Adequacy and Design Utilisation of Disabled Facilities in North Eastern Polytechnic Buildings of Nigeria

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Abstract

This exploratory research aims to examine the extent to which facilities for persons with disabilities have been incorporated into the designs and construction of polytechnic buildings in Nigeria. To achieve the study's objectives, a comprehensive literature search, interviews, personal observations, and a survey were carried out in the northeastern polytechnics of Nigeria. The researcher observed that buildings constructed in some of the polytechnic campuses are totally disability-friendly. It is observed that facilities such as main entrances to auditorium/lecture hall, hostels, ramps, and staircases were not readily accessible to Persons with Disabilities. Fittings, such as directional signs, underfoot warnings, Braille texts, seats and space for wheelchairs users is inadequate or virtually absent in some of the buildings. The study quest for the polytechnic's authorities, funders and those in charge of design and construction of buildings for polytechnics and the law enforcement agencies to designed and construct polytechnic structures to be disability friendly in order to accommodate disabled persons.

Key words: *Adequacy, Disabled facilities, Design and Buildings.*

1. INTRODUCTION

The passage of Persons with Disability Act in 2018 in Nigeria by the Parliament and the constitutional inclusion of fundamental human rights for PWD makes it mandatory to put up public buildings that are disability-friendly. Despite the passage of the Persons with Disability (PWD) Bill, by the parliament of Nigeria and the provisions made in the 1999 constitution on the rights of disabled persons and building regulation, little has been done on the provision of facilities, conveniences and signs for people with disabilities in public buildings in Nigeria (Danso et al, 2021).Design and construction of buildings in most cases have not been given consideration to making public buildings easily accessible to the disabled people in Nigeria. According to Owusu and Owusu-Ansah (2021) many private and public buildings like residential flats or apartments, shopping centers, office buildings, medical clinics and hospitals, schools and higher institutions recreational centers and athletic stadia, government buildings and houses of worship are without mechanisms like ramps, lifts, and escalators, directional signs, underfoot warning, Braille texts, seats for wheelchair users, etc. This act of discrimination has continually deprived disabled persons their fundamental human rights in the field of planning and resources allocation (Wellington, 2019). It is against this background that some pressure groups in Nigeria advocated for the passage of the Disability Bill into law in June 2018.

1.1. Statement of the problem

The needs of the disabled persons are as important as the needs of the physically-able majority. For this reason, planning and designing for the majority should take into account the requirement of PWDs (Uslu,2019). Wylde et al. (2019) reports that as many as 9 out of 10 individuals may be architecturally disabled in some way or other at some time in their lives. This implies that we are all disabled at one time or the other in our lives. For instance, a child, a pregnant woman, an injured person, an elderly person, a parent with a pram, etc. Are all disabled in one way or the other. There are very few people who remain able-bodied and healthy all their lives. It is, therefore, important that the built environment, which includes public buildings are made barrier-free by appropriately designing, constructing and maintaining them to meet the needs of all users equally.

The principles of inclusive design aim to accommodate the broadest range of bodily shapes, dimensions and movements, in the belief that designers and manufactures should ensure that buildings, products and services address the needs of the widest possible audience. The need for making the built environment barrier-free is so important that Peel et al. (2019) advanced five arguments for its implementation. These are:

A moral argument that access to the environment is a basic human right and that there is a moral obligation to tackle the barriers and obstacles to creating and sustaining an inclusive environment

A sustainability argument that adaptable and flexible buildings and environments are better able to accommodate the changing needs of society and individuals

A professional argument to operate within equal opportunities frame work as required in professional codes of conduct

An economic argument that excluding individuals from the workplace and/or market and costly post-hoc design solutions do not make business sense, and importantly

Legal arguments enshrined in statutory instruments

Section 42 and 43 of the PWD ACT 1999 Constitution under the rights of persons with disability, provisions are made for access to be provided to public places and public services respectively. It is regrettable that design and construction of buildings in most cases have not been given consideration in making public buildings easily accessible to the disable people in Nigeria.

