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Visual Connectivity in Public Libraries for Enhanced Utilisation

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Abstract:

Libraries have always been an active hub for individual learning and community growth. But with the unparalleled transformation of society into a digital world, the function of public library design has already shifted from a storehouse of information to that of an experience of a public space of social engagement. This shift in role from self-improvement and learning to a more social one, directly impacts the planning and design of a public library. The known critical ingredients to creating a public place are people, place, experience and program. These determine the needs and principles of the design such as accessibility, inclusivity, connectivity and flexibility. The study attempts to determine if visually connecting the spaces of a public library will help transform it into a more inviting and engaging public place. It is important to ascertain if the visual connectivity impacts the function of the public library as a public infrastructure, as a social hub and also to enhance the engagement between the users and the utility.

I. INTRODUCTION

Public libraries are and have always been a vital part of society because of their role as providers of information, centralised data centres and an active public space for the community. In the past few decades, this role has been modified and seen a complete transformation as a result of the unprecedented growth of the digital world which makes the information and communication, data and documentation available at the fingertips.

While the concept of a public library was conceived in an age where information was scarcely and at times, costly, today's society makes it available in large abundance, and due to technology, very directly and effortlessly as well.

These developments have dramatically changed the way we access and consume information. As a result, libraries today face the challenge of declining number of visitors, leading to their value being thrown into question. But our need for shared, community-centred spaces to find information and connect with others remains as prominent as ever.

The role of a public library can be more appreciated with a shift from providers of information to one of a community centre, that acts as a working and learning environment where people can meet, share, exchange, interact, communicate and access information in all forms, including but not limited to print media.

This way of access to information reflects a profound impact on the design and planning of various spaces and areas in the public libraries. The spaces required now have to focus on places of meeting, communication as well as spaces dedicated to acquire information through digital media along with the traditional strong and stacking and reading areas but with contemporary design ideas and concepts.

This paradigm shift in the role of public libraries in contemporary times has a direct impact on the architecture and planning of public libraries. The planning is now concentrated on the engagement of users and the libraries today have emerged as more a place to connect rather than just their age-old role of a storehouse of print. The majority of information now available is in digital form and accessing it has led to changes in the physical characteristics of spaces and their dynamism in areas.

Public library, thus, is an important amenity building and a key element towards enhancing and encouraging the use of this public amenity and spatiality is through the enhanced and intended visual connectivity of public and activities and also between user spaces and designed spaces encouraging more social interaction among its users and also inviting the public at large for its potential utilisation.

One of the main reasons for the declining state of public libraries in India is the lack of financial support. Few libraries are functioning today to their full potential with most of them in dilapidated condition. Some states such as Tamil Nadu and Karnataka have benefited from government policies and hence have better infrastructure than other states. Anna Centenary Public library, Chennai is one such example. Whereas, libraries such as Delhi Public library and City Central library, Telangana are ill-maintained structures with few visitors.

II. BRIEF ON LITERATURE REVIEW

Visual connection between two spaces refers to the extent to which an area can be viewed from another area. It is the most convenient way to enhance interaction in public spaces and make the space more inviting. Users are more likely to explore different areas of a building or open space, if the area is visible to them.

Various studies show that the main characteristics of any successful public space are physical and visual accessibility, user's engagement, comfort level and sociability. A space that is easy to navigate automatically attracts more visitors, and visual connection is an important factor of that aspect.

Fig. 1: The Place Diagram by Project for Public Spaces
Photo Source: PPS

Therefore, atriums can be seen in many of the examples discussed further in this study. An atrium provides a clear view of all floors while also acting as a prime source of natural lighting.

It is important to understand the focus areas of any public library and study the elements and principles of library design in the 21st century.

Conventional libraries offer a variety of services such as reading areas, meeting rooms, areas for study groups and spaces for social interaction. The changes in our society today demand a shift in focus of the libraries from a collection centred space to a user centred space. Therefore, in addition to the traditional reading spaces, a public library needs to offer spaces that provide access to physical and digital media, areas dedicated towards activities for children as the center aims towards being open to all age groups, study room for individuals, collaborative learning spaces for group discussions and projects, media rooms which will showcase information in audio/visual form and co-working spaces.

Spaces for social interaction such as workshops areas, seminar areas, art galleries to display and host the library's collection, exhibition spaces and cafes to facilitate a combination of formal and informal learning atmosphere are important for the success of a public library.

