

Welcoming Library Settings and Interaction Skills for Inclusive E-Learning among Students with Sight Loss in Public Higher Institutions, South-South Nigeria

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Abstract

Accessible library environments are important for supporting inclusive e-learning among students with sight loss. This study examined the extent to which welcoming interior and exterior library settings support inclusive e-learning and interaction skill development in public higher education institutions in South-South Nigeria. A descriptive survey design was employed, using complete enumeration to include all 75 respondents: 21 students with sight loss and 54 library staff. Data were collected using the researcher-developed Welcoming Interior and Exterior Library Settings Questionnaire (WIELSQ). Experts assessed the instrument's face and content validity, and internal consistency analysis yielded a Cronbach's alpha coefficient of 0.79. Data were analysed using descriptive statistics. Respondents generally perceived the exterior surroundings and spacious library environments as welcoming. However, deficiencies were identified in seating arrangements, electrical facilities, internet access, assistive technology support, and staff capacity to facilitate inclusive e-learning. These findings suggest that physical, technological, and service limitations may hinder the development of interaction skills needed for meaningful engagement with electronic learning platforms. The study highlights physical and technological accessibility as priorities for strengthening inclusive e-learning and supporting interaction among students with sight loss. It recommends accessible infrastructure,

reliable power supply, improved internet services, adequate assistive technologies, and sustained staff training. The findings provide contextual evidence to inform the planning and improvement of inclusive academic library services in public higher education institutions.

Keywords: Library Accessibility; Inclusive E-Learning; Interaction Skills; Students With Sight Loss; Academic Libraries

INTRODUCTION

The rapid advancement of information and communication technologies has transformed higher education by expanding opportunities for teaching, learning, and research through digital platforms. Academic libraries have consequently evolved from traditional repositories of printed resources into technology-enabled learning environments that provide access to electronic databases, institutional repositories, digital libraries, online catalogues, and virtual learning resources. While these developments have improved access to knowledge for many learners, students with sight loss continue to experience significant barriers in accessing and utilizing these resources effectively. Consequently, ensuring that academic libraries provide accessible physical environments and inclusive electronic learning platforms has become an important component of quality higher education and the realization of the Sustainable Development Goal 4 on inclusive and equitable education (Lomellini et al., 2025).

Students with sight loss require learning environments that combine accessible physical infrastructure with appropriate digital technologies to facilitate independent learning and academic participation. Beyond the availability of assistive technologies such as screen readers, Braille displays, text-to-speech software, and screen magnifiers, the physical design of library environments plays a critical role in enhancing accessibility and learner engagement. Features including barrier-free entrances, well-designed walkways, accessible furniture, appropriate lighting, adequate electrical facilities, reliable internet connectivity, clear directional signage, and organized study spaces contribute significantly to students' ability to navigate library facilities independently and interact effectively with electronic learning resources. Where these facilities are inadequate, students frequently experience restricted access to information, reduced participation in academic activities, and diminished opportunities for independent learning (McNicholl et al., 2019; Lomellini et al., 2025).

The increasing adoption of inclusive e-learning in higher education has further emphasized the importance of interaction skills among students with disabilities. Interaction skills involve learners' ability to communicate, search for information, navigate digital platforms, collaborate with peers and instructors, and utilize electronic learning resources effectively. For students with sight loss, the successful development of these skills depends largely on the accessibility of both the physical and digital learning environments. Academic libraries therefore serve as strategic centres for promoting inclusive education by providing accessible infrastructure, assistive technologies, trained personnel, and learner support services that facilitate meaningful participation in technology-mediated learning. Previous studies have demonstrated that accessible library services and inclusive digital learning environments enhance information literacy, learner autonomy, digital participation, and academic achievement among students with visual impairment (Miyachi, 2020; Lomellini et al., 2025).

Although considerable research has examined assistive technologies, digital accessibility, and library service delivery for persons with visual impairment, relatively few studies have investigated how welcoming interior and exterior library settings collectively influence the development of interaction skills required for inclusive e-learning. Existing studies have largely concentrated on technological accessibility while paying comparatively less attention to the contribution of the physical learning environment in supporting students' interaction with electronic learning platforms. Furthermore, empirical evidence from public higher institutions in South-South Nigeria remains limited despite increasing investments in digital education and national commitments toward inclusive higher education. This gap limits evidence-based planning for improving accessible academic library environments within the region.

Against this background, the present study investigates the extent to which welcoming interior and exterior library settings support inclusive electronic learning platforms and the development of interaction skills among students with sight loss in public higher institutions in South-South Nigeria. The findings are expected to provide empirical evidence that will assist university administrators, librarians, policymakers, and disability support practitioners in improving library accessibility and strengthening inclusive learning environments for students with sight loss.



