User's Perception of Accessibility of School Building and Facilities in Selected Secondary in Lagos State, Nigeria.

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ABSTRACT

This study investigates the perceived accessibility of educational infrastructure, with particular emphasis on school buildings, facilities, and architectural features as evaluated by primary users. The research adopts a quantitative descriptive approach, employing a structured questionnaire as the primary data collection instrument. A total of 120 questionnaires were distributed through simple random sampling to ensure representativeness of the target population, of which 118 valid responses were retrieved, yielding a response rate of 98.3%. The instrument was designed to capture users' evaluations of accessibility features and their adequacy in facilitating unrestricted mobility and functionality within the school environment. The collected data were subjected to rigorous statistical analysis using the Statistical Package for the Social Sciences (SPSS), enabling both descriptive and inferential interpretations. Findings indicate that a substantial proportion of respondents perceive current school building designs and facilities as insufficiently inclusive, emphasizing the need for structural modifications to enhance universal accessibility. These results underscore the persistent gap between existing design standards and the principles of universal design, which advocate for equitable access regardless of users' physical abilities or limitations. The study concludes by recommending that educational infrastructure planning and design transcend conventional norms that cater primarily to the average user. Instead, it advocates for the integration of inclusive design strategies that comply with accessibility regulations and international best practices. Such measures are imperative to promoting spatial equity, fostering inclusive learning environments, and aligning institutional facilities with contemporary standards for diversity and inclusion in educational settings.

INTRODUCTION

Children with disabilities often experience significant challenges in commuting to and from school (Agarwal, 2020). They may also find it difficult to navigate school buildings and their associated facilities due to poor accessibility and non-compliance with inclusive design standards. In 2018, the Discrimination Against Persons with Disabilities (Prohibition) Act was signed into law in Nigeria. One of the critical provisions of this Act was the establishment of a five-year transitional period during which all public buildings and structures were mandated to modify their facilities to accommodate persons with disabilities, including wheelchair users.

Despite this legal framework, evidence indicates that compliance levels remain low across various public buildings in Nigeria (Ediae, Babalola, Onakoya, Aderonmu, Sholanke, Olagunju & Nduka-Kalu, 2023; Opoko, Odizia, Abiola, Daniel, Oluwole, Ekara, Badmus & Mabadeje, 2017). In the context of education, adopting these accessibility requirements in school environments could significantly enhance learning experiences for children with disabilities, reduce the incidence of out-of-school children, and promote social inclusion and integration.

Nigeria currently records the highest number of out-of-school children globally (Ndanusa, Abayomi & Harada, 2021). A major contributor to this figure is the systemic exclusion of children with disabilities during policy

development and implementation processes. Approximately 90% of children with disabilities in Nigeria remain out of school. According to UNESCO (2020), barriers to accessibility in schools in developing countries include inaccessible travel routes to schools, inadequate funding, weak enforcement of accessibility standards, and poor interdepartmental coordination in policy planning.

This study aims to examine users' perceptions of the accessibility of school buildings and associated facilities in selected inclusive secondary schools in Lagos, Nigeria. The research draws on data collected through fieldwork conducted between December 2023 and January 2025. The key variables investigated in this study include: (i) the accessibility of building entrances and pathways, (ii) the availability and usability of ramps and elevators, (iii) the adequacy of classroom layouts and furniture for diverse users, (iv) the accessibility of sanitary facilities, and (v) users' overall satisfaction with the school environment. These variables were assessed to provide insights into the extent to which school infrastructure aligns with universal design principles and legal accessibility requirements.

LITERATURE REVIEW

The Concept of Universal Design

Having originated from the field of architecture, the term 'Universal Design' was initially coined by Ronald L. Mace, a United States architect in 1985. The concept as a whole establishes that a design must be created to cater to not just the average user, but to all kinds of users with varying characteristics such as ages, sizes, abilities, languages, knowledge, skill-sets and much more (Burgstahler, 2013). Simply put, it is designing for all.

Principles of Universal Design

Universal design operated on seven principles. These principles were coined by Ronald L. Mace in 1998 in North Carolina University, United States of America. Ronald L. Mace, a United States architect coined these principles with a team that included architects, engineers, designers and environmental design researchers.

