, Lucknow, India and Virasat-e Khalsa, Anandpur Sahib, India have been taken as case and parameters affecting same have been scrutinised. The study focusses on how users perceive a single space in multiple ways by keeping visual senses above all directing movement within building. The spatial character of a space is a result of an amalgamation of architectural elements and user-experiences, which is directly or indirectly imitated by the perception of different user-groups. This study uses computational analysis for measuring visual experiences by taking Isovists as a tool. The Qualitative and Quantitative methods have been integrated to comparatively analyse architectural character of two museum buildings. It was found that Jay Prakash Narayan Museum incorporates architectural elements with varying enclosures while Virasat-e-Khalsa focusses more on introvert character of space.

Keywords: Spatio-Visual, User-space relationship, Isovist analysis, Spatial experiences, Architectural Character.

1.INTRODUCTION

The term “Spatio-Visual” signifies impact of Spatial organisation on Visual experiences and these experiences in a space are often based on spatial properties evolving visual occurrences (Figure 1). A space may possess enormous qualities but Spatio- Visual engage users in empirical events (Sharif, 2019a). Moreover, the quality of a space is determined by diverse interpretations of users which may vary according to experienced realities. There are always some intentions behind design in which way of experiencing it is determined but the user experiences often create a disparity between designer’s intentions and undergone realities (Sharif, 2019a). Users are always in relation to built- environment and same environment possesses inconsistent spatial and visual experiences. Eventually, five senses (sight, touch, hearing, taste and smell) play an imperative role in experiencing a space but visual lies beyond others (Passe, 2009). To direct movement within a space, various elements affect functional organisation which in order engage users in spatial character. Furthermore, elements of design, basic principles and ordering principles contribute equally in emerging quality of a space. Additionally, spatial qualities may include volumes, degree of enclosure etc. and visual experiences may include the colour, texture, light intensity etc.

Spatial layout is one of the most powerful curatorial tools available, attention and memory can be measured as a means of establishing whether or not the gallery fulfils its function as a space for contemplating art (Krukar, 2014). Exhibit space in museums in particular, is where the abstract and physical worlds meet. In museums, social knowledge is spatialized intentionally and therefore transmits itself to the public (Kweon, 2002). Intensifying quality of spaces needs analysis of parameters that affect gap between designer’s intentions and contemplated realities. Identifying inter-relation between spatial organisation and visual realities will result in recommendations unfolding user-space relationships. The spatio-visual analysis of a building helps to identify association of users to the place simultaneously engagement of users in experiential events.
II. AIMS & OBJECTIVES

This study aims to examine parameters affecting spatio-visual experiences for enhancing quality of a space by establishing user-space relationship. Overall intent is to explore spatial character integrating experienced realities likewise, examining role of basic principles and elements of design and their impact on users perceiving space quality. The objective lies in analysing gap that remains between designer’s intention and user experiences simultaneously investigating impact of architecture interior forms that affect state of inhabitants.

III. FACTORS AFFECTING SPATIO- VISUAL EXPERIENCES

The architectural character of a space is affected by various factors (architectural and non-architectural) which lead to an impact on psychology of users. The spatial qualities enhance architectural space providing visual experiences that result in emotional responses. Moreover, the relationship based on user experiences within a space and its composition leads to human and non-human interactions. Any space or element possess a power to create an influence over others which creates an impact on user’s mind. Further, spatial quality contributes to user’s experiences associated with a space by sensing the space with a curiosity and interacting with it.

a) Spatial organisation and Elements:

Spatial organisation plays a major role in catering user experiences with varying preferences. Each element is first considered as a conceptual element, then as a visual element in the vocabulary of architectural design (Francis D.K, 2007). Furthermore, the image of any space is constructed with reference to forms, interior configurations, plans, materials, technology and scale (Akşehir, 2003). The openness of the layout has been associated with the potential presence of many alternative ways of assembling the contents of individual exhibits into narrative sequences (Peponis et al., 2004). According to (Francis D.K, 2007), centralized organization inhibits stable, concentrated composition consisting of a number of secondary spaces grouped around a substantial, prevailing, central space. He expresses that a linear arrangement can possess prominence in its size and form by defining spaces that are functionally or symbolically prominent to organization. In addition, (Francis D.K, 2007) says there is no integral place of significance within the layout of a clustered organization, the importance of a space must be articulated by its size, form, or orientation within the pattern.