Image of a computer screen reader in an interior welcoming higher institution library for e-learning research

Source: Goggle Search

Statement of the Problem

Academic libraries are expected to provide inclusive physical and digital learning environments that enable all students, including those with sight loss, to access information resources, develop interaction skills, and participate effectively in electronic learning. In line with inclusive education principles, higher institutions are increasingly investing in digital learning platforms, assistive technologies, and accessible library services to reduce learning barriers for students with disabilities (Miyuchi, 2020; McNicholl et al., 2019). Consequently, welcoming library environments should incorporate accessible exterior features, barrier-free interior designs, reliable electricity, internet connectivity, ergonomic furniture, assistive technologies, and trained personnel to support independent learning and meaningful participation in e-learning activities.

Despite these expectations, evidence from previous studies indicates that many students with visual impairment continue to experience difficulties in accessing academic library facilities and electronic learning resources. Challenges including inaccessible physical infrastructure, inadequate assistive technologies, unreliable internet services, insufficient electrical facilities, poor spatial organization, and limited staff competence have been reported to restrict independent navigation, information access, and effective utilization of digital learning platforms (Aramide et al., 2018; Miyuchi, 2020; McNicholl et al., 2019). These barriers reduce opportunities for students with sight loss to acquire the interaction skills required for successful participation in technology-mediated learning.

Although existing studies have examined assistive technologies, digital accessibility, and library service delivery for students with visual impairment, limited empirical attention has been given to the combined influence of welcoming interior and exterior library settings on the development of interaction skills for inclusive e-learning, particularly within public higher institutions in South-South Nigeria. This lack of context-specific evidence limits institutional planning and policy decisions aimed at improving accessible learning environments. It is against this background that this study investigates the extent to which welcoming interior and exterior library settings support inclusive e-learning and the development of interaction skills among students with sight loss in public higher institutions in South-South Nigeria.



Source: AI

Image of a Welcoming Interior and Exterior Library Settings for Students with Sight Loss in Higher Institutions

Interior Setting

- Shelf
- Laptop with software's
- Study Space

Exterior Setting

- Public Door
- Spacious Walkways
- Windows
- Welcoming/Serene Surroundings

Purpose of the Study

The purpose of this study was to examine the extent to which welcoming library settings support inclusive electronic learning platforms and the development of interaction skills among students with sight loss in public higher institutions in South-South Nigeria. Specifically, the study sought to:

- i. Examine the extent to which welcoming library settings support inclusive electronic learning platforms and interaction skills among students with sight loss in public higher institutions in South-South Nigeria.

Research Questions

The following research question guided the study:

- i. To what extent do welcoming Library settings support inclusive electronic learning platforms and interaction skills among students with sight loss in public higher Institutions in South-South Nigeria?

Literature Review

Theoretical Framework

The Social Model of Disability

This study is anchored on the Social Model of Disability, developed by Mike Oliver (1983, 1990). The model emerged as a response to the traditional medical model of disability, which viewed disability primarily as an individual's impairment requiring treatment or rehabilitation. In contrast, the Social Model of Disability argues that disability arises largely from physical, social, institutional, and attitudinal barriers that prevent individuals with impairments from participating fully in society (Oliver, 1990).

Within higher education, the Social Model of Disability emphasizes that students with sight loss are not inherently disadvantaged because of their visual impairment; rather, the barriers embedded within educational environments, including inaccessible buildings, poorly designed learning spaces, incompatible digital technologies, inadequate assistive devices, and insufficient institutional support, create the conditions that limit their academic participation. Consequently, institutions have the responsibility to eliminate these barriers by creating accessible and inclusive learning environments that enable students with disabilities to participate on an equal basis with their peers (Shakespeare, 2018).

