CONSIDERATION OF ACCESSIBILITY CHALLENGES OF PERSONS WITH DISABILITIES IN PUBLIC BUILDINGS WITHIN AKANU IBIAM FEDERAL POLYTECHNIC UNWANA, EBONYI STATE.

Oluwaseun A. Adenaike, Damiana A. Amatobi, & Chijioke M. Ogadah
Department of Civil Engineering Technology,
Akanu Ibiam Federal Polytechnic Unwana, Afikpo, Ebonyi State, Nigeria

Corresponding Author: *seunadenaike@yahoo.com*

ABSTRACT
This study examines the extent to which the needs of persons living with disabilities (PWD) have been incorporated in the designs and construction of buildings and provision of facilities in Akanu Ibiam Federal Polytechnic Unwana, Ebonyi State, Nigeria. Twenty-eight buildings within the Polytechnic were assessed using a checklist. The investigation covered ease of use of toilets, ease of access to the entrances, ease of access to doors and openings, and provision of ramps and other access-related facilities. Staff and students of the school living with disabilities and others (without challenges of disabilities) at the school Physical Planning office were interviewed for their individual experiences on access to and use of building facilities. It was found that facilities such as entrances to auditorium/lecture hall, ramps, and staircases were not readily accessible to PWD. Fittings, such as directional signs, seats and spaces for wheelchair users were virtually absent in most of the buildings. Only 42% of the buildings investigated have provisions for a ramp and less than 18% are easily accessible to wheelchair users. Feedback from the interviews indicates that non-PWD do not have significant issues with the state of Polytechnic building/facilities, even as persons with disabilities voiced out their difficulties and disappointments with existing buildings/facilities. The study concludes that government leadership including MDAs (ministries, departments and agencies) and those responsible for the design and construction of public buildings, especially for schools, should ensure that the needs of persons living with disabilities are always addressed. This is in terms of comfortable access and use of facilities. Existing buildings at Akanu Ibiam Federal Polytechnic Unwana needs to be retrofitted to accommodate disabled persons.

Keywords: Disability, public buildings, accessibility, ramp, wheelchair

INTRODUCTION

Every person has a right to full and equal enjoyment of the goods, services, facilities, privileges and accommodations of any public facility. However, this right can only be guaranteed to all as far as conscious efforts are made to accommodate persons who, in one way or another, may be physically challenged. Such persons are referred to as persons with disabilities (PWD).

Ministry of Social Services & Social Welfare (2005) defines a person with disability as "any person who because of any deficiency in his physical or mental capacities, whether congenital or not, is unable by himself to ensure for himself, wholly or partly, the necessities of life." 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 PWD (Uslu, 2008). Wylde et al. (1994) 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 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 (Baris et al., 2009).

Incorporation of the needs of PWD is especially apt for public buildings. Accessible public buildings requires that building infrastructure are equitable and universal , and are accessible to "abled" and "disabled" persons(ADPs) of a particular environs. Often, public buildings are discussed as public infrastructure that offer numerous functions for different strata of the society; for example, schools, hospitals, libraries, churches, town halls, markets, banks, post offices, secretariats complexes etc.

Persons with disabilities may face problems accessing services that aid daily life activities including personal development.

Some of these services include work, education, access into public and leisure areas, and many other aspects of the larger society. As the Physically Impaired against Segregation puts it, "disability is something imposed on top of our impairments the way we are unnecessarily isolated and excluded from full participation in society."

Organizations are called upon to reduce these barriers. The United Nations' international policy framework guiding disability-inclusive urban development known as The Convention of the Rights of Persons with Disability made in 2006 was ratified by Nigeria in 2010. In March 2009, the Nigerian Senate passed a disability bill that prohibits all forms of discrimination due to disability and stipulated that all public buildings should be accessible to people with disabilities. The bill was eventually signed into law by the President, Buhari on January 23, 2019, almost 10 years later. Though the bill has been passed into law there is no assurance that the contents of the bill will be adhered to or that the government will punish those who err.

Most times, the architecture of a place mirrors the people and their values. Architects and urban planners often try to design based on their analysis of the society, its ethos and needs. An absence of or little to no allowances in our urban planning and buildings for disabled people indicate our disregard for persons with disabilities.