Moreover, elements like walls, floors, stairs, openings, and columns play a vital role in determining quality of a space further experiences associated to it. According to (Pandya, 2014), good architecture is a balanced composition of these elements. The Path at Traditional Chinese Private Gardens (TCPGs) is an example for role of elements in providing varying enclosures (Yu and Ostwald, 2018). What’s more, at the Le Corbusier’s Museum, Chandigarh elements have played an imperative character in providing amended spatio-visual experiences in a museum consisting various enclosures and volumes.
b) Movement Guide, Directionality and Design Elements:
(Francis D.K, 2007) signifies that spaces for movement form an essential part of any building organization and occupy a considerable amount of volume within building. Additionally, form and scale of a circulation and transition space however, should accommodate movement of users as they promenade, pause, rest, or take in a view along a path (Francis D.K, 2007). According to (Crawford et al., 2015) while perceiving an architectural space, visual connection evokes pleasure and curiosity during movement. Le Corbusier’s Museum of Unlimited Extension comprises of Tunnel Structure and Gallery Structure where repeated overlap of tunnel structures implies a directionality to visitor’s experience (Christenson, 2014). Moreover, (Christenson, 2014) demonstrates, gallery structure at museum have no particular directionality which have somehow resulted in static experiences and horizon views are gained by degree through movement. In addition, the Design Elements also contribute to space quality where changing levels of light and varying ceiling heights possess unique experiences (Crawford et al., 2015). According to (Francis D.K, 2007), color is the attribute that most clearly distinguishes a form from its environment simultaneously affecting visual weight of a form. The overall form of a building can be endowed with a distinctly planar quality exposing edges of vertical and horizontal planes which can be further differentiated by changes in color, texture, or material (Francis D.K, 2007).

c) Volume, Enclosure, Scale and Proportions:
(Francis D.K, 2007) talks about the characteristic of a plane which include design elements portraying spatial relationship to determine visual traits of form they define and virtues of space they enclose. In addition, (Francis D.K, 2007) says vertical and horizontal linear elements specify a volume of space while spatial qualities of form, proportion, scale, texture, light, and sound ultimately depend on enclosure. According to (Francis D.K, 2007), scale in architecture is defined with reference to how one perceive the size or volume of a building element or space relative to other elements in space. Moreover, it is important to consider scale and its effect on the image of the building, which in the case of a landmark with symbolic properties (Akşehir, 2003). Additionally (Akşehir, 2003) implies reference to scale differences and proportional decisions are all presented as the ways to achieve desired identity and create preferred image.

d) Built-Mass Character, Streetscapes and Form
(Crawford et al., 2015) addresses connectivity with outside further resulting in the prospect behaviour of users. According to (Ostwald, 2015), a visual connection with nature is habitable and beneficial. The streetscapes also play an important role in wavering experiences incorporating vistas. (Bacon, 1974) symbolises a spatial quality as its visual form, dimensions and scale, quality of light—all of these qualities depend on our perception of the spatial boundaries defined by elements of form. Furthermore, (Bacon, 1974) expresses, as space begins to be captured by the elements of mass, architecture comes into being while quality of the architecture is determined relating elements. Additionally, numerous shapes and forms constitute to architectural quality where curved and linear forms have varying impact on users (Banaei et al., 2019). At Traditional Chinese Private Garden, (Yu and Ostwald, 2018) state that smaller architectural elements like Ponds, small streams, rock formation, artificial mountains add to spatial hierarchy resulting in user experiences. According to (Francis D.K, 2007), symmetrical curved surfaces, such as domes and barrel vaults, are inherently stable whereas asymmetrical curved surfaces, on the other hand, can be more vigorous and expressive in nature.