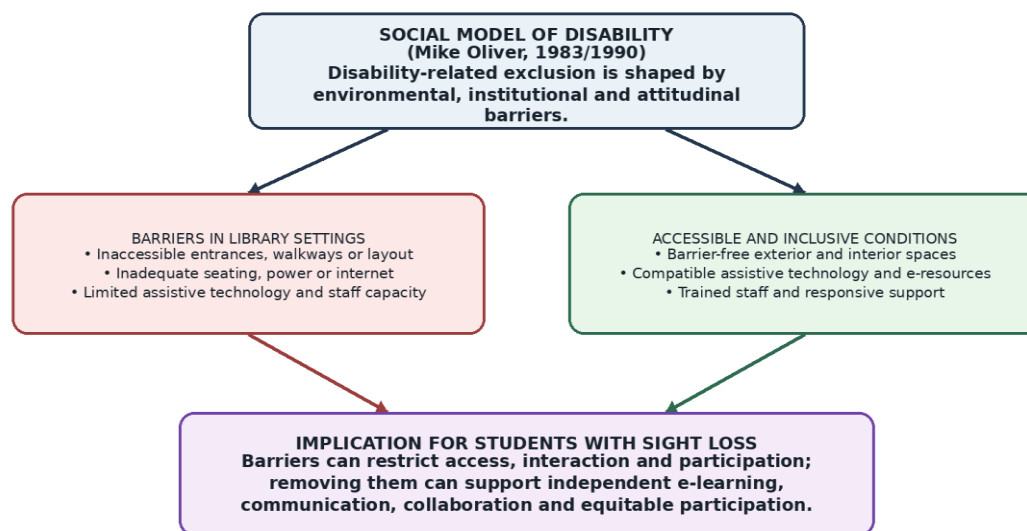
Academic libraries constitute one of the most important learning environments within higher institutions. Their effectiveness in supporting students with sight loss depends not only on the availability of information resources but also on the accessibility of their physical infrastructure and digital services. Welcoming exterior features such as accessible walkways, ramps, and clearly marked entrances facilitate independent movement into library facilities, while interior features including spacious reading areas, ergonomic furniture, appropriate lighting, accessible shelving, assistive technologies, reliable internet connectivity, and trained library personnel enhance equitable access to information resources and electronic learning platforms. According to the Social Model of Disability, these environmental features determine whether students with sight loss experience inclusion or exclusion within academic library settings (United Nations, 2006; Shakespeare, 2018).

The theory is particularly relevant to this study because it shifts attention from students' visual impairment to the accessibility of library environments that support inclusive electronic learning and the development of interaction skills. If library settings are designed to remove physical and technological barriers, students with sight loss are more likely to access electronic information resources independently, interact effectively with digital learning platforms, and participate meaningfully in academic activities. Conversely, inaccessible library environments may constrain interaction, reduce independent learning, and limit participation regardless of students' individual capabilities.

Therefore, the Social Model of Disability provides an appropriate theoretical lens for examining how welcoming interior and exterior library settings influence inclusive electronic learning and the development of interaction skills among students with sight loss in public higher institutions in South-South Nigeria.

The study identifies the Social Model of Disability, associated with Mike Oliver (1983, 1990), as its theoretical foundation. The model argues that exclusion is produced or intensified by physical, social, institutional and attitudinal barriers, rather than being explained by an individual impairment alone.

AUTHOR'S CONCEPTUALISATION OF THE THEORETICAL FRAMEWORK



The theory directs attention from individual impairment alone to the environment's responsibility to enable participation.

Figure 1. Author's conceptualization of the theoretical framework
based on the Social Model of Disability.

The figure applies the Social Model of Disability to academic libraries. Inaccessible entrances and layouts, insufficient electricity or internet, limited assistive technology, and inadequate staff capacity are represented as environmental or institutional barriers that may restrict students' access to e-learning and interaction. Conversely, accessible spaces, compatible assistive technologies, electronic resources and trained staff can reduce these barriers and support independent learning, communication, collaboration and equitable participation. The model therefore places responsibility on institutions to improve the environment and support services, rather than locating the problem solely in students' sight loss.

Table 1: Alignment with the Study

Framework element	Study-specific indicators	Connection to the study
Welcoming library settings	Exterior access, spacious walkways, interior layout, seating, electricity and internet	Environmental conditions examined by the study
Technology and human support	Assistive technologies, accessible electronic resources, trained library personnel	Conditions supporting use of electronic learning resources
Inclusive e-learning and interaction skills	Digital navigation, information retrieval, communication, collaboration and participation	Learning-access and interaction outcomes discussed in the paper
Social Model of Disability	Environmental, institutional and attitudinal barriers; removal of barriers	Explains why accessibility of the library environment matters

Conceptual Review

Welcoming Library Settings

Academic libraries have evolved beyond their traditional role as repositories of information resources to become inclusive learning environments that facilitate teaching, learning, research, and knowledge creation. A welcoming library setting refers to an environment that is physically, socially, and technologically accessible to all users regardless of their abilities. Such an environment provides barrier-free access to library buildings, accessible furniture and study spaces, clear directional signage, adequate lighting, reliable electricity, internet connectivity, assistive technologies, and supportive library personnel. These components collectively enhance users' ability to access information resources independently and participate effectively in academic activities (Lomellini et al., 2025; Kerdar et al., 2024).

For students with sight loss, a welcoming library extends beyond physical accessibility to include the availability of information in accessible formats, compatibility of digital resources with assistive technologies, and the provision of user-centred support services. Recent studies have shown that accessible academic libraries promote learner autonomy, increase confidence in information seeking, and improve students' participation in academic activities. Conversely, inaccessible physical layouts, poorly designed digital interfaces, and inadequate institutional support continue to restrict effective utilization of library resources by students with visual impairment (Odhiambo, 2024; Kija et al., 2026).