Steep gradients, steps/stairs, uneven/slippery surfaces, heavy doors, poor lighting, narrow corridors and inadequate signage are a few physical obstacles disabled people have to try to overcome daily. Unintentional as it may seem, the barriers to access socially and physically excluded persons with disabilities. Unfortunately, this apparent exclusion makes PWD appear "invisible" or inactive in the society. The current situation could suggest a lack of empathy or understanding of the PWD by the so-called able population.

Inaccessibility has monumental effects, from discrimination to stigmatization. It is something we must actively seek to correct in our bid to live in a more sustainable and equitable society. It must be avoided in a society that professes inclusiveness. An inclusive society is one with no

social, physical or environmental barriers to equality of access, a society where everyone has equal opportunities to contribute and participate in everyday activities.

Another area that must be looked at is inclusive design of buildings and the challenges faced by persons with disabilities. Inclusive design is a holistic process; it encompasses design construction, use and management of facilities. It is a never-ending process, requiring continual evaluation and improvement.

Accessibility denotes free entrance to public areas, without impediment to every individual, irrespective of his or her disability or special need. It includes ensuring the integration of the wheelchair users into the society and thereby granting them the capability of participating in activities of daily living and life equality.

Developing modern public buildings to have inclusive infrastructural facilities will demonstrate the willingness to tackle inaccessibility of buildings by the physically challenged persons. Accessibility has often been treated, as an afterthought by many building professionals in Nigeria public buildings especially in our higher institutions and Akanu Ibiam Federal Polytechnic Unwana is no exception. At Akanu Ibiam Federal Polytechnic Unwana, for example, there are many non-functional ramps, tiny corridors, without proper signage. Even when inclusive design is considered in projects, it is often conspicuously neglected, as in the case of the Polytechnic school library.

Several authors have presented the evaluation of the accessibility of buildings and public spaces open to people with disabilities in most regions of the world (Nilay, 2009; Gungor, 2013; Gladstone, 2015). Nilay (2009) especially explored the accessibility of people in wheelchairs in public buildings in the city of Istanbul in Turkey. Nilay found that the frequency of buildings ready to people in wheelchairs is 79%. Gungor (2013) assessed the buildings of the Faculty of Architecture of the University of Gazi, referring to the Turkish standard “TS9111.2011” relating to the requirements for the accessibility of buildings to people with disabilities. His assessment showed a substantial improvement in the possibilities of upstanding circulation in the building.

The same applies to the connecting elevators used there for the vertical ligation of the levels of the education building.

Gladstone S.K (2015) also assessed the accessibility of public buildings for people with disabilities in Ghana. He observed a very low frequency (22%) of accessible parking lots and driveways around 32 government service premises. Only 22% of the buildings satisfied the requirement for internal arrangements (horizontal circulation, building entrances, width of corridors, floor coverings). Vertical circulation (ramps, stairs, and elevator) was also taken into account in Gladstone's study. The author identified a low frequency (20%) of public buildings with appropriate ramps and elevators for people with reduced mobility. For adaptation to people with disabilities, regarding sanitary accommodation and communication aids, Gladstone observed 8% and 5% respectively. Fig. 1 depicts the basic elements of accessible public buildings.