IV. MATERIALS & METHODS

Numerous methods have been considered and further adopted during spatio-visual analysis of various typology of buildings. With the objective being to examine aspects implemented including building typology, user groups, spatial organisation, vistas/ display, architectural characteristics/ elements and role of senses a holistic methodology has to be developed for the study. The common methods used for spatio-visual analysis include both qualitative & quantitative approaches. Qualitative analysis mainly includes personal observations, surveys, interviews and spatial analysis based upon non-tangible aspects. At Whitworth Art Gallery, qualitative analysis concerned fieldwork comprising of desk-based study of documents, websites and 15-pilot interviews, surveys, site visits and the observations along with analysis on the level of engagement. (Sharif, 2019b). According to (Peponis) and others (2004), when a visitor stopped at an individual exhibit, either to interact with it physically or to study its visual content, an engagement has been registered. Banaei and others ( 2019) talk about impact of architectural interior forms on affective state of inhabitants where the PAD (Pleasure, Arousal and Dominance) test is surveyed among 40 participants having ratings from 1-9 for an interior space considering individual differences in personality based. Moreover, analysis of interior space...
which exhibit prospect (openness), refuge (enclosure), mystery (luminosity), complexity (volume) has been done where the methodology mainly involves 25 studies including surveys, interviews & computational analysis (Crawford et al., 2015). Here, analysis has been done on the basis of Prospect Refuge Theory alongside considering isovist areas.

Quantitative methods mainly use computational analysis in order to map spatial & visual behaviour using visibility graphs. Space syntax provides one of many tools which help designers understand design process and learn to make valid and justifiable decisions (Murison and Gray, 1994). The spatial positioning of individual exhibits is described according to the properties of corresponding contact regions in front of them (Peponis et al., 2004). (Yu and Ostwald, 2018) analysed the change in visual properties while movement through garden using isovists for spatio-visual analysis. Moreover, examination has also been done by considering few location points throughout garden and measuring visual experiences using Space Syntax technique. Christenson, (2014), has also done Isovist analysis for four museums based upon Le Corbusier’s Museum of Unlimited Extension. It includes comparison of perspective views within floor plans by incorporating occlusion maps as well as graphical subtraction of one occlusion map from other, out-turning difference resultant field. On the other hand, Banaei with others (2019) have used the Predictive Analysis Software (PASw) to experiment 25 design clusters of varied forms in addition using virtual reality with the help of HMD-VR. Cross-visibility, however, has quite powerful effects upon the pattern of engagement (Peponis et al., 2004). To measure visual experiences, isovist offers “a description of the space ‘from inside’, from the point of view of individuals, as they perceive it, interact with it, and move through it” (Hartwell and Leduc, 2017). These are a set of all points visible from a single vantage point in space with respect to an environment (Benedikt 1979: 47).

V. METHODOLOGY

This research incorporates both qualitative and quantitative approach to in-depth analyse Jay Prakash Narayan Museum, Lucknow, India and Virasat-e-Khalsa, Anandpur Sahib, India. Both the museums have been designed in order to promote individual’s association and possess strong spatio-visual relationship. Hence, methodology is concerned towards addressing the possible factors that affect user-space relationship in any museum building including the following:

1. The qualitative approach includes identification of parameters incorporating personal architectural observations.
2. Data collection and Visitor survey of users belonging to different professions has been conducted.
3. These user-experiences in individual spaces have been recorded and then compared with designer’s intent towards building.
4. This method comprehensively scrutinises the factors affecting spatio-visual relationship in any museum building. This analysis aims to find the research gap and then methods to fulfill that gap.
5. The quantitative approach aims to measure visual experiences governed by vista during movement. To measure visual experiences, Isovist has been incorporated as a tool and visibility graphs have been constructed based upon cone of vision.
6. This analysis incorporates ts4u to map out visual-based morphological indicators permitting analysis of urban fabric.
7. Altogether both the analysis helps in developing an ethnographic approach towards analysis of any building. This helps to maintain spatio-visual relationship in any space and directing experiences of users throughout movement.
8. As a result, it aspires to enhance experiential events for users by establishing user-space relationship.

The survey has been done amongst 40 users visiting Jay Prakash Narayan Museum, Lucknow (Including Architects & Non- Architects). It is based upon general spatial elements like colour, enclosure/ volume, scale and proportion, elements of space- making. Although, data recorded individually describes experience of user in different spaces based upon architectural elements. Moreover, qualitative analysis of Virasat-e-Khalsa, Anandpur Sahib has been done on the basis of literature studies.