The report by CABE,2003 describes today's public library as "the living room of the city". It also highlights the key differences between the areas and their planning of a traditional public library to a modern public library. Today's preferred design elements are stated to be open plan spaces with atriums for light and visual connection as opposed to imposing designs with restricted access. Commission for Architecture and the Built Environment (CABE) is a public body of the UK government and their 2003 report, "Better Public Libraries" highlights the changes being implemented across the country in the Public library sector such as renovations of the library at Bishop, Auckland and the Cowpen library. [2] also defines the qualities that modern libraries should have and supports the government's 10-year plan for public libraries across the UK.
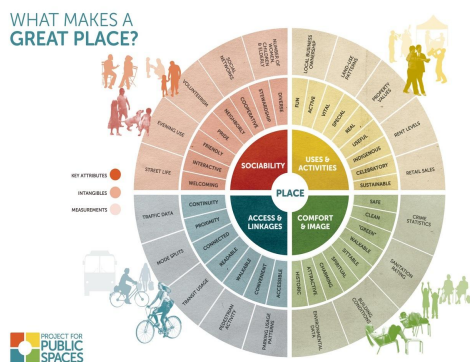
There is a stark difference between the planning and the areas of a traditional library and a modern one. While traditional libraries usually have restricted zones and a hierarchical design and circulation, modern libraries have open and flexible planning. Some common elements seen in the older libraries are clerestories, individual study areas, bookshelves requiring ladders and rigid furniture, whereas more recent libraries feature spacious, light filled, child-friendly spaces along with areas that facilitate co-working and group activities such as seminar rooms, group study areas, digital sections and cafeterias.

The Aspen Libraries report from 2014 highlights how to achieve the primary goal of a public library which is accessibility, opportunity and participation while changing the design criteria in order to keep the building a relevant public place. "The emerging value proposition of the public library is built around 3 key assets – people, place and platform" [1]. The Aspen institute is an international non-profit organization and [1] emphasises the need for key changes in the development of modern libraries.

Building on the previous statements, a similar study [2] explores the significant changes that have been brought about as a result of digitization namely - free style plans, atrium light, open-plan design and circulation. The study covers numerous projects and analyses them to find out which key elements seem to make a library a successful public building. It is worth noting that all these design elements centre around and promote visual connectivity which is the research topic.

The report states that creating valuable social spaces which can often be absent from other public buildings, is a useful factor in the success of a public library. "We need to stop seeing libraries as dusty repositories of books and start seeing them as part of the glue that holds society together". [2]

Gemma John in her research on "Designing libraries in the 21st century, 2016",[3] discusses on principles of library design including accessibility, visibility, connectivity, flexibility and adaptability. "Libraries that are designed to be more open with furniture that is designed to be more flexible can often be noisy and require careful planning". [3]

"As the services which libraries provide expand and change, from book lending to computer training, from providing seminar and meeting rooms to the provision of publishing and reprographic suites, the design of libraries is much more likely to take the form of freestyle floor plans, and adaptable internal configurations of space. With an increasing number of different functions and services being offered or organised, and at different times of the day and night, issues of public access and circulation need to be more carefully thought through and programmed". [2] In combining all these design criteria, visual connection emerges as the key element.

In all the above studies, a pattern emerges which highlights the importance of flexibility and visual connection in public libraries. However, it is also acknowledged that open and flexible plans can create noisy areas. This can prove to be problematic for the quiet zones of the library and careful planning is required to avoid any such outcomes.

III. METHODOLOGY

The research attempts to determine the qualitative impact of visual connectivity. Therefore, the methodology used for this research was visual, through images and using an online survey to find a more qualitative understanding from probable users.

The primary methodology used for this research is visual methodology. The total number of images selected for the study are 6. These images are carefully selected from public libraries in India and around the world showing visual connection between its spaces. The 6 images highlight the various ways in which visual connection can be incorporated in a library's design and the impact that has on the functioning of the built spaces. Sections and quotes have been used to highlight impact of visual connectivity wherever necessary. The different projects selected for the study are important examples showcasing visual connectivity between their spaces and the increased social interaction and engagement among its users as a result of this visual connection.

The second source of data for this study has been collected using an online survey which asked a total of 15 questions which would help determine if the majority of the respondents would prefer

visually connected spaces. The 65 participants in this study include students and working and non-working individuals.