1.2. Objectives of the study

To achieve the needed results, the following objectives were set:

i. To identify whether Disability facilities are factored into the design of public polytechnic buildings in Nigeria.

ii. To ascertain the type of disabled facilities incorporated in the design and construction of polytechnic buildings and its adequacy.

iii. To know the significant difference in productivity of the disable persons in polytechnic campuses with factored disability facilities.

1.3 Research Question

i. Is disable facility factored in the design of polytechnic buildings in the north eastern part of Nigeria?

ii. Do we have a significant number of structures built in the Nigerian polytechnics with disabled persons in mind?

iii. Is there positive productivity by persons with disability in the polytechnics with design and incorporated facilities for the disabled?

2. REVIEW OF LITERATURE

2.1. International statutory building instruments

Apart from the legislations, various statutory building instruments, such as International standards, Building Regulations and Guidelines, Codes of Practice, etc., have also been developed by several countries and organizations to achieve designs and features that are useable by persons with disabilities. Their main goal is to provide guidance as to how the built environment can be designed to anticipate and overcome restrictions that prevent disabled people from making full use of premises and their surroundings. Examples of such instruments are: British Standards Institution (2001)-Design of Buildings and Their Approaches to Meet the Needs of Disabled People [BS8300 (2001)], Americans with Disabilities Act Accessibility Guide (2004)[ADAAG (2004)] and Accessibility for the Disabled, A Design Manual for a Barrier-Free Environment, Urban Management Department of the Lebanese Company for the Development and Reconstruction of Beirut Central District [SOLIDERE (2004)]- developed by the UK, USA and the UN, respectively, to provide guidance on good practice in the design of domestic and non-domestic buildings and their approaches so that they are convenient to use by disabled people.

2.2. Inclusive design of public buildings

By the United Nations standard, all work areas in which PWDs may be employed should be

accessible (Ansah and Owusu, 2012). They should accommodate a wide range of ancillary aids and be able to support interactive usage (ibid). For many years in Nigeria, PWDs have been discriminated by the way buildings are designed and built. Both private and public buildings as well as other facilities and infrastructure were built without recourse to the needs of the PWDs in the society. Although Nigeria had gone through a lot of transformations in terms of general building construction such as residential, commercial and institutional buildings before and after independence from the British in 1960. A cursory look at development of Buildings in Nigeria, obviously shows that with these transformations, the design and construction of most of these buildings did very little to consider PWDs in the Nigerian society (UNICEF, 2022).

Wylde et al (2020) intimate that only 20% of individuals may not be architectural disabled in one way or other at some time in their life. For this reason, it is imperative that the built environment is properly designed and made all inclusive.

·Designing for PWDs also goes beyond just specifying technical solutions without paying attention to the social aspects. For instance, inclusive design means designing for everyone, without stigmatizing or excluding particular groups or individuals. This is part of society's ethical responsibility to create inclusive and caring communities. It allows everyone to participate and provides choices rather than limitations and sends the message that these people are, in fact, important members of the community (Vandebelt, 2021). For instance, Lawton in his work in 2022 studied the effect of the built- environment on the elderly in society. He came to the conclusion that, a poorly-designed built-environment can negatively affect the lives of the aged.

An important outcome for inclusive design should therefore be of both ease architectural disability and realize a greater measure of social equity and justice. However, critics of inclusive design argue that, in many cases, it is impossible to provide a 'one size' fits all' solution and that some people will always be excluded.

2.3. Significance of person with disabilities legislation.

The Discrimination Against Persons with Disabilities (Prohibition) Act 2018 is a significant legislation in Nigeria that protects the rights of persons with disabilities. This Act prohibits discrimination on the basis of disability and imposes sanctions, including fines and prison sentences, on those who contravene it.

The United States of America's Congress' response to the problem of discrimination against the disabled was the passing of the Americans with Disabilities Act (ADA) in 2019. It was followed by Australia and the United Kingdom in 2021 and 2022, respectively, with their versions of legislation called the Disability Discrimination Act (DDA) (Otmani et al., 2019). The major aim of all these pieces of legislation was the removal of barriers in the built environment to allow PWDs to participate in everyday life of their societies.