Contemporary library practice therefore emphasizes universal accessibility, whereby library facilities, technologies, and services are intentionally designed to accommodate users with diverse learning needs without requiring specialized adaptations. This approach aligns with the principles of inclusive education, which advocate equitable participation and equal access to learning opportunities for all students (Egbukole & Mushi, 2024).

Inclusive Electronic Learning

Inclusive electronic learning (inclusive e-learning), refers to the design, delivery, and utilization of digital learning environments that enable all learners, including those with disabilities, to participate effectively in educational activities. It encompasses accessible learning management systems, electronic library resources, virtual classrooms, digital assessments, multimedia learning resources, and communication platforms that comply with recognized accessibility standards. The objective of inclusive e-learning is not merely

to provide technology but to ensure that every learner can access, navigate, understand, and interact with digital learning resources independently (Lomellini et al., 2025).

The rapid expansion of online and blended learning has increased the importance of digital accessibility within higher education. Nevertheless, visually impaired students continue to encounter barriers arising from inaccessible websites, poorly structured electronic documents, incompatible databases, and digital learning resources that do not adequately support screen readers or other assistive technologies. These barriers limit students' ability to access instructional materials, participate in online discussions, complete assessments, and engage meaningfully in collaborative learning activities (Bong & Chen, 2024; Kerdar et al., 2024).

Recent evidence suggests that institutions committed to inclusive e-learning achieve better educational outcomes by integrating accessible digital infrastructure with appropriate learner support services. Such institutions provide accessible course materials, compatible electronic resources, faculty training on digital accessibility, and continuous technical support, thereby improving students' participation, engagement, and academic success (Lomellini et al., 2025; Zhang et al., 2020).

Interaction Skills among Students with Sight Loss

Interaction skills refer to the abilities that enable learners to communicate effectively, navigate learning environments, access information resources, collaborate with peers and instructors, and participate actively in educational activities. Within the context of inclusive electronic learning, these skills include the ability to use digital technologies, retrieve electronic information, communicate through online platforms, engage in collaborative learning, and independently utilize assistive technologies for academic purposes.

For students with sight loss, interaction skills are influenced not only by individual competence but also by the accessibility of the surrounding learning environment. Academic libraries play an important role in facilitating these skills by providing accessible technologies, supportive learning spaces, trained personnel, and information services that encourage independent learning and active engagement. Where library environments are inclusive and technologically accessible, students with visual impairment demonstrate greater confidence in using electronic information resources, improved digital literacy,

enhanced communication skills, and increased participation in academic activities (Kija et al., 2026).

Conversely, inaccessible library environments reduce opportunities for interaction, limit independent access to information resources, and weaken students' engagement with electronic learning platforms. Studies consistently indicate that improvements in library accessibility, assistive technologies, and staff support significantly enhance the educational experiences of students with visual impairment by fostering autonomy, collaboration, and meaningful participation in higher education (Odhiambo, 2024; Kerdar et al., 2024).

The concepts of welcoming library settings, inclusive electronic learning, and interaction skills are closely interconnected. A welcoming and accessible academic library provides the enabling environment through which students with sight loss can effectively utilize electronic learning resources, develop essential interaction skills, and participate equitably in higher education. These relationships provide the conceptual basis for examining how library settings influence inclusive electronic learning and interaction skills among students with sight loss in public higher institutions.

The conceptual framework is derived from the study's focus on welcoming library settings, inclusive electronic learning, and interaction skills among students with sight loss. It organises the environmental and institutional conditions discussed in the paper into a proposed relationship with students' access to and participation in e-learning.