VI. CASE STUDIES

6.1 Case 1- Jay Prakash Narayan Museum, Lucknow, India

This Museum has been designed as a signature building to celebrate ‘journey of life’ of one of ‘few good men’, socialist Jay Prakash Narayan, or ‘Loknayak’, a social reformer or political leader. It aims to serve as a social, cultural and ecological landmark in the urban environment. The intent of museum was to carry
forward the essence of Jay Prakash Narayan by sanitizing audience about JPN’s life and motivating them to introspect about their own. Various zones have been intended in order to make experience interactive and circulation dynamic. These zones include Absorption Zone, Internalization zone, Reflection zone and Congregation zone.

6.1.1. Qualitative Analysis-
This analysis is established on parameters that affect spatio-visual relationship stimulating user-experiences. The analysis is performed for individual interior spaces in museum and user experiences have been documented. However, journey initiates from entrance void executed as a gateway framing a view. As wedge-shaped sculpture is almost magnetic as it draws attention to itself and makes users pause and understand scale. The museum and convention center are a play of mass and void. Walls, floor and ceiling integrate to merge and make this void ‘unite’. Being a node for pause, floor acts as a movement guide for museum as well as convention center. Color and texture being perceived through terracotta material contribute to its unique identity. This entrance void acts as a transition from open to semi-open afterwards semi-open to enclosed, maintaining streetscapes and making transition pragmatic.

After entering, an installation in a corridor represents equality, freedom and brotherhood. The linear corridor nestles intermediate to basement and ceiling resulting in multiple volumes at a time. The primary color of installation makes it more pleasant and aesthetically appealing. The varied levels and linear corridor create contrasting scale at different levels with varying ceiling heights while spiral staircase existing in expanse adds an experience to space-quality. The basement is reached through spiral staircase directing movement towards installation of sound. Moreover, double-heighted sunken courtyards incorporate soft light to reflect delicately on water with a somber introspective quality. Walls play a major role in intensifying space-quality resulting in an enclosure. However, this space has been added complimentary to movement of experience within building.

A gallery has been designed along movement to display life events of Jay Prakash Narayan comprising of a kinetic sculpture, documentary space and external artworks depicting famous Hazaribagh prison escape. This space is intended for realization of stories associated with it. Moreover, temporary elements have played a vital role in creating various enclosures with varying spatial qualities. Monochromatic color scheme has been opted to focus more on displays rather than architectural character. The atrium lies afterwards gallery provided as a buffer zone in between journey so as to make users experience worthier. An installation here represents continuity of life and interconnectivity of various aspects associated with it.

This atrium is further linked to a projector room offering visual experience of life of Jay Prakash Narayan. However, walls provide a unique enclosure to space and color possess more prominence making it aesthetically appealing. The galleries on first floor and second floor depict events and partition walls create pauses and narrate stories visually. These galleries incorporate artificial light and dark colors so as to provide prominence to displays. The movement within space is based upon displays and stairs have been provided which act as a transition between two floors. It also comprises installation depicting numerous series of events and a projector room enlighten with natural light.
6.1.2 Quantitative Analysis-

The visual experiences within building are entirely dependent on occlusion being created by elements of space-making. While entering, isovist area created leads to movement of user providing directionality based upon their cone of vision. As an architect, visual experiences are an integration of occlusivity along with spatial organisation and elements. For non-architects, visual experiences are totally based upon their cone of vision and isovists area. On ground floor, movement is guided by vision being created by a pause, standing inside void and viewing towards different directions (Figure). As movement occurs, visibility graphs update while experiences are based upon visual appearances. The cone of vision plays an important role in noticing elements and interacting with space quality (Figure). Movement from Ground Floor to Basement (Figure) possesses varying isovist graphs with changes in movement providing directions to users (Figure). The entry/exits within space are marked by isovists which lead to optimistic spatio-visual experiences of users.