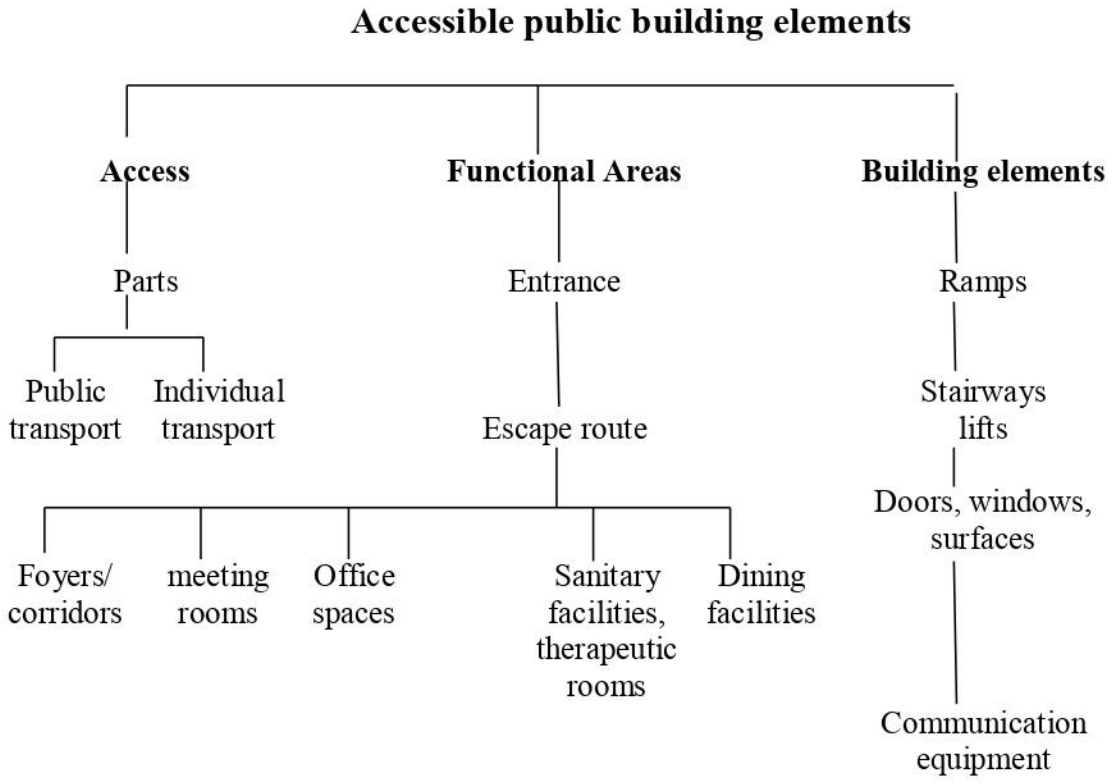

Figure 1: Basic elements of accessible public building
Source: Adapted from Badawy et al. (2020)

The aim of this study is to investigate if the needs of persons with disabilities are adequately considered in the design, construction and use of buildings at Akanu Ibiam Federal Polytechnic Unwana, Ebonyi State, Nigeria. The specific objectives of the study are the following:

i. To determine the status of building facilities in relation to the needs of persons with disabilities at Akanu Ibiam Federal Polytechnic Unwana.
ii. To determine the general accessibility of building to persons with disability in existing buildings, at Akanu Ibiam Federal Polytechnic Unwana.

Methodology

In this study a building/facility checklist and a semi structured face-to-face interview -were used to obtain information. Data obtained covered the status of facilities in relation to the needs of persons with disabilities. In addition, the general accessibility of building to persons with disability in existing buildings was determined.

Investigations comprises ease of use of toilets, ease of access to the entrances, ease of access to doors and openings, and provision of ramps and other access-related facilities. Staff and students of the school living with disabilities and others (without physical challenges) at the school's Physical Planning office were interviewed for their individual experiences on access to and use of building facilities.

Twenty-eight buildings within the Polytechnic were assessed. All the buildings sampled serve multi-purpose functions on the campus except the Library, Administration Block and ICT buildings. The targeted usage groups in this research were wheelchair users and people with limited walking ability.

The results were analyzed using simple percentages and physical alignment with established Code (BS8300, 2001) and legislation.

Results and Discussion

Status of facilities in relation to the needs of persons with disabilities

Table 1 shows the status of facilities in relation to the needs of persons with disabilities. The result summarizes the status on provision of wheelchair ramp, ease of access to entrances, ease of access to doors and openings, and ease of use of toilets.

Table 1: Status of facilities in relation to the needs of Persons with Disabilities

Name of building	Provision of ramp	Ease of access to the entrances	Ease of access to doors and openings	Ease of use of toilets
Sip A	yes	2	2	n/a
Sip B	yes	2	2	n/a
Sip C	no	3	3	n/a
Ceramic & Glass Technology workshop	yes	1	3	n/a
Ochudo Complex	no	3	3	n/a
New lecture Theatre (Prof. Otunta)	yes	2	1	n/a
Newly Constructed Block of 10 classrooms	yes	1	2	n/a
Library	yes	3	2	n/a
New School of Science	no	3	3	n/a
New School of Business	yes	1	1	n/a
Medical Centre	yes	1	1	n/a
Old Admin Building	yes	2	2	n/a
ICT	no	3	3	n/a
Old Lecture theatre	no	3	1	n/a
School of Environmental	yes	2	2	n/a
Engineering Hall	no	3	3	n/a
IBB Building	no	3	3	n/a
Academic Planning Building	no	3	3	n/a
Block F	no	3	3	n/a
Prof. Stella Inya Agha (Technology Incubation Centre) block	no	3	3	n/a
School of Industrial Technology	no	3	3	n/a
Complex Building	no	3	3	n/a
School of Business	no	2	3	n/a
Food Technology Department	yes	2	3	n/a
Electrical, Mechanical and Civil Workshop	no	2	3	n/a
SUG Complex	no	2	3	n/a
Metallurgical Engineering Technology Department	no	3	3	n/a
New Administrative Block	yes	1	2	n/a