AUTHOR'S CONCEPTUALISATION OF THE CONCEPTUAL FRAMEWORK

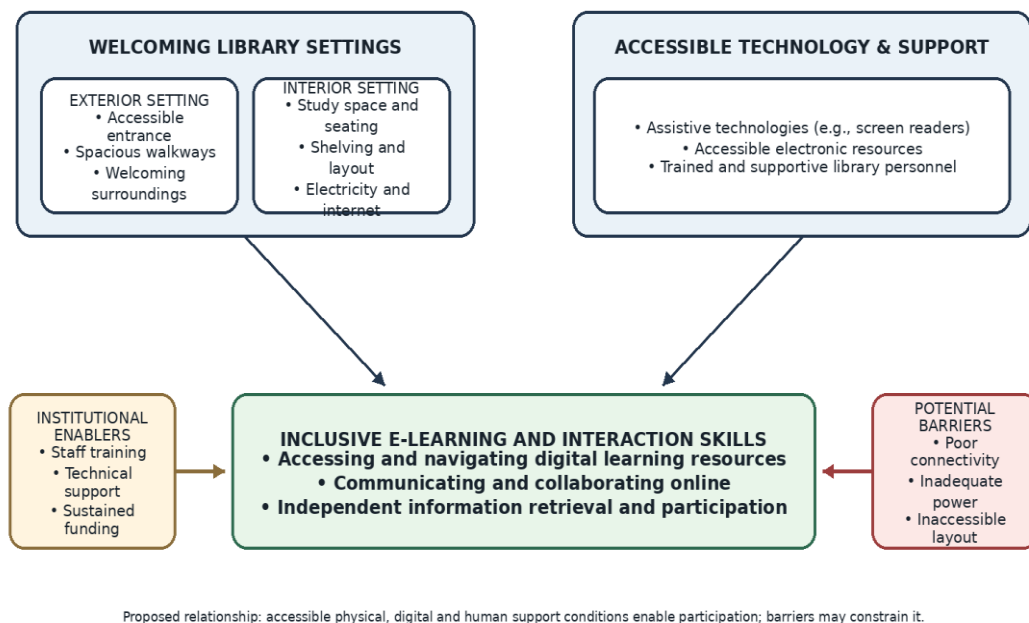


Figure 2. Author's conceptualisation of the conceptual framework.

The figure 2 presents welcoming library settings as a combination of exterior accessibility (such as entrances and walkways) and interior conditions (such as study space, seating, layout, electricity and internet). These conditions work alongside assistive technologies, accessible electronic resources and trained library personnel to support inclusive e-learning and interaction skills. The expected outcomes include independent navigation of digital resources, information retrieval, online communication, collaboration and participation. Institutional enablers, staff training, technical support and funding may strengthen this relationship, while poor connectivity, inadequate power and inaccessible layouts may constrain it. This is a conceptual proposition; the study's descriptive survey assesses respondents' perceptions and does not establish causation.

Empirical Review

Empirical evidence increasingly demonstrates that accessible academic library environments and inclusive electronic learning systems play an important role in promoting equitable participation among students with visual impairment. However, existing studies have largely focused on assistive technologies, digital accessibility, and library service

delivery, with relatively limited attention given to the combined influence of welcoming interior and exterior library settings on the development of interaction skills among students with sight loss.

Difur et al. (2025) assessed the availability and utilization of assistive technologies for accessing electronic library resources among students with visual impairment at the Federal University Lafia, Nigeria. Using a descriptive survey design involving the total population of 19 visually impaired students, the study found that although several electronic information resources were available within the university library, most were not fully accessible because of inadequate assistive technologies and poor compatibility with users' accessibility needs. The study concluded that merely providing electronic resources is insufficient unless institutions invest in appropriate assistive technologies and accessible digital environments. The findings underscore the importance of creating library environments that facilitate equitable access to electronic learning resources rather than simply expanding digital collections.

Similarly, Nwosu (2024) investigated barriers to effective learning among students with visual impairments at a Nigerian university operating an inclusive education system. The study revealed that inaccessible learning facilities, inadequate learning resources, poor institutional support, and environmental barriers significantly constrained students' academic participation and learning experiences. The author argued that improving accessibility within learning environments requires institutional commitment beyond policy formulation to include the provision of accessible infrastructure and support services. These findings reinforce the view that physical and environmental accessibility remains fundamental to inclusive higher education.

Beyond the Nigerian context, Selema et al. (2025) examined library service delivery for visually impaired students at the University of Dar es Salaam, Tanzania, using a mixed-methods descriptive design. The study reported that although library staff demonstrated awareness of the information needs of visually impaired students, inadequate assistive technologies, limited staff competencies, and insufficient accessible services continued to hinder effective utilization of library resources. The researchers recommended continuous staff capacity building and improved accessibility infrastructure to strengthen inclusive library services.

Using a case study approach in Zimbabwe, Ncube and Ngulube (2025) explored the accessibility of assistive technologies within academic libraries serving patrons with visual impairment. Data collected from library personnel, disability specialists, and visually impaired users indicated that limited availability of assistive technologies, inadequate funding, and weak institutional collaboration reduced students' independent access to information resources. The study concluded that sustainable investment in assistive technologies and institutional partnerships is essential for improving accessibility in academic libraries.

In another Nigerian study, researchers investigated the assistive technology preferences of students with visual disabilities across four public universities using a survey design and total enumeration of 151 respondents. The findings indicated that visually impaired students preferred technologies such as Braille keyboards, handheld scanners, ZoomText, COBRA, SuperNova, and Dragon NaturallySpeaking because these technologies enhanced access to electronic information resources and supported independent learning. The study further emphasized that the effectiveness of these technologies depends on institutional availability and integration within academic library services.

At the broader level of online learning, Lomellini et al. (2025) conducted a systematic review of research on accessible and inclusive online learning in higher education. The review found that accessible digital course design, institutional commitment to accessibility, learner support services, and compliance with accessibility standards significantly improve the participation and academic success of students with disabilities. Nevertheless, the authors observed that empirical evidence linking accessible physical learning environments with digital learning outcomes remains relatively limited, particularly in developing countries.