Figure 3 Ground Floor Plan showing initial isovist area and all the isovist areas covered during movement (Author, 2020)

Figure 4 Change in visibility graphs during movement (Author, 2020)
6.2. Case 2- Virasat-e-Khalsa, Anandpur Sahib, India

This museum has been designed to demonstrate culture and tradition of Punjab along with promoting tourism and spirituality filled with emotions. It aims to depict struggles of last five Gurus during establishment of ‘Panth’ with strong visual language. Being designed not to overpower context yet achieving unique identity, design is truly inspired from fortress architecture along with local traditions. The Khalsa Heritage Complex has been divided into mainly two complexes being connected with 540-foot bridge. Western complex consisting of 400-seat auditorium, double-storey library and temporary exhibition galleries. The bridge acts as a demarcation to two complexes crossing a network of reflecting pools. Eastern complex consists of permanent exhibition and heritage museum also known as Flower building and Boat building (Figure). The regional architecture has been taken into consideration accompanied by local materials and context (“Safdie Architects,” n.d.).

6.2.1. Qualitative Analysis-

This analysis has derived from literature data examining parameters affecting spatio-visual relationship resulting in user-experiences. The bridge is intended to maintain connectivity between two complexes running over a water body complimenting visual experiences simultaneously. Floor here acts as major element while vertical elements of varied form add to user-experiences. The canopy emerging from elements has been provided in opposite direction to sun without providing shade. It is entirely made in local sand stone, no additional colour has been provided in order to keep users connected with roots of their local architecture. The volume enclosed is only shaded part by means of vertical elements since canopy provides shade to one side. No proper form has been provided as a structure but canopy is semi-curved which assists in creating a semi-enclosure underneath.
The journey then initiates from Boat Building comprising of a largest hand painted 360 degree mural, Panj paani is like a deep well comprising of adorned walls. Various stories have been depicted all around with central pathway ramps providing movement within. This structure possesses integration of sound and visual manifestation completing span in eight minutes. Static elements here play an essential role since huge scale walls all around create a grandeur within a space. Volume is being enclosed through elements providing a huge structure in shape of boat keeping ambience of space active. After boat building, one reaches Five Petal Flower building which consists of five individual galleries depicting various Gurus of Sikhs. The first petal highlights stories related to Guru Nanak Dev with strong visual appearance leading to enriched user experiences. The elements like floor, walls and ceiling contribute equally to create an enclosure resulting in pleasant impact on user’s mind. Since, ambience of space has been kept minimal, demonstrated in white, being focused through artificial lights. The volume enclosed is double heighted resulting in decent space quality encouraging users to interact with space.

Guru Angad & Guru Amardas Walkway in itself is a part of subsequent galleries which has been segregated into two with the help of a virtual ‘baoli’. However, elements here result in feeling of mystery by providing surprising facets throughout movement. Colour is dependent on the aura of space created by artificial lights which keep users engaged in noticing activities. The form has derived from vertical elements; varying enclosures are created within movement. To highlight efforts made by Guru Ramdas during establishment of city of Amritsar and construction of city Ramdaspur, fourth gallery showcases him through narration of events. The space can be perceived through dramatic colours being governed by artificial lights. However, essence of baoli has been created with the help of static temporary elements. Architectural character of space is totally dependent on interior elements where connectivity with outside has not been contemplated while maintaining introvert ambience.

Fifth gallery represents Guru Arjan Dev and reflects efforts made by him in his entire life. Walls and floor play a major role in resulting space quality creating a feeling of grandeur. Floor acts as a major transition element between spaces along with four arched gateways creating a distinctive essence. The white colour with gold creates a magnificent appearance in space which keeps space quality decent. Artificial light enlightens whole space and main centralised installation diverging focus towards central space. The gallery depicting Growth of Sikhism and creation of Amritsar has been designed to promote unity insisted by Guru Hargobind Singh during militarization for Sikhism. The floor directs movement within space being governed by displays which have been placed along the movement. It is an integration of variety of colours which can be perceived through displays while keeping users indulged in overall spatial character. Furthermore, volume is being enclosed in two ways; the permanent elements resulting in a larger enclosure where as temporary elements create varying enclosures throughout movement in the space.
6.2.2. Quantitative Analysis-

The movement within building is being governed by Visibility Graphs which play a significant role in providing directionality. Moreover, graphs demonstrate that movement is directional and smaller cone of vision helps in guiding circulation as one proceeds through numerous spaces. Since smaller galleries are introduced during journey so, experiences keep on updating as the movement happens inside. Successive directions within spaces are totally dependent on visual experiences being perceived in a particular space. Being Museum, it depicts a strong visual language furthermore, isovist areas and visibility graphs depending on cone of vision lead to positive emotional response throughout experience in building.
VII. DISCUSSIONS

