



INFORMATION ACCESS FOR VISUALLY IMPAIRED STUDENTS IN NIGERIA: BARRIERS AND STRATEGIC INTERVENTIONS

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Abstract

Information Access for Visually Impaired Students in Nigeria: Barriers and Strategic Interventions explore both the obstacles that limit equitable information access and the strategies required to overcome them. The study adopts a conceptual research design framed as a narrative literature review, synthesizing works published between 2013 and 2024. Sources were retrieved from Scopus, Web of Science, ACM Digital Library, Google Scholar, and ResearchGate. Inclusion criteria focused on studies addressing visually impaired students' information access, barriers, or assistive technologies, while non-academic commentaries and unrelated disability studies were excluded. Findings reveal multi-layered barriers ranging from infrastructural and technological gaps to institutional neglect, socio-cultural stigma, and inadequate staff training that collectively undermine inclusive education in Nigeria. At the same time, the review highlights promising interventions, including the adoption of assistive technologies such as screen readers, optical character recognition, tactile graphics, and mobile applications, alongside policy reform, increased funding, and stakeholder collaboration. Comparative insights show that while global research now emphasizes digital accessibility and inclusive design, Nigerian literature remains fragmented and largely focused on foundational service deficits such as lack of Braille and audio resources. This synthesis underscores the urgent need for systemic reforms to dismantle entrenched barriers and expand inclusive practices. The study contributes by consolidating over a decade of research and providing strategic recommendations to strengthen information accessibility for visually impaired students in Nigeria.

Keywords: Information access, visually impaired, barriers, assistive technology, inclusive education, Nigeria

Introduction

The term "visual impairment" can be used to describe people who have some degree of sight but whose tunnel vision, blurred vision, sometimes caused by cataracts, squint, require special lighting to see, or have a limited range of sight and focus that is difficult to correct with spectacles. Blindness or poor vision might also be considered a form of visual impairment. In the sense that assistive technology and services that

consider the degree of demands are typically required by those with visual impairments. Some individuals need highly specialized eyewear, Braille or huge print, and other tools to help them make up for their poor eyesight. Low vision is a major impairment in visual capabilities caused by disease, trauma, or a congenital or degenerative condition that cannot be addressed conventionally, such as refractive correction,



medication, or surgery (Bamidele, 2019).

Visual impairments are ubiquitous around the world, including Nigeria. Significant improvements in the education of individuals including Nigerian students with impairments have resulted in a rise in their educational goals, as well as an increase in the number of visually impaired people who want to pursue higher education. Finding useful information in any format can be difficult at times, especially for the visually challenged. In certain circumstances, most information searchers give up in the process of gathering information owing to numerous hurdles (Eyinade and Bakare, 2022). Visually impaired students require specialized resources to assist them in accessing and locating relevant and valuable information (Hill, 2013). It may be said that visually impaired persons take more time to comprehend and transcribe information from various sources. Visually challenged students may find it difficult or impossible to locate resources at the library without special assistance. Understanding the information requirements of virtually handicapped students is critical in the design of information systems. Thus, the importance of information accessibility cannot be overemphasised, as it has a direct influence on visually impaired students' capacity to obtain and use essential information.

Regardless of physical circumstances, religion, or nationality, access to information has been acknowledged as a fundamental human right (Awais and Ameen, 2015). It makes it possible for a user to easily obtain the information they want (Kleynhans & Fourie, 2014). People with disabilities thus have an equal right to obtain the necessary information. Only 28% of handicapped individuals worldwide, including 1% in low-income countries, receive disability payments, while one kid out of every ten kids is disabled (United Nations, 2020). Reducing inequality to guarantee that no one is left behind is the tenth sustainable development target set forth by the United Nations. According to the World Health Organization's (WHO, 2022) statistics, there are approximately 253 million visually impaired persons in the world, of whom 36 million are blind and 217 million have moderate to severe

vision impairment. According to the WHO, nine million blind people reside in India, seven million in Africa, and six million in China, making up 90% of the world's blind population. According to the World Health Organisation, the burden of vision impairment is a global problem. Nongovernmental organizations (NGOs) and private associations provide information resources to those with visual impairments in an effort to enhance the lives of blind and visually impaired persons. Among these are notable organizations and associations across the nation, such as the Nigerian Society for the Blind, Hope for the Blind, Gindiri Material Centre for the Blind, the Anglo-Nigerian Welfare Association for the Blind (ANWAB), Nigerwives, an association of foreign women married to Nigerian men, and others. One of the goals of the International Federation of Library Associations and Institutions (IFLA) Libraries for the Blind Section is to promote the evolution of the digital library for the physically handicapped on a global scale. This strategy plan places a strong emphasis on cooperation and resource sharing across borders.