Their main goals included providing people with disabilities access to buildings, equal employment opportunities, equal access to public transportation, the opportunity to attend school and the chance to be eligible for social security support (Little, 2019). The United Kingdom pushed further the frontiers of her legislation by introducing part M of the 2014 Building regulations which established the

concept of mainstream access provision to buildings. It was followed by the Disability Equality Duty (DED) which was born out of the Disability and Discrimination Act (2029) and seeks to compel all who design, manage and maintain the built environment to ensure that PWDs play a full part in benefiting from, and shaping an inclusive built environment (Duggan,2022).

2.4. Adequacy of facilities in modern Design.

These facilities include:

Car parks and access routes: This refers to the availability and accessibility of parking spaces and pathways leading to and around buildings, ensuring that persons with disabilities can easily access the premises.

Horizontal Circulation: This includes features such as building entrances, corridors, and floor surfaces that enable easy movement within the building, accommodating wheelchairs, walkers, and other mobility aids.

Vertical Circulation: This encompasses features like ramps, staircases, lifts, and elevators that facilitate movement between floors, ensuring equal access to all areas of the building.

Communication aids: This includes signage, lighting, audio communication systems, and other features that assist persons with disabilities, such as visual or hearing impairments, to navigate and use the building effectively.

Facilities for people with disabilities in Nigerian modern design are still inadequate. Many public buildings, including Tertiary Institution, lack accessible features such as ramps, wide doorways, and elevators. A study found that only 18.4% of public buildings in Ibadan were wheelchair accessible, with hospitals being the most accessible (66.7%) and social/recreational buildings being the least accessible.

3. RESEARCH METHODOLOGY

The researchers have adopted triangulation approach in the process of collecting and analyzing the data. The triangulation approach in this research consists of three methods of data collection and analysis: questionnaire survey, semi structured interview and observation. According to Denzin (2020) and Dixon et al. (2018) different research methodological approaches lead to greater validity and reliability than a single methodological approach.

The questionnaire is designed in line with the aim and objectives of the research to ascertain whether disabled facilities were fully incorporated in the Public polytechnic buildings in North Eastern part of Nigeria and also to find out the type of disabled facilities incorporated in the buildings.

The interviews conducted in a semi structured format, allowed respondents to express their own view points (Flick, 2022). The semi structured face-to-face interview was used to solicit additional information from the client's representatives for the polytechnics (the polytechnic development officer and Estate officer) on the main subject of the study.

Under the observation, researchers have observed the facilities within and around the selected buildings. These buildings are Main Library (ML), Science Lecture Theatre Complex/Auditorium (SLTC/A) hostels Workshops and New Lecture Theatre Complex (NLTC). A purposive sampling approach has been employed to select these buildings because those buildings serve multi-purpose functions on the campus.

The targeted usage groups in this research are people (student, workers PWD) wheelchair users, people with limited walking ability, the visually impaired and the hearing impaired. The targeted respondents to answer the questionnaires included Building Construction Professionals who are client's representatives, (polytechnic Development officer, director works and physical planning and Estate officer) were contacted to answer the questionnaires for the study.

3.1 Area of the study

The area of this study comprise some selected federal polytechnics in the north eastern part of Nigeria. Specifically, Federal polytechnic Bali, Taraba State, Federal polytechnic Adamawa, Federal polytechnic Gombe, Federal Polytechnic Bauchi, and Federal Polytechnic Damaturu Yobe state**.**

3.2 Instrument for Data Collection

The instrument used for data collection is questionnaire. Best and Khan (2018) further elaborate that a questionnaire is used when factual information is desired and has the following advantages: the person administering the instrument has an opportunity to establish rapport, explain the purpose of the study, and explain the meaning of items that may not be clear. The questionnaire has been designed in such a way that has solicit answer from respondents. The structured questionnaire has been constructed for the students, staffs PWD, etc. The questionnaire has been divided in two parts; Section A: Personal data, Section B: data relating to the issue under study.