Similarly, Rosette et al. (2025) reviewed the accessibility and inclusiveness of e-learning systems for visually impaired students in selected Ugandan universities. Their review identified inaccessible learning management systems, poor compatibility with screen readers, inadequate institutional policies, and limited technical support as major barriers to inclusive e-learning. The authors recommended strengthening digital accessibility standards, institutional investment in assistive technologies, and continuous staff training to improve learning outcomes for visually impaired students.

More recently, Day and Fleischmann (2026) explored accessibility challenges encountered by academic librarians while supporting students with visual impairments in accessing academic reading materials across higher institutions in the United States. Through interviews with academic librarians, the study identified organizational processes, inaccessible publisher platforms, database navigation challenges, and fragmented institutional responsibilities as major barriers to accessible information delivery. The authors concluded that collaboration among librarians, disability support units, instructors, and technology providers is critical to ensuring equitable access to academic resources.

Collectively, these empirical studies demonstrate that accessible infrastructure, assistive technologies, competent library personnel, and inclusive digital learning systems significantly enhance educational participation among students with visual impairment. However, the reviewed studies have concentrated primarily on assistive technologies, electronic resource accessibility, library service delivery, and institutional support. Very few studies have specifically examined how welcoming interior and exterior library settings influence the development of interaction skills required for effective participation in inclusive electronic learning. Moreover, there is limited empirical evidence from public higher institutions in South-South Nigeria, where contextual factors relating to library infrastructure and inclusive digital learning remain underexplored. It is this knowledge gap that the present study seeks to address.

METHODOLOGY

Research Design

The study adopted a descriptive survey research design. The design was considered appropriate because it enabled the researchers to obtain information from students with sight loss and library personnel regarding the extent to which welcoming interior and exterior library settings support inclusive electronic learning and the development of interaction skills in public higher institutions. The descriptive survey design was suitable for collecting data on existing conditions without manipulating any of the study variables.

Area of the study

The areas under investigation were in public higher institutions of Cross River and Akwa Ibom States, Nigeria. The places of research carried out were Universities, Polytechnics and Colleges of Education in Cross-River, Akwa-Ibom States with a land

mass of 84,587 km² put together as presented by Alagoa and Tekena in 1989. Cross River Southern state lies between latitudes 5°32` and 4°27` North and longitudes 7°50` and 9°28` East while Akwa Ibom also a southern segment lies between latitudes 4°32` North and 5°33` North, and longitudes 7°25` East and 8°25` East. Cross River Population Commission of Nigeria calculated 21.04 million individuals which is about 15% of Nigeria's population of 140.43 million people. (PCN, 2022). On the contrary, Akwa Ibom has a population of 3,920,208 as released by 2006 Census then displayed by Haken and Taft in 2015. Cross River State people are busy with farming. The main crops they plant are cassava, yam, rice, banana, plantains, cocoyam, maize, cocoa etc. There are government workers too. Further, they get involve in fishing business. In a similar case, Akwa Ibom residents occupy themselves with farm work and plant cassava, okra, vegetable, banana, plantain, and many more. Other occupation the people does include trading and white-collar jobs. Popular food in the two states consists of edikaikong, banga soup, ekpan nkukwo, afang soup, ogbono soup, bitter leaf soup, pepper soup and a host of others.

Sampling Technique

Since the entire population of 75 respondents participated in the study, no sampling technique was employed. Instead, the study adopted the complete enumeration (census) approach, whereby every member of the target population was included because of its relatively small size. This approach eliminated sampling error and ensured that all eligible respondents contributed to the study.

Table 2. Population of Students with Sight loss and Library Staff for the Study in Higher Institutions in Cross River and Akwa-Ibom States

Type of Higher institution of learning	No. of higher institution in States			Students with Sight Loss (SWSL)		Library Staff (LS)	
				Total number of students in all institutions		Total number of staff of the library in all institutions	
	Cross River	Akwa Ibom	Total	M	F	M	F
Universities	2	2	4	15	3	15	17
Polytechnics/ Monotechnics	8	7	15	-	-	6	1
Colleges of Education	3	1	4	2	1	9	6
TOTAL	13	10	23	17	4	30	24
				21		54	

Instrument for Data Collection

Data were collected using a researcher-developed questionnaire titled Welcoming Library Settings and Interaction Skills Questionnaire (WLSISQ).

The instrument comprised two sections: Section A elicited respondents' demographic information. Section B contained items measuring respondents' perceptions of welcoming exterior and interior library settings and their influence on inclusive electronic learning and the development of interaction skills among students with sight loss.