1. Equitable Use: a design must fully encompass the requirements of every potential user
2. Flexibility in Use: a design can be implemented in ways that allow and accommodate for the various needs and preferences of different users.
3. Simple and Intuitive: a design must be easily understood by everyone, regardless of age, experience, language and skill.
4. Perceptible Information: a design must pass important information effectively to the user
5. Tolerance for Error: a design must minimize potential hazards, errors and accidents.
6. Low Physical Effort: a design should be used effectively with minimal physical effort exerted. The use and access of the facilities of a design should not cause fatigue.
7. Size and Space for Approach and Use: the size and space of a design should not restrict any user. There must be adequate space for access and use by any and every individual.

Goals of Universal Design

There are eight principles of universal design, according to Steinfeld & Maisel (2012). These goals are:

1. Body Fitness: accommodation of a wide range of body sizes and abilities.
2. Comfort: managing demands within preferable limits of body function.
3. Awareness: ensuring that important information is perceptible to the user.
4. Understanding: operation of the design must be easy and clear.
5. Wellness: promotion of health and minimization or total avoidance of injury.
6. Social Integration: integration of all groups done with ease. Respect among groups is better achieved.
7. Personalization: inclusion of options that allow for operation through the use of individual preferences.
8. Cultural Appropriateness: the respect and reinforcement of cultural values and the social, environmental and economic context of a design.

Accessibility and Universal Design

The integration of accessibility into a design hold benefits for all users as a whole. The access, use and navigation of buildings is done with more ease when accessibility is prioritized (Agarwal, 2020).accessibility centres around the ease of the approach and use of a building and its facilities. The accessible design process involves the understanding that people have different abilities, hence design must be approached with the intention of making room for the use of all these abilities, both in the internal and external spaces (Adewale & Fasae, 2019). This means making arrangements for use by people with various abilities, such as wheelchair users, or people with walking aids, ensuring the size of spaces and features are adequate, ramps must be wide enough for use and must have a gentle slope, doors must be openable in more than one direction and sanitary facilities must cater to people with different proportions. This includes provided special toilet stalls for wheelchair users, having sinks of different heights, providing water closets (WCs) that are easy to flush and ensuring the space within these facilities is wide enough for comfortable use (Ediae, et al., 2023).

Universal Design and its Application in Educational Facilities

According to Burgstahler (2013), universal design in education can be applied in the aspects of instruction, services, information technology and physical spaces. In physical spaces, universal design should be considered in the creation of policies, planning and evaluation, appearance, entrances and travel routes, fixtures and furniture, information resources and technology, safety and accommodation. This means that surfaces must be non-slip, furniture must be arranged to allow for the clear passage of all users, including those who make use of wheelchairs or walking aids, alongside being adjustable in height to the preference of the user and signs must be and easily understood by all users.

METHODOLOGY

This study was carried out in Lagos, Nigeria in three inclusive secondary schools, two of which were government owned and one private. For the purpose of this paper, a pragmatist research philosophy was adopted because it is based off of logic and facts. The method of data collection was quantitative and the data was collected by the use of a well-structured questionnaire, which was distributed to users of the various school buildings. The questionnaire was used to investigate the user's perception of accessibility and usability in the various schools. The questionnaire contained three sections, the first section contained data on the socioeconomic characteristics of the respondents, the second section had questions on how the respondents perceived the accessibility of certain features in the building and the third section presented question on the usability of these features. The users consisted of staff and students alike and had no limitations in selection. The data was analyzed using the Statistical Package for Social Sciences and was presented using tables. The schools were selected using the stratified random sampling method. This was done to ensure selection of more than one school from the same local government area was not done.

The schools selected were:

1. Ikeja Grammar School, Bolade, Oshodi-Isolo, Lagos, Nigeria.
2. Dansol High School, Ikeja.
3. State Junior Grammar School, Surulere.

The users chosen for the distribution of the questionnaires were selected using simple random sampling method as their selection was by chance. Overall, 120 questionnaires were distributed and 118 responses were received. This makes up 98.3% of the sample size.

RESULTS

Socio-Economic Characteristics of the Respondents

Table 1 shows that 21.2% of the respondents were staff, 78% of the respondents were students and 0.8% did not respond. Naturally, it would be expected that the number of students would surpass that of staff.

Table 1: The status of the users

	Variables	Frequency	Percentage
Status	Staff	25	21.2
	Student	92	78.0
	No response	1	0.8

Source: Author's fieldwork (2024)

Gender

The table below shows that 39.8% of the respondents were male, while 59.3% of the respondents were female.