At Jay Prakash Narayan Museum, Lucknow intent behind design was to represent life events, ideas and philosophy of Jay Prakash Narayan, a social reformer and founder of “Samajwaad”. The association to this place has often given rise to visitor’s attraction belonging to ‘Samajwaad’, simultaneously resulting in declination of other visitors. Spatial analysis of individual spaces has been done in chronological order on the basis of parameters identified and user-experiences (among 40 users) have been recorded for individual spaces.
APPENDIX I.

7.1 Inferences Based on Survey
i. At entrance, 48% of users don’t bother about the view of Convention Centre and Void. Since, entrance has been designed as a pause, but no rest space has been provided, 73% of users feel the absence of rest space.
ii. Being in an Installation space, 62% users find installation attractive, others retrieve enclosure and light to be comfortable. 58% users don’t observe any directionality towards next space.
iii. 53% users don’t get comfortable with the sound of installation and only 40% feel connected to outside even after being a sunken courtyard in basement.
iv. In main display gallery, 78% users are comfortable in light and 69% are comfortable with enclosure. But, 56% users find displays lacking information or not being explanatory enough.
v. The installation in atrium is appreciated by 75% users. 52% users feel comfortable in enclosure but 70% notice irrelevance of water body as it is subjected to seasons. The directionality somewhat lacks in space as only 50% users are able to perceive it properly.
vi. The projector room/ auditorium doesn’t make 54% users comfortable with colour and enclosure. 62% users perceive the space as a rest space and 87% find ample amount of natural light available in space.

7.2 Inferences Based on Design
i. Design focusses more on interior quality of space which can be foreseen in the form of artificial lights, colours and various interior elements.
ii. To make it more associative, volumes have been kept somewhat alike with changing spatial quality in terms of interiors.
iii. The depiction of stories, events, struggles has been done magnificently so that one can relate to it so easily without guide.
iv. The permanent elements of built-environment don’t have much contribution to space quality since the displays seek all attention of users.
v. Overall, museum seems to have proper directionality as it has been intended to serve as a journey which in fact results in interactive experiences of users.

VIII. CONCLUSIONS

The aim of this research was to find a gap between intentions of design and the way it is being experienced (Figure 4). The gap that lies between intent and experienced realities is the interpretation of architectural elements governing user experiences. The user-groups have a significant role in confronting spatial experiences being it age, gender or profession. Numerous methods have been incorporated in order to measure spatio-visual experiences affecting user space relationship. At Jay Prakash Narayan Museum, Lucknow, gap was found in narration of events through architectural elements. For users belonging to non-architect profession, experiences are often based on association but not the architectural character. Such users get engaged in artefacts, displays and installations. While users belonging to architect profession experience spatial events by getting involved into space quality. At Virasat-e-Khalsa, gap analysed doesn’t have a prominent role in spatio-visual experiences. These experiences are majorly dependent on association here and not the profession, which indeed let users getting indulged into experiential events altogether.
Jay Prakash Narayan Museum, Lucknow has been intended to showcase philosophy of a social reformer through various mediums of life events. It has been designed as an integration of variety of spaces into a singular form. While Virasat-e-Khalsa, Anandpur Sahib intends to showcase the struggle of events of a particular religion. The association here lies in a particular community which somehow affects footfall. Relatively, Virasat-e-Khalsa, Anandpur Sahib receives higher footfall than Jay Prakash Narayan Museum, Lucknow as a matter of association. The transition has been intended as a journey which is reflected during movement through displays comprising various stories and events. Both buildings possess spatial, visual and audible experiences altogether letting users interact with space quality. Based on user experiences, movement at Jay Prakash Narayan Museum, Lucknow doesn’t possess proper directionality due to less consideration of transition between floors.