3.3 Procedure of Data Collection

With the aid of questionnaires, the researchers administer the questionnaire to the respondents among the students, staffs PWD. Across the polytechnics.

The retrieved copies of the completed questionnaires from the respondents, the data collected from the survey has been grouped under the following four headings:

Car parks and access routes to and around buildings (external accesses)

Horizontal Circulation (building entrances, corridors, floor surface finishes etc).

Vertical Circulation (ramps, staircases, lifts etc).

Communication aids (signages, general lighting, audio communication, etc).

3.4 Method of Data Analysis.

Descriptive and inferential statistics has been used to analyze the data. The descriptive include the use of frequencies, percentages, means and standard deviations, while the inferential statistics include the use of ANOVA.

Despite the recognizable number of persons with disability (9.6%) of the Nigerian population, and the passage of the persons with Disability Bill, by the parliament of Nigeria little has been done on the provision of access and facilities for people with disabilities in public buildings in Nigeria.

4. RESULTS AND FINDINGS

Results of this research indicate that most of these buildings surveyed have serious deficiencies as far as accessibility to their built - environment is concerned. In terms of provision of facilities for disabled people, few New Lecture Theatre Complex (NLTC), have the modern facilities for PWDs than old structures. Facilities for PWDs in and around the buildings,

such as car parks, ramps, directional signs, and hand rails are not adequately provided for PWDs and should be improved.

The greatest levels of deficiency were observed in and around the new buildings (Main Libraries and Lecture Theatres Complex/Auditorium). These buildings will need major retrofitting to make them accessible to PWDs.

5. SUMMARY AND CONCLUSION

This exploratory research examine the adequacy of disable facilities in North Eastern polytechnics of Nigeria. And the extent to which the Persons with Disability facilities have been incorporated in the designs and construction of polytechnic buildings in Nigeria. To achieve the study's objectives, a comprehensive literature search, interviews, personal observation and a survey was carried out in some selected north eastern polytechnics in Nigeria. The Findings equally finds out structures and places such as main entrances to auditorium/lecture hall, hostels, ramps, and staircases that are not user friendly and readily accessible to Person with Disabilities. Fittings such as directional signs, underfoot warnings, Braille texts, seats and space for wheelchairs users are adequate or virtually absent in the buildings. The study also advocate and help ensure that polytechnic's authorities and those in charge of design and construction of buildings for polytechnics and the law enforcement agencies incorporate design and polices that is user friendly by the disabled persons. This research would also provide a clear reference for comparison In the productivity of PWDs in other parts of the country (Nigeria).

RECOMMENDATIONS

Based on the conclusions drawn, the following recommendations are made to ensure the accessibility of the public University buildings by PWDs:

a) Retrofitting

Designated car parks that are appropriately designed, constructed and signed should be provided for PWDs at all the three buildings.

SOLIDERE (2020) recommends that, at least, one entrance per facility should be accessible to a wheelchair user. External and internal ramps should, be provided in the case study buildings to make them accessible to everybody. The dysfunctional lifts in the ML building should be repaired as a matter of urgency.

Additional signs should be provided at all the facilities to minimize the possibility of both able and disabled losing their way around those premises.

b) Legislation and enforcement

With the passage of the PDA, Act 2018, the Nigerian Building Code and Building Regulations should be revised and passed into laws to make it mandatory for all public buildings to be accessed by disabled persons. This law should be enforced by the relevant state agencies like District, Municipal and Metropolitan Assemblies and the government should have the political will to back these agencies by penalizing all defaulters.

c) Funding professional bodies

This research factual results recommend and suggest to building professional bodies, polytechnic authority, policy makers, and law enforcement bodies in design of polytechnic buildings, to enforce a low in such a way that there will be provisions for persons with disabilities in all public buildings.

Future researchers and decision makers should take to cognizance and make effective decisions and standard in designing polytechnic buildings.

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