Notes on table 1: 1 implies -"easy to access;" 2 - "difficult to access;" 3 - "no access."
Source: authors (2022)

Provision of ramp

For public buildings, status of facilities in relation to the needs of Persons with Disabilities (table 1) shows that only 42% of the buildings investigated have provisions for a ramp and less than 18% are easily accessible to wheelchair users. The implication is that negative relationship exists between wheelchair ramp and the Polytechnic public buildings. The more the increase of the public buildings, the less or non-inclusion of the wheelchair ramp facilities. This seems to suggest that the needs of PWD are not being taken into cognizance. It is disturbing that some of the new buildings springing up (School of Science and Business) do not pay attention to PWD in their designs.

Ease of access to the entrances, door and openings

Most of the buildings investigated have only one distinct entrance and their main entrances have no self-closing doors. However, the main entrance of the Ceramic & Glass Technology workshop, newly constructed bock of 10 classrooms, new School of Business, Medical Centre and new Administrative Block have ramps provisions and therefore accessible to wheelchair users, while other buildings are not accessible as shown in table 1. The buildings have good and easily-operated iron mongeries which were placed at universally accessible heights of less than 900 mm from the floor (Solidere, 2004) and could be used by people with arthritis or a weak grip.

The ease of operation of the main entrance door is an important factor when dealing with elderly or ambulant person. BS8300, 2001 recommends that the maximum closing force at the leading edge of a door fitted with self–closing devices or the manual opening force should not exceed 20 N; the maximum height of manual door-opening furniture should not exceed 1400 mm, among others. Table A1 (appendix 1) shows the basic design requirement for PWD (Ministry of social services, 1998). According to the Protection of the Right of Persons with Disabilities Act, No.28 of 1996' It is required that all new constructions are to be designed that they can be entered in such way used by people with disabilities.

Generally, the Ceramic & Glass Technology workshop, newly constructed block of 10 classrooms, new School of Business building, Medical Centre and new Administrative Block performed better than other buildings in provision of vertical circulation for the disabled persons because they had well–designed staircases and ramps. The School Library building had the worst accessibility ramp. The ramp is too steep and could cause a serious accident. It is not suitable for use by PWD or even "able" persons. For this reason, vertical circulations at the building is only safe by means of staircases.

For staircases to be comfortable for use, the rise and going need to reflect stride length while keeping within dimensional limits. Excessively high risers may result in excessive strain being placed on knee and/or hip joints of ambulant disabled people when ascending or descending flights of stairs. Tread and riser dimensions were uniform in the various staircases of all the facilities as required by BS 8300 (2001). Few of the buildings examined in the current study had internal complementary ramps provided next to steps or staircases. Library building has internal complementary ramp while most of the other building has external complementary ramps for access to the buildings and at the corridors. None of the existing ramp has continuous handrails at both sides with landings at every change in direction and at the top and bottom as required by BS 8300 (2001).

Feedback from the interviews indicated that other employees (non-PWD) did not express many issues with the state of Polytechnic building/facilities, even as persons with disabilities voiced out their difficulties and disappointments with existing buildings/facilities. However, it is gratifying that some new buildings are incorporating the needs of persons with disabilities. Examples are the new School of Business and the newly constructed block of 10 classrooms.

Ease of use of toilet

Table 1 shows that not a single toilet is specially put in place for PWD. The current situation seems to depict social exclusion of the PWD. In fact, this neglect may be contributing to the reasons disabled persons are very few in Akanu Ibiam Federal Polytechnic Unwana and other higher institutions in Nigeria.

