International Journal of Multidisciplinary Research and Growth Evaluation.

Assessment of accessibility and inclusivity in the design of public library in Lagos

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Article Info

ISSN (online): 2582-7138
Volume: 05
Issue: 02
March-April 2024
Received: 10-02-2024;
Accepted: 13-03-2024
Page No: 594-599

Abstract
With an emphasis on the Herbert Macaulay Library in Yaba and the Ikeja Secretariat Library, this study evaluates the architectural accessibility and inclusion of public libraries in Lagos. The need to design environments that satisfy the many needs of individuals, including the aged, the disabled, and persons from diverse cultural backgrounds, is the focus of the research challenge. The study's main goal is to assess important factors including these libraries' physical or spatial, visual, aural, and cognitive accessibility. Using a qualitative methodology, the study collects data mostly through observation, supported by an observation guideline. During the observation process, ethical guidelines were adhered to, including getting permission from librarians. The results show that when it comes to diversity and accessibility, both libraries have room for growth as well as strengths. The design of entrance and exit pathways, as well as the accommodation of wheelchair users in aisles and corridors, present obstacles despite efforts to optimize space design and layout for various users.
Clear navigational systems, contrasting colors and textures, and effective lighting and ventilation techniques all help to improve visual accessibility. Enhancing visual accessibility elements, arranging furniture better, and expanding entry and exit pathways are among the recommendations. The libraries may improve their accessibility and inclusivity and create more hospitable and inclusive environments for all patrons by putting these suggestions into practice.

Keywords: Accessibility, Inclusivity Public Library and Lagos state

1. Introduction

Accessibility and inclusivity in building design is an important aspect of creating environments that are inviting, functional, and equal to all individuals, irrespective of their level of physical ability, age, or background (Adeboyejo *et al*., 2022) [1]. This process involves evaluating the design, layout, and features of a building to ensure that they meet the needs of diverse user groups, including the elderly, those with impairments, and persons from other cultural origins. Public libraries play a major role in society, serving as inclusive spaces for learning, research, and community engagement. 80% of accessibility flaws in educational buildings are related to accessible space, tactile signage, wayfinding, and visual signage (de Velasco Machado & de Oliveira, 2021) [8]. Academic libraries face unique legal, technological, and ethical pressures to ensure accessibility for individuals with disabilities, highlighting the potential for them to lead accessibility efforts in libraries and society (Wentz *et al*., 2023) [24]. Design strategies for accessibility and inclusivity can transform libraries into attractive, creative, and trendy spaces while maintaining their orientation to knowledge and ensuring quick access to information (Lee, 2021) [13]. While program trends include areas for books, galleries, transportation, technology, maker spaces, storytelling, meditation, and social activities, library design trends from 2015 to 2019 include connections to nature, natural light, courtyards, bridges, split levels, mazes, and dispersed layouts (Copper, 2021) [7]. These features support users' accessibility and inclusivity within the building. The majority of libraries worldwide are putting more emphasis on accessibility, and many are doing so by providing staff with accessibility training and by deploying tools to identify and fix problems (Ashmore *et al*., 2020) [2].

The architectural accessibility and inclusivity design of the library includes the incorporation of several elements within the library building space. These include the provision of both vertical circulation and horizontal circulation elements such as elevators and staircases to ease movement and accessibility, wide Aisles and corridors, accessible entrances, clear signage, adaptable furniture, quiet space, and visual contrast. Spatial accessibility of public libraries can impact equity and inclusiveness, with inequity more prominent for socially disadvantaged populations as seen in cities like Washington, DC, and Baltimore (Cheng *et al*., 2021) [5]. libraries can promote inclusivity by incorporating culturally responsive services, reconfiguring services and space, and recommending strategies for balanced inclusivity in accessibility (Chisita & Fombad, 2021) [6]. Public libraries can promote inclusivity and accessibility by implementing information standards, guidelines, and best practices, such as mobile accessibility, cognitive accessibility, and inaccessibility examinations (Dickey *et al*., 2022) [9]. As observed all over the world, 53.8 percent of libraries in Iran did not provide ramps and 63.0 percent had no exclusive space for the disabled, with room for improvement (Bodaghi & Zainab, 2013) [4]. Physical accessibility issues in public libraries include spatial relationships, Challenges for patrons with visual, auditory, and mobility disabilities in accessing library services and resources including computers not being able to change font color or size, and steps without ramps for wheelchairs (Litwak, 2021) [14]. Students with disabilities may face accessibility barriers to library spaces, limiting their benefits from services and facilities (Ilako *et al*., 2020) [12]. Therefore, the objective of the study is to assess the architectural accessibility and inclusivity of the Public Library in Ikoyi, Lagos state. This assessment aims to evaluate key variables such as physical or spatial, visual, auditory, and cognitive accessibility and inclusive design practices. By conducting this assessment, the study seeks to identify areas where the library's design can be improved to enhance its usability and appeal to a diverse range of users, ensuring that it remains a welcoming and inclusive space for learning, research, and community engagement.