It has been acknowledged that people with visual impairments (PVI) require information just as much as sighted people in almost every country. Nigeria has realized this as well. Information is essential for people with visual impairments to operate as human beings, which is why there has been a recent surge in support for equitable access to information for PVI. The idea of researching the information requirements of blind and visually impaired individuals worldwide was born out of the information boom and overload. Adeyinka, Ayeni, and Oleniyi (2017) define information need as the desire of an individual or group to find and acquire knowledge to fulfil a conscious or unconscious need. Information need is a state that arises whenever individuals find themselves in a situation requiring knowledge to deal with the problem as they deem fit. This chapter aims to explore the information needs of blind and visually impaired people. This background study highlights the significance of addressing the information needs of visually impaired seniors in Nigeria. The subsequent literature review will look into the existing



research on information accessibility, barriers, and solutions, providing a comprehensive understanding of the issues and informing strategies for promoting inclusive information access.

Statement of the Problem

Visually impaired students in Nigeria face persistent and multidimensional barriers in accessing information, despite global recognition of information access as a fundamental human right. According to the World Health Organization (2022), over 253 million people worldwide live with visual impairment, of which 90% reside in developing countries. In Nigeria, where poverty and underfunded educational systems intersect, the situation is especially acute. Studies have consistently shown that visually impaired students struggle with inadequate assistive technologies, absence of materials in alternative formats such as Braille and audio, and poorly equipped libraries (Akano, 2017; Onoyeyan, 2019). These barriers are not only infrastructural but also attitudinal. Eyinade and Bakare (2019) reported that negative staff attitudes and lack of transcription facilities in Nigerian colleges delay access to learning materials, while Nwosu et al. (2024) revealed that stigma from peers and insufficient support from lecturers further undermine inclusive education. Similarly, Horsfall and Opara (2023) found that none of the 20 surveyed Nigerian university libraries provided Braille textbooks or journals, leaving students dependent on scarce audio materials or informal support systems.

The consequences of these access gaps are profound. Visually impaired students are disadvantaged in education, employment, healthcare, and civic participation, perpetuating cycles of inequality. The absence of accessible information networks diminishes their autonomy, dignity, and capacity for independent living. Unlike in international contexts where attention has shifted to refining digital accessibility and inclusive design (e.g., Kumar & Sanaman, 2015; Kiambati, 2021), Nigerian research highlights that students remain excluded at the most basic levels of information access. Addressing this problem requires more than isolated

interventions. It calls for a comprehensive understanding of the systemic, cultural, and technological factors at play, alongside deliberate strategies to dismantle the barriers that restrict visually impaired students' participation in academic and social life. This study, therefore, explores the information demands of visually impaired students in Nigeria, identifies the current impediments they face, and develops context-sensitive strategies for enhancing information accessibility

Objectives of the Study

1. To analyze the barriers hindering visually impaired students' access to information in Nigeria.
2. To explore effective strategies and technologies for improving information accessibility for visually impaired students in Nigeria.
3. To investigate the role of libraries and information professionals in promoting inclusive information access for visually impaired students in Nigeria.
4. To identify recommendations for improving information accessibility and promoting inclusive practices in Nigeria.

Summary of the review

Barriers hindering virtually impaired students' access to information in Nigeria.

The challenges confronting visually impaired students in accessing information in Nigeria have been documented in several studies, although scholarship in this area remains relatively limited compared to international research. The barriers are multidimensional, encompassing infrastructural, technological, institutional, attitudinal, and socio-cultural factors. A review of extant literature reveals that while international studies often focus on digital accessibility, policy frameworks, and assistive technology integration, Nigerian research highlights more fundamental obstacles, such as a lack of materials in alternative formats, inadequate services, poor funding, and unsupportive attitudes. Akano (2017) highlighted the global rise of vision impairment, citing World Health Organization (WHO) statistics that estimated 217 million people with moderate or



severe impairment and 36 million blinds worldwide, with 90% living in developing nations. He argued that poverty deepens the plight of the visually impaired in Nigeria, where libraries and information centres fail to provide materials in Braille, audio, or large print. According to Akano, provision is often driven by availability rather than actual demand, leaving students underserved and