Conclusion

Results of this research suggest that most of the buildings at Akanu Ibiam Federal Polytechnic Unwana have serious deficiencies as far as accessibility to their built–environment is concerned. In terms of provision of facilities for PWD, Ceramic & Glass Technology workshop, newly constructed block of 10 classrooms, new School of Business, Medical Centre and new Administrative Block had better facilities for PWD than other structures.

The researchers' experience confirms that the situation is not different from many public buildings in Nigeria.

Therefore, this study concludes that the needs of PWD are not receiving adequate consideration in public buildings in Nigeria. People with disabilities in Akanu Ibiam Federal Polytechnic Unwana, in particular, and similar institutions in Nigeria, in general, will most likely encounter a series of barriers in attempting to access building and other services.

Recommendations

The following are the recommendations:

1. There is a need for holistic rehabilitation of existing buildings at Akanu Ibiam Federal Polytechnic Unwana to ensure that all necessary facilities that accommodate PWD are included.
2. As far as possible new building proposals should encourage participation of all user-representatives of both able and disabled persons. This will ensure that the design and implementation stages of such public buildings accommodate every citizen including PWD.
3. All special facilities appropriate for PWD (ramps, appropriate stairs, door heights, floor finishes) should be prioritized for special attention in every proposed school building.
4. At least, one entrance per facility should be easily accessible to the wheelchair user. External and internal ramps should, be provided in all the buildings to make them accessible to everybody. Additional signs should be provided at all the facilities to minimize the possibility of both able and disabled losing their way around those premises.
5. Government should enforce relevant laws that encourage consideration of PWD in the design, construction and use of public buildings.

REFERENCES

Badawy, U. I., Jawabrah, M. Q., & Jarada, A. (2020). Adaptation of accessibility for people with disabilities in private and public buildings using appropriate design checklist. *International Journal for Modern Trends in Science and Technology,* 6, 9-15.

Baris, M. E., & Uslu, A. (2009). Accessibility for the disabled people to the built environment in Ankara, Turkey. *Africa Journal of Agricultural Research*. 4, 801-814.

BS 8300. (2001), Design of buildings and their approaches to meet the needs of disabled people. London, British Standards Institution.

Gladstone, S. K. (2015). Assessment on the accessibility of public buildings and Its facilities to the disabled in Ghana. Civil and Environmental Research, 7, 76-83.

Gungor, C. (2013). An evaluation of Gazi University Faculty of Architecture Buildings with regard to Turkish Standards related with accessibility for people with disabilities. Gazi University Journal of Science, 1, 1-14.

Ministry of Social Services & Social Welfare. (2005). Towards a "Barrier-free environment" through community-based rehabilitation programme. Negombo: Santhi Printers.

Ministry of Social Services. (1998). Promotion of accessibility to built environment for persons with disabilities. Ministry of social services, Sri Lanka.

Nilay, E. A. (2009). Wheelchair accessibility to public buildings in Istanbul. disability and Rehabilitation: Assistive Technology, 4, 76-85. https://doi.org/10.1080/17483100802543247

Solidere. (2004). 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).

Uslu, A. (2008). *Kentsel Tasarimda Engelli Dostu Yakla_imi*. Paper presented to Engelli Dostu Belediye Symposium. May 27, Turkey, Ankara.

Wylde, M., Baron-Robbins, A. and Clark, S. (1994*), Building for a lifetime; the design and construction of fully accessible homes.* Taunton press, Newton, Connecticut.

Appendix 1

Table A1 Basic design requirement for disable people (source: Ministry of social services. 1998)

Item	Basic design requirement
Entrance	Even and slip resistance surface 1300 mm or wider
Handrail	Handrails provided at a height of 900 mm for both end Width is 300 mm
Doors and openings	Doors can be easily open by disable people 900 mm or wider Space to maneuver wheelchair while opening Height of threshold 15 mm or less than 15 mm
Ramp	Preferred gradient 1:20, but requested 1: 12 If steeper than 1:12, is here an alternative, stepped approach. Length of landing 1300 mm no sloping more than 1:50 Kerb at edges 75 mm Double hand rails provided a height of 700 and 900 mm Continuing 300 mm at both ends of ramp
Toilets	Continuous accessible path from entrance to toilets Door open outwards Door opening width a leas 900 mm Floor area a leas 1700 x 1700 mm Grab rails provide at a height of about 700 mm Seat available to those who cannot squat.