2. Literature Review

2.1 Spatial accessibility element within public library building

Spatial accessibility within a public library building which is the ease with which users can navigate and access different areas and resources within the facility. It encompasses the layout, design, and organization of spaces to ensure that they are inclusive and user-friendly for individuals of all abilities and backgrounds Several key elements contribute to spatial accessibility in a public library building such as clear and well-defined pathways throughout the library ensure that users can easily navigate between different areas, such as circulation desks, stacks, reading areas, and amenities. Open areas have a favorable effect on public libraries' friendliness., as shown by the Space Syntax method, enhancing user integration and satisfaction (Askarizad & Safari, 2020) [3]. The availability of service facilities, the standard of interior design, the physical environment's components, spatial diversity, and the controllability of learning spaces are the five spatial factors that have the biggest effects on patron happiness with library spaces. (Peng *et al*., 2022) [20]. Collaborative library spaces can enhance student success by partnering with campus organizations to address user needs and create a more holistic library experience (Ozburn *et al*., 2020) [18]. Spatial layout, including accessibility, possession, interior design, reading space, and user convenience, significantly influences the satisfaction and use of public libraries by residents (Noh & Chang, 2020) [17]. Increasing user loyalty to public library services is contingent upon the effective management of physical space, information resources, human resources, and information technology. (Tajedini *et al*., 2020) [22]. An open and flexible layout allows for easy movement and visibility within the library, reducing the likelihood of congestion and barriers for users, including those with mobility aids. A well-designed library layout makes the most of available space and improves the experience for patrons, making it more enjoyable to study or work there. (Gu & Tanoue, 2022) [10]. Spatial experiences like permissible white noise, movable furniture, ubiquitous floor outlets, and a cozy rest area contribute to the overall 'placeness' of a library, increasing utilization and satisfaction (Twum *et al*., 2022) [23]. Implementing effective wayfinding strategies, such as clear signage, maps, and digital navigation aids, helps users orient themselves and locate specific areas or resources within the library.

The physical attributes of libraries, such their accessibility and central location, are essential for driving up library usage patterns, especially among students. (Shorabeh *et al*., 2020) [21]. Different attributes of library spaces, such as enclosed spaces, noise levels, lighting, and space attachment, influence users' spatial activities and experiences positively or negatively (Ilako *et al*., 2020) [12]. Optimal configuration of university library layout can improve students' academic literacy development by highlighting cognitive map elements, increasing spatialness, and providing natural atmospheres. (Xiao, 2022) [25]. Providing furniture and equipment that are adjustable and accessible to users of varying heights and abilities enhances the overall usability of the library space. Offering a variety of spaces within the library, such as quiet zones, collaborative areas, and group study rooms, caters to the diverse needs and preferences of users, promoting inclusivity and comfort. Users frequently use exhibition, performance, rest, and education spaces in libraries, while community and experience spaces have low utilization rates (Noh, 2022) [16]. Incorporating universal design principles, such as providing ample space for maneuverability, clear sightlines, and accessible technology, ensures that the library is accessible to all users, regardless of their physical or cognitive abilities. Ensuring that the library is designed to be safe and accessible during emergencies, with clear evacuation routes and accessible exits, is essential for the well-being of all users. Perceived safety is the most important spatial feature for human-scale spaces, contributing to overall satisfaction and utilization of libraries (Paananen *et al*., 2021) [19]. Spatial accessibility of public libraries in urban settings can satisfy residents' basic need for library resources, but minority populations, children, and youth have inequitably less diverse library resources (Hong *et al*., 2020). Spatial experiences impact reader impressions, cognitive values, and behavioral intentions, influencing their choice of libraries as primary information providers (Luo, 2023) [15].