At the beginning of the questionnaire, the respondents were provided a brief explanation regarding the research to give them a better idea of the aim of the survey. Out of the 15 questions, 13 are option based while 2 are open ended questions. Since the research attempts to determine the impact of visual connection, 2 of the questions are image based where the respondents are asked to choose a space based on the visual attributes shown in the images.

Both of these methods provide critical data for the analysis of impact of visual connection between areas of a public library. While the visual methodology looks at project examples for its study, the questionnaire provides insight into the respondents' preferences.

IV. STUDY AND ANALYSIS THROUGH IMAGES

The question that guided this study was to understand the importance and significance of how visual connectivity can qualitatively add to the experience and impact spaces of a public library. The images chosen to answer this question have been analysed below and each case presents evidence as to how visual connectivity has a positive impact on different areas of a library.

A. Seattle Public Library, U.S.A.

Seattle Public Library is located on Fourth Avenue in downtown Seattle, U.S.A., where the concept of keeping the library in the form of a continuous ramp provides smooth browsing for users as well as ensures that with the growth of the library, the public and the interactive spaces won't be compromised. The multi storeyed building with an access at 3 different levels was done in response to the tight urban site context with roads on all four sides of it, and caters to users of all age groups and categories in the city. From the highest point of the ramp, users can see down the large atrium, and look at the lower floors, creating visual connectivity between the spaces. The base of the atrium is located on the second level. The dramatic space allows visitors to look up to see the meeting rooms on level 4, and the Mixing Chamber at level 5. The Visual linkage binds the huge whole space together for the user.
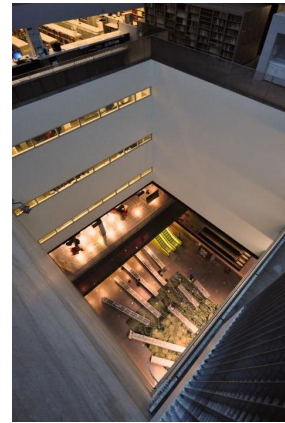

Fig. 2: Image showing view of Atrium from Level 5
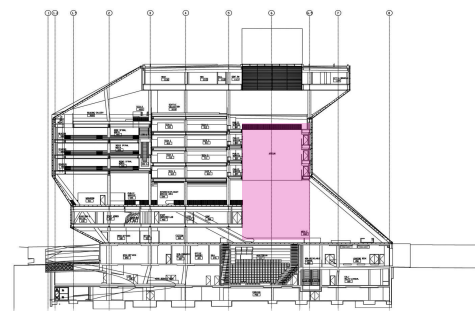Photo Source: www.cynic.org.uk, 2019

Fig. 3: Section of Building highlighting the Atrium
Photo Source: www.cynic.org.uk, 2019

B. Qatar National Library, Qatar

The Qatar National Library, Qatar chooses to visually connect the two most important areas of the library which are the main plaza and the heritage collection area. The library is a part of Qatar's education city, located just a few miles out from Qatar's capital city, Doha. The library is open to all and receives visitors from all over the capital. "From the main library in the plaza, you can look down and see all the books from the Heritage Collection," says Vincent Kersten, Senior Architect at OMA. "It's not only a storage but also an exhibition." [9]
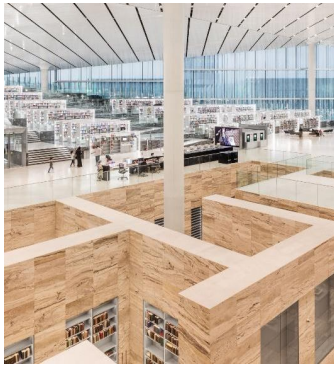
Fig. 4: Image showing the Plaza and Heritage Area
Photo By: Delfino Sisto Legnani and Marco Cappelletti

C. The Tianjin Library, China

The Tianjin Library, China uses floor to ceiling shelves to store its print media and an open plan as its core feature. The library is located in the cultural centre of Binhai district in Tianjin, a coastal metropolis outside Beijing, China. Located adjacent to a park, is one of a cluster of five cultural buildings. Designed by the Dutch firm 'MVRDV', this library in China has a futuristic design which shows visual connection using an atrium and an open plan between its shelving area and central core.