While moving through Virasat-e-Khalsa, spaces are aligned so as to maintain proper directionality in order to create experiential journey. Moreover, buffer zones have not been incorporated in both buildings so lack of rest spaces is sensed which doesn’t let imitation of spaces with a pause. The variable enclosures have been integrated at Jay Prakash Narayan Museum, Lucknow adding to spatial character while possessing a singular form. It inhibits streetscapes at some intervals maintaining connectivity resulting in positive pleasure for users. The isovist graphs depict larger cone of visions showing lack of proper directionality. Isovist analysis represents vista being possessed during movement in both buildings where smaller cone of visions at Virasat-e-Khalsa represent proper directionality in movement. At Virasat-e-Khalsa, volumes have been kept alike whereas it possesses a complex structure with variable forms. The interior elements have been mainly focussed here maintaining the introvert character within building.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>JPNIC, LUCKNOW</th>
<th>VIRASAT- E- KHALSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elements of Space- Making</td>
<td>Permanent elements are resulting in various enclosures during movement.</td>
<td>Permanent elements don’t have much role to play in space quality.</td>
</tr>
<tr>
<td>Association to the place</td>
<td>Association to a social reformer, not much footfall.</td>
<td>Association to a religion, attracts more footfall.</td>
</tr>
<tr>
<td>Experiences</td>
<td>Spatio-visual and at some spaces audible.</td>
<td>Spatial, visual and audible experiences.</td>
</tr>
<tr>
<td>Colours</td>
<td>Providing a unique identity to spaces.</td>
<td>Being accommodated with the help of artificial lights.</td>
</tr>
<tr>
<td>Lights</td>
<td>Artificial light and natural light both providing varying spatial quality.</td>
<td>Mainly artificial light.</td>
</tr>
<tr>
<td>Buffer Zones</td>
<td>Buffer zones but not exactly rest spaces.</td>
<td>No buffer zones, no rest spaces.</td>
</tr>
<tr>
<td>Movement Guide &amp; Directionality</td>
<td>No proper directionality throughout movement. The transition between spaces is only segregation.</td>
<td>The floor mainly acts as movement guide; proper directionality.</td>
</tr>
<tr>
<td>Volumes/ Enclosures</td>
<td>Varying noticeable volumes and enclosures with the movement.</td>
<td>Not much variation in volumes; Interior space as a focal element.</td>
</tr>
<tr>
<td>Streetscape</td>
<td>Streetscapes have been considered at intervals during movement.</td>
<td>Not taken into consideration.</td>
</tr>
<tr>
<td>Form</td>
<td>Overall singular form; not much focus on interior forms; linear mainly.</td>
<td>Varying forms can be seen in layout; interior forms are alike mainly.</td>
</tr>
<tr>
<td>Isovist Graphs</td>
<td>Larger visibility graphs show no proper directionality during the movement.</td>
<td>Smaller cone of visions can be seen through visibility graphs, directing the movement properly.</td>
</tr>
</tbody>
</table>
### IX. APPENDIX I

#### Table 2: User-experiences of individual spaces (Based on survey among 40 users) (Author, 2020)

<table>
<thead>
<tr>
<th>Space</th>
<th>User-Experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entrance</strong></td>
<td>(i) View towards Convention Centre (ii) Requirement of rest space at the entrance.</td>
</tr>
<tr>
<td><strong>Installation Space</strong></td>
<td>(i) Most attractive part within the space (ii) Directionality for next space.</td>
</tr>
<tr>
<td><strong>Installation of Sound</strong></td>
<td>(i) Connectivity with outside (ii) Comfortable with sound of installation (iii) Comfortable in enclosure</td>
</tr>
<tr>
<td><strong>Installations &amp; Displays</strong></td>
<td>(i) Comfortable in light (ii) Enough information from displays</td>
</tr>
<tr>
<td><strong>Atrium</strong></td>
<td>(i) Comfortable in Ambience (ii) Connectivity with Outside (iii) Relevance of water body</td>
</tr>
<tr>
<td><strong>The Projector Room</strong></td>
<td>(i) Comfortable in enclosure (ii) Comfortable with colour (iii) Directionality while moving to the space</td>
</tr>
<tr>
<td><strong>First Floor &amp; Second Floor</strong></td>
<td>(i) Comfortable with enclosure (ii) Comfortable with Dark Color scheme (iii) Directionality of movement towards exit</td>
</tr>
</tbody>
</table>
REFERENCES