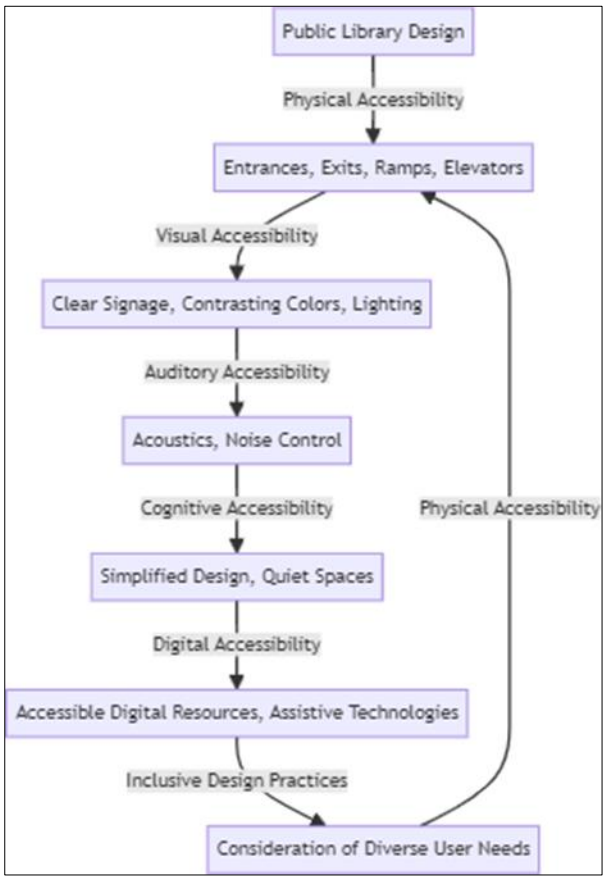

Fig 1: Study conceptual framework

3.0 Study Methodology

The study relies on a qualitative approach as a source of information for the study findings. The study only employed the use of observation, which was aided by an observation guideline. The study employed the use of a case study to identify a public library in Lagos with accessibility and inclusivity elements incorporated within the building element. Chosen the case study certain criteria were used to identify these public libraries around Lagos states such as accessibility to the building, building height, and locations. Ethical constraint was also followed when carrying out the observation such as permission from the respective librarian. The study observation accesses only the architectural accessibility and inclusivity element in the case study,

Case study i: Herbert Macaulay Library Yaba, Lagos state

The Herbert Macaulay Library is a public library serving the people of Yaba, Lagos State. It is one of the state's twelve branch libraries and offers free instruction and information to everyone living in Lagos State and surrounding areas. The library was renamed after the well-known nationalist Olayinka Herbert Macaulay when it was first constructed in 1966. The library, which was renovated in 2017 by Guaranty Trust as part of its You Read CSR Initiative, provides free access to both academic and non-academic literature, internet-enabled computers, exhibitions, and more for everyone, from young children to scholars. The library is divided into a number of locations, including reading sections, lounges, and open areas for amusement.

Fig 2: Interior view of reading area Herbert Macaulay (source: Techpoint.ng)

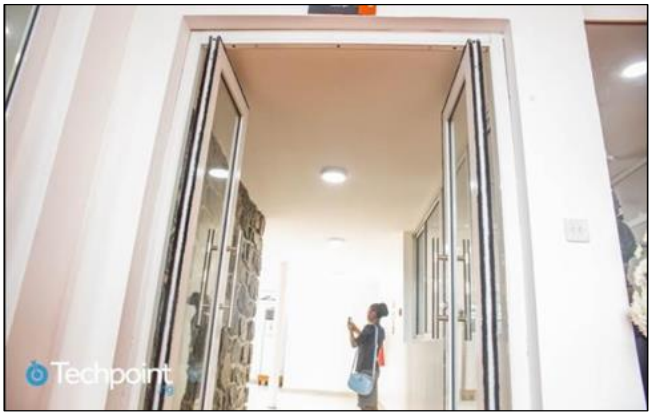

Fig 3: lodge area Herbert Macaulay Library (source: Techpoint. ng)