Fig. 5: Image showing central atrium and the floor-to-ceiling shelves
Photo by: Ossip van Duivenbode

D. The University of Aberdeen Library, Scotland

The University of Aberdeen Library, Scotland has 8 floors wrapped around an atrium and all visually connected. The planning of the building is such that the entire building is connected via the central atrium, enforcing student interaction. This library is a part of the University of Aberdeen, Scotland and hence its primary users are students.

Fig. 6: Image showing the various floors wrapped around the atrium
Photo source: Schmidt Hammer Lassen Architects

E. Calgary Public Library, Canada

In the Calgary Public Library, Canada, the areas are connected using an atrium not only inside the building, but the atrium is visible from outside the building as well making it a more inviting space. "The building is sited within a complex urban condition, where a fully operational Light Rail Transit Line crosses the site from above to below ground. In response, the design lifts the main entry over the encapsulated train line. Gently terraced slopes rise up to the heart of the building, allowing for people arriving from every direction to interact with the library". [12]
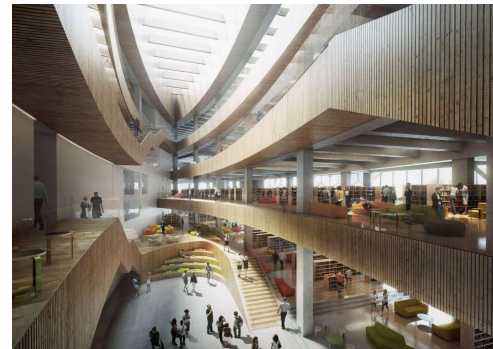

Fig. 7: Image showing the main atrium and the interior of the library
Photo source: " Calgary Central Library / Snøhetta" 05 Nov 2018. ArchDaily. Accessed 14 Oct 2022.

F. Bangalore International Centre, India

The Bangalore International Centre, India uses visual connectivity for its entrance foyer to create a more inviting space. The site is located in a dense urban environment in the city of Bangalore, India. The double height of the foyer acts as a connecting space for the entire building while the perforated brick wall acts as a contrasting element against the concrete frame of the building.

Fig. 8: Image showing visual connection between first floor and double heighted entrance foyer
Photo source: "Bangalore International Centre / Hundredhands" 25 Jan 2020. ArchDaily. Accessed 14 Oct 2022.

G. *Delhi Public Library, India*

Delhi Public Library, NewDelhi, India is located in the busy area of Chnadni Chowk and is one of the oldest functioning public libraries in India. It receives visitors from all over the urban capital. The library was established in 1951 and hence has traditional design elements.

The design displays a restrictive environment for its users rather than an interactive one with no kind of visual connections encouraged between different spaces.

Fig. 9: Image showing the storage and browsing section of the library
Photo by: Simrran Gill

In all the above images and examples, it is clear that visual connection and openness in a public library is an important element in the design of a public library. The spaces connected visually encourage interaction between users and create a more transparent space. It is worth noting that multiple levels connected by an atrium provide access to natural light and promote engagement.

V. STUDY AND ANALYSIS OF DATA FROM QUESTIONNAIRE

To understand the premise of the study more specifically from a user's point of view as well, a questionnaire was circulated. From about 65 respondents, the preferences of participants' regarding visually connected areas in a library as compared to isolated areas was analysed.

The questions asked inquired about the significance of visual connection for the users. This was done by asking the participants to choose between multiple images showing visually connected areas as opposed to physically isolated areas. The questions included also asked the participants to choose specific areas of the library to be visually connected or isolated.

The participants were asked about the most important qualities in a public space according to them and what kind of spaces they would envision for a library.

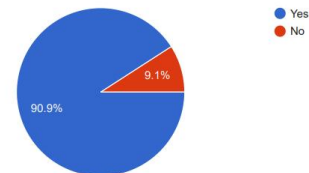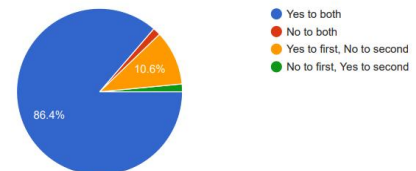Fig. 10: Image showing that 90% of participants answered that they are more likely to explore an area if it is visible to them

Fig. 11: Image showing that 86% of participants feel that visually connected areas create safer and socially interactive environment
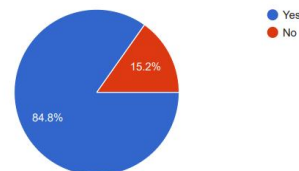

Fig. 12: Image showing that 85% of participants would prefer visually connected social areas of a library

The findings prove that respondents visited the library for a mixed variety of reasons including borrowing media, utilising the digital resources, social reasons and attending seminars/workshops. These results show us that a wide variety of users prefer to utilise the library services for reasons that were once considered secondary, but now prove to be a primary space in a public library.