Table 2: The gender of the users

	Variables	Frequency	Percentage
Gender	Male	47	39.8
	Female	70	59.3
	No response	1	0.8

Source: Author's fieldwork (2024)

Age Group

The percentage of respondents that were between the age of 10-15 was 64.4%, 11.9% of the respondents were between 16-20, none were between the ages of 21-25, 21.2% were 26 and above and 2.5% did not select any of the options. The results imply that most of the users of secondary school facilities are between 10 to 15 years of age. Facilities must then be designed to cater to the proportions of children within that age range, but must make arrangements for inclusion for persons above and below that range.

Table 3: The age group of the users

	Variables	Frequency	Percentage
Age Group	Below 10	-	-
	10-15	76	64.4
	16-20	14	11.9
	21-25	-	-
	26 and above	25	21.2
	No response	3	2.5

Source: Author's fieldwork (2024)

Physical Challenge

The results showed that 10.2% of the respondents had a sight impairment, 5.9% had a hearing impairment, none of them had a mobility impairment, 9.3% had a speech impairment and 73.7% had none of these physical challenges.

Table 4: Physical challenges of the users

	Variables	Frequency	Percentage
Physical Challenge	Sight impairment	12	10.2
	Hearing impairment	7	5.9
	Mobility impairment	-	-
	Speech impairment	11	9.3
	None	87	73.7
	No response	1	0.8

Source: Author's compilation (2024)

Respondents' Perception of Accessibility

Width of the Main Entrance

Table 5 shows the perception of the respondents towards how suitable the width of the main entrance is for the passage of many people. 53.4% of the respondents agreed that the main entrance of the school was wide enough for many persons to pass through. 33.9% of respondents strongly agreed that the main entrance was wide enough, while 5.1% were not sure, 4.2% disagreed and 3.4% strongly disagreed.

Table 5: How respondents found the width of the main entrance

Width of Main Entrance	Frequency	Percentage
Strongly Disagree	4	3.4
Disagree	5	4.2
Not Sure	6	5.1
Agree	63	53.4
Strongly Agree	40	33.9
No Response	-	-
Total	118	100

Source: Author's fieldwork (2024)

Width of External Walkways

Table 6 shows how well the respondents agreed with the motion that the external walkways were wide enough for them to move easily. 54.2% of the respondents agreed with this motion, 29.7% strongly agreed, 7.6% were not sure, 5.9% disagreed, 1.7% strongly disagreed and 0.8% did not select an option.

Table 6: The respondent's perception of the width of the external walkways

Width of External Walkways	Frequency	Percentage
Strongly Disagree	2	1.7
Disagree	7	5.9
Not Sure	9	7.6

Agree	64	54.2
Strongly Agree	35	29.7
No Response	1	0.8
Total	118	100

Source: Author's fieldwork (2024)

Width of Corridors

Table 7 shows how well the respondents believed that corridors to be wide enough for more than one person to walk through easily. 46.6% of the respondents agreed, 30.5% agreed strongly, 7.6% disagreed, 7.6% also strongly disagreed, 6.8% were not sure and 0.8% did not respond to that question.

Table 7: Respondents' perception of the corridor width

Width of Corridors	Frequency	Percentage
Strongly Disagree	9	7.6
Disagree	9	7.6
Not Sure	8	6.8
Agree	55	46.6
Strongly Agree	36	30.5
No Response	1	0.8
Total	118	100

Source: Author's fieldwork (2024)

Table 8 represents the perception of respondents on the internal floor surfaces not being slippery. 46.6% agreed with this statement, 32.2 % agreed strongly, 10.2% disagreed, 5.9% were simply not sure, 4.2% disagreed strongly and 0.8% gave no response.

Table 8: Respondents' perception of the internal floor surfaces being non-slip

Internal Floor Surfaces	Frequency	Percentage
Strongly Disagree	5	4.2
Disagree	12	10.2
Not Sure	7	5.9
Agree	55	46.6
Strongly Agree	38	32.2
No Response	1	0.8
Total	118	100

Source: Author's fieldwork (2024)

Height of Handrails

The table below shows the distribution of respondents' perception on the height of the handrails being adequate

for their use. Most of them agreed that the handrails were an adequate height for their use, 22% strongly agreed with the motion, 16.1% were not sure, 8.5% believe that the height was inadequate, 5.9% believed strongly that they were not an adequate height for their use and 2.5% left it blank.