Fig 4: exterior view of the library (source: gtbank. ng)

Fig 5: library floor plan (source: field survey) Case study ii: Ikeja Secretariat Library

Fig 6: Interior and exterior view of Ikeja Secretariat Library (source: field survey)

Ikeja Secretariat Library is a public library located at the old secretariat, Ikeja GRA.it is a story building with two floors, the top floor is library resources for adults while the down floor is reserved for children and teenagers. The library which was also constructed and renovated in 2016 stands as a learning environment for residents at Ikeja. Its architectural features include poor day lightening, and wide windows aiding natural ventilation with easily accessible layout and features. Although an old library building the building remains serves as a significant hub to source library information.

4.0 Study Finding

The study finding is summarized in the table below

SN	Accessibility and institution	Case study i: Observation comment	Case study ii: Observation comment
1. Spatial or physical accessibility component			
i	Entrances and Exit pathway design	opening entrances and exit spaces and pathways within the library buildings are small and not wide	Availability of less wide entrances which aids the spatial movement of people in and out of the library spaces,
ii	Building space layout and design	efficient building interior space design and layout which aid in spatial circulation within the building	Space design and layout within the library are optimized for each category of users
iii	Availability of elevator, staircase, and ramps	Availability of staircase and ramps within the building floor and absence of elevators within the buildings	Availability of a staircase to ensure ease of access for individuals with mobility impairments.
iv	Aisles and Corridors design	Wide aisle and corridor design to aid navigation and wayfinding within the library building floors	aisles and corridors don't accommodate wheelchair users but allow for easy navigation for all
			visitors, including those with strollers or luggage
v	furniture's arrangement	adaptable furniture, such as adjustable-height tables and chairs, accommodates users with different needs and preferences identified within the library furniture	Poot Furniture arrangement within the library buildings furniture is also arranged to allow for easy maneuverability and provides a variety of seating options, including adaptable furniture
vi	Shelving and displays	Efficient shelf arrangement and display aid accessibility of library resources	Shelves arrangement and display within the library building are properly arrangement
2. Visual Accessibility component			
i	Wayfinding strategies	Clear and intuitive wayfinding systems, including signage with large, easy-to-read fonts and tactile elements for individuals	The availability of clear signage across various sections of the building easy-to-read fonts and symbols help all visitors navigate the library, including those withcognitive or visual impairments
ii	Aesthetic strategies	Contrasting colors and textureson floors, walls, and furniture aids visitors' visual accessibility within library spaces	Contrasting colors and textures on floors, walls, and furniture aids visitors' visual accessibility within library spaces
iii	Lighting and ventilation strategies	Building design aids daylighting and ventilation within the libraryspace	Building design aids daylighting and ventilation with the provision of wide windows and door design
3. Cognitive Accessibility			
i	Quiet space design	Quiet study and reading areas were designed which are accessible to all users, including those with sensory sensitivities.	quiet areas, the reading area within the library provides a peacefulenvironment for visitors who may be sensitive to noise or require a quiet space for concentration

5. Conclusion

The evaluation of the Herbert Macaulay Library in Yaba and the Ikeja Secretariat Library as examples of accessible and inclusive library designs in Lagos highlights both their positive aspects and their shortcomings. Both libraries have worked to optimize the layout and design of their spaces for various user categories in terms of spatial accessibility. Nonetheless, there are issues with the design of the entry and exit pathways because the apertures are narrow and do not allow for easy mobility. Access for people with mobility impairments is restricted in certain buildings due to the lack of elevators, despite the presence of ramps and staircases. Though they make it easy for most tourists to navigate, wheelchair users cannot fully use the broad aisles and corridors. Both libraries feature distinct wayfinding systems that make it easier for visitors to navigate through contrasting colors and textures, large, readable typography, and other visual accessibility features.

The employment of contrasting colors and textures on the walls, floors, and furniture, among other aesthetic techniques, improves visual accessibility in library environments. The libraries' overall accessibility is enhanced by their lighting and ventilation policies, which are based on building designs that encourage daylighting and ventilation. Furthermore, both libraries offer quiet spaces for reading and study, fostering a calm atmosphere for patrons who might need a place to focus.

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