Responses were obtained using a four-point Likert scale:

Very High Extent (VHE) – 4

High Extent (HE) – 3

Low Extent (LE) – 2

Very Low Extent (VLE) – 1

Validity of the Instrument

The instrument was subjected to face and content validation by experts in Library and Information Science, Special Education, and Measurement and Evaluation. The validators examined the instrument for: relevance to the study objectives; clarity of wording; appropriateness of the items; adequacy of content coverage; and suitability of the response format.

Their observations and recommendations were incorporated into the final version of the questionnaire before administration.

Reliability of the Instrument

A pilot study was conducted using respondents with similar characteristics outside the study area to avoid contamination of the main study. The responses obtained from the pilot test were analysed using Cronbach's Alpha, which yielded a reliability coefficient of 0.79, indicating that the instrument possessed satisfactory internal consistency for data collection.

Method of Data Collection

The researchers personally administered the questionnaires with the assistance of trained research assistants. This approach ensured a high retrieval rate and provided respondents, particularly students with sight loss, with the necessary support during questionnaire completion.

Method of Data Analysis

The data collected were analysed using descriptive statistics. Frequencies, percentages, mean, and standard deviation were used to summarize respondents' responses and answer the research questions. The results were presented using tables and charts where appropriate to enhance clarity and interpretation.

RESULTS

Table 3. Respondents' perceptions of welcoming Library settings for Inclusive Electronic learning

Library setting	% Yes	% No	Decision
Spacious environment	70.4	29.6	High welcoming
Proper seat arrangement	51.9	48.1	Fairly welcoming
Electrical accessories	42.6	57.4	Poorly welcoming
Internet facilities	55.6	44.4	Fairly welcoming
Exterior environment	77.8	22.2	Highly welcoming

Source: Field Survey, 2025

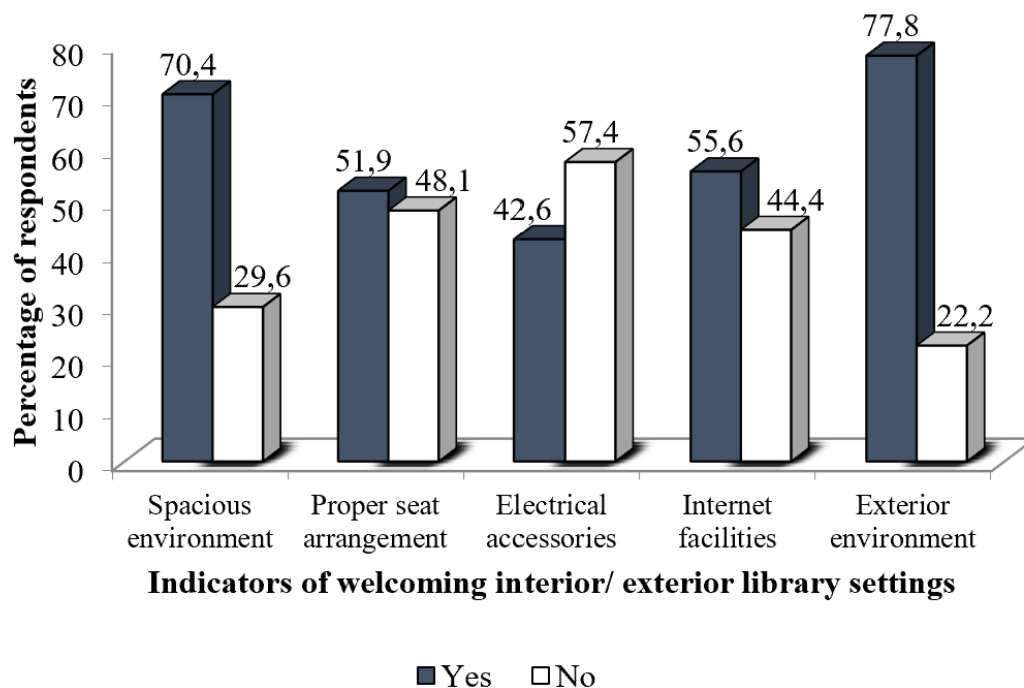


Figure 2: Bar Chart on Welcoming Library Interior and Exterior Settings

The findings indicate that respondents generally perceived the academic library environments as welcoming for inclusive electronic learning. Specifically, the spacious interior and exterior library settings received the highest ratings, with 70.4% and 77.8% of library staff respectively indicating that these facilities provided a conducive environment for students with sight loss. However, respondents expressed concerns regarding several important aspects of library accessibility. Only 51.9% considered the seating arrangement to be adequate, while 55.6% and 57.4% reported that internet facilities and electrical accessories were only fairly supportive of inclusive electronic learning. These findings suggest that although the physical appearance of the libraries is generally welcoming, deficiencies in seating arrangements, internet connectivity, electrical infrastructure, and accessibility-related facilities may hinder the effective development of interaction skills among students with sight loss.