Table 9: Respondents' perception of the adequacy of the height of the handrails

Height of Handrails	Frequency	Percentage
Strongly Disagree	7	5.9
Disagree	10	8.5
Not Sure	19	16.1
Agree	53	44.9
Strongly Agree	26	22
No Response	3	2.5
Total	118	100

Source: Author's fieldwork (2024)

Width of Ramps

The table shows the responses to the statement of whether the ramps are wide enough for the use of the respondents. As with the previous results, most of the respondents agreed with the statement while 22% strongly agreed. 15.3% of the respondents were not sure, 6.8% disagreed, 5.9% strongly disagreed and 5.9% did not answer.

Table 10: Respondents' perception of the width of the ramps

Width of Ramps	Frequency	Percentage
Strongly Disagree	7	5.9
Disagree	8	6.8
Not Sure	18	15.3
Agree	52	44.1
Strongly Agree	26	22
No Response	7	5.9
Total	118	100

Source: Author's fieldwork (2024)

Ease of Use of Steps/ Staircases

44.9% of the respondents agreed that the steps and staircases were easy to climb, 22% strongly agreed, 13.6% disagreed, 10.2% disagreed strongly, 8.5% were not sure and 0.8% did not respond.

Table 11: Respondents' perception of the ease of use of the steps/ staircases

Ease of Use of Steps/ Staircases	Frequency	Percentage
Strongly Disagree	12	10.2
Disagree	16	13.6

Not Sure	10	8.5
Agree	53	44.9
Strongly Agree	26	22
No Response	1	0.8
Total	118	100

Source: Author's fieldwork (2024)

Width of Doors

The doors were wide enough for most respondents to pass through easily as 50.8% agreed and 44.1% strongly agreed with this motion. 2.5% of the respondents strongly disagreed, 1.7% were not sure and 0.8% disagreed.

Table 12: Respondents' perception of the suitability of the door widths

Width of Doors	Frequency	Percentage
Strongly Disagree	3	2.5
Disagree	1	0.8
Not Sure	2	1.7
Agree	60	50.8
Strongly Agree	52	44.1
No Response	-	-
Total	118	100

Source: Author's fieldwork (2024)

Width of Toilet Stalls

The table below displays the responses of the respondents with regards to the suitability of the width of the toilet stalls and how easily they can move within them. Less than half of the respondents, at 43.2%, agreed that the toilet stalls were wide enough for them to move easily. 33.1% of the respondents strongly agreed with this statement, 8.5% were not sure, 7.6% disagreed and 7.6% disagreed strongly.

Table 13: Respondents' perception of the suitability of the width of the toilet stalls

Width of Toilet Stalls	Frequency	Percentage
Strongly Disagree	9	7.6
Disagree	9	7.6
Not Sure	10	8.5
Agree	51	43.2
Strongly Agree	39	33.1
No Response	-	-
Total	118	100

Source: Author's fieldwork (2024)

Access to Wash Hand Basin

Table 14 shows that 46.6% of the respondents believed there was enough space for them to access the wash hand basin, 28.8% strongly agreed, 13.6% disagreed, 6.8% were not sure and 4.2% strongly disagreed.

Table 14: Respondents' perception of the size of space for access to the wash hand basin

Access to Wash Hand Basin	Frequency	Percentage
Strongly Disagree	5	4.2
Disagree	16	13.6
Not Sure	8	6.8
Agree	55	46.6
Strongly Agree	34	28.8
No Response	-	-
Total	118	100

Source: Author's fieldwork (2024)

SUMMARY AND CONCLUSION

Summary of Findings

The results of the study found that most users of the buildings believed the facilities to be of an appropriate size for their use and navigation within the internal and external environment. Most users agreed that the main entrances were wide enough for the passage of multiple persons, the external walkways were wide enough for their use, the corridors were of an adequate width for more than one person to pass and the floors were non-slip. Disparities existed in some results though, as some users found the handrails to be inadequate for their use. Generally, the results showed that most of the users found the features of the school to be accessible enough for their use.

Conclusion

Despite the general perception of accessibility by users of the school buildings visited, some features were still found to be inadequate or were simply absent. There were no dropped kerbs present in any of the schools and none of them made arrangements for specialized toilets for wheelchair users. Overall, there is still work to be done in the matter of accessibility in schools and accommodations should be made to this effect. The government should ensure the implementation of Acts that have been written into law concerning disability, such as the Discrimination Against Disabilities (Prohibition) Act. Professionals whose work adopts the use of Universal design should also make attempts towards the education of the general public on the topic of universal design and its benefits to society.

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