When asked whether the users would be more likely to use visually connected areas including spaces such as gallery/workshop areas and seminar areas, almost 90% users answered positively while only 9-10% users did not prefer a visually connected space.

The majority of the answers from the respondents to the multiple-choice questions as well as the open-ended questions, clearly indicate that users prefer physically (and hence acoustically) isolated areas when it comes to reading spaces. These findings highlight the concerns mentioned earlier which state that in visually connecting the areas, careful planning and consideration must be implemented so as to not create noisy zones for the reading areas.

The above charts and the responses to the open-ended questions show us that Natural lighting, segregation of spaces and visibility of spaces from the different areas of the library are three of the most preferable qualities of a public library according to the respondents. These statistics enforce our hypothesis that visual connection between spaces work well towards enhancing interaction among users. The preferences towards Visual connection between different zones received mixed responses where 52% wanted a visual connection between staff and users while the other 48% were against it. In the case of visual connection between kids' zones and adults' areas, almost 58% were for it while 42% were against it. These statistics suggest that while users prefer visually connected areas, they also want privacy to be ensured in areas that require a quiet environment such as reading areas and study sections.

For the image-based question, when asked to choose between visually connected public areas and isolated areas, 62% of the participants chose the image showing visually connected areas on different floors while 30% chose the image showing visually connected areas on the same floor and less than 10% participants chose the image showing isolated areas. Almost 90 % of the participants affirmed that, according to them, visually connected spaces would create a safer environment which in turn ultimately boosts social interaction among users.

Some responses describing their "ideal reading environment" expressed a desire for "Silent but not that isolated "spaces, "Quiet enough to be able to concentrate but also not too quiet" areas, and also with a "a view of natural beauty in my surroundings". A couple of interesting responses received to the question "Briefly describe the kind of spaces you would want in a public library." were "It will be great if I am allowed to eat while I am reading or researching. " and "Open spaces with good natural lighting connecting the landscape."

VI. CONCLUSIONS

The aim of this study was to determine the impact of visual connectivity between areas of a public library. This was tried to accomplish by studying the images from various projects across the world and by collecting and analysing data directly from the users' perspectives.

Based on the literature review, it can be confirmed that visibility, openness and flexibility are a few of the key features for designing a public library in the digital age. The growth of the digital industry has had a massive impact on every aspect of our lives, including a shift in the role of the public library.

Keeping in mind these changes and the findings of this study, it can be concluded that Public Libraries in Urban areas today need innovative design strategies to maintain their active role in society as a centre for community. Visual connectivity has proven to be a creative and effective way to enhance activity in a public space. The analysis of the images in this research shows us examples of how visual connection can work towards re-envisioning the same spaces of the library in a more interactive way.

The examples of the above libraries have shown us that out of 6 projects, 4 of them used an atrium as a way to increase visual connection. This, in addition to prior research mentioned in literature

review, tells us that atriums are an important feature and can be used to increase not just connectivity among spaces, but also act as an important source of natural daylight. We know from the participants' responses that natural lighting was the most preferred quality in a library by almost all the respondents. Atriums, therefore, manage to achieve two of the most important criteria of a public library – visual connectivity and natural lighting.

From the responses to the questionnaire, it can be concluded that the majority of the users prefer a visually connected space. In addition, we also know that careful planning is required since visually connecting the areas inside a library can often lead to creation of some noisy zones. These areas have to be carefully planned so as to not disrupt some of the important functions of the library.

Introducing additional areas and connecting them visually with the reading areas can effectively link the passerby with the library and also enhance the 'popularity' of the library areas amongst the public at large. Introducing additional areas can help pull in more people to the building and visual sight lines can unconsciously add to the bonding between the readers and the reading materials. Through this paper, it was attempted to highlight the positive impact of visual connection between spaces of public libraries while addressing the care and concern that must be given to the design of the library while accomplishing the same.

ACKNOWLEDGMENT

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10. *Tianjin Library, China Photo by: Ossip van Duivenbode*

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