DISCUSSION

The findings demonstrate that welcoming library environments contribute positively to inclusive electronic learning among students with sight loss. The favourable ratings for spacious interior and exterior library settings indicate that the participating institutions have made appreciable efforts to provide physically accessible learning environments. Such environments are essential for promoting independent movement, improving information access, and encouraging students with disabilities to participate confidently in academic activities. This finding is consistent with the studies of Selema et al. (2025) and Lomellini et al. (2025), who reported that accessible library environments and inclusive learning spaces enhance students' participation in higher education by reducing environmental barriers and improving access to learning resources.

Despite the generally positive assessment of the library environments, the study identified notable deficiencies in seating arrangements, internet facilities, and electrical infrastructure. These inadequacies have implications for the effective use of electronic learning platforms because students with sight loss often depend on laptops, screen readers, stable internet connectivity, and uninterrupted power supply to access digital information resources. Poor seating arrangements may also reduce comfort during prolonged study sessions and limit collaborative learning opportunities. These findings support the observations of Nwosu (2024), who reported that inadequate learning facilities

and inaccessible educational environments continue to impede the academic participation of students with visual impairment in Nigerian universities. They also corroborate the findings of Difur et al. (2025), who concluded that the availability of electronic resources alone does not guarantee accessibility unless institutions provide compatible assistive technologies and supportive infrastructure.

The findings further reveal that shortcomings in library infrastructure may negatively affect the development of interaction skills required for inclusive electronic learning. Limited internet accessibility, inadequate electrical facilities, and insufficient support for assistive technologies reduce students' opportunities to interact effectively with electronic learning platforms, digital information resources, and collaborative online learning environments. This observation is consistent with the findings of Day and Fleischmann (2026), who emphasized that effective access to academic resources requires coordinated institutional support, accessible technologies, and responsive library services. Collectively, these findings reinforce the argument of the Social Model of Disability, which attributes many of the challenges experienced by students with sight loss to environmental and institutional barriers rather than to the impairment itself.

CONCLUSION

The study examined the extent to which welcoming library settings support inclusive electronic learning platforms and the development of interaction skills among students with sight loss in public higher institutions in South-South Nigeria. The findings revealed that the participating institutions generally provide welcoming library environments, particularly with respect to spacious interior and exterior library settings that facilitate access and movement for students with sight loss. However, the study also identified deficiencies in critical support facilities, including seating arrangements, internet connectivity, and electrical infrastructure, which may limit effective participation in inclusive electronic learning.

The findings demonstrate that while progress has been made in creating accessible library environments, further improvements in physical infrastructure, digital accessibility, and institutional support are required to enhance the interaction skills and learning experiences of students with sight loss. The study therefore concludes that welcoming library settings constitute an important component of inclusive higher education and that

sustained investment in accessible library facilities and services is essential for promoting equitable participation in electronic learning among students with sight loss in public higher institutions.

Recommendations

Based on the findings of the study, the following recommendations are made:

- i. Management of public higher institutions should improve internet connectivity and ensure uninterrupted electricity supply in academic libraries to facilitate effective access to electronic learning resources by students with sight loss.
- ii. University libraries should continuously upgrade their physical infrastructure, including seating arrangements, navigation facilities, and other accessibility features, to create more welcoming and inclusive learning environments.
- iii. Institutions should provide modern assistive technologies and accessible electronic information resources that support independent learning and meaningful interaction among students with sight loss.
- iv. Regular capacity-building programmes should be organized for library personnel to strengthen their competencies in providing inclusive library and information services to students with visual impairment.
- v. Government and institutional administrators should prioritize funding for accessible library infrastructure and inclusive electronic learning initiatives as part of their commitment to equitable higher education.

Implications of the Study

The findings of this study have important implications for policy, practice, and future research.

- i. For institutional administrators, the study highlights the need to prioritize investment in accessible library infrastructure, assistive technologies, and digital learning facilities that support inclusive education.
- ii. For academic librarians, the findings underscore the importance of providing user-centred library services and creating welcoming physical and virtual learning environments that enable students with sight loss to participate effectively in electronic learning.
- iii. The study also has implications for policymakers responsible for higher education and disability inclusion.

- iv. The findings provide empirical evidence that can inform the formulation and implementation of policies aimed at improving accessibility standards in academic libraries and promoting inclusive electronic learning across public higher institutions.
- v. Furthermore, the study contributes to the growing body of literature on inclusive library services by demonstrating the relationship between welcoming library settings and the development of interaction skills among students with sight loss in the South-South region of Nigeria.
- vi. It also provides a basis for future studies to investigate additional environmental and technological factors influencing inclusive learning outcomes in higher education.

Further Research

The respondents (staff of the library) opinions on students with sight loss experiences with interior and exterior academic library environments and engagement with e-learning platforms should not be limited to library staff alone but the students should be incorporated and relate their feelings about the subject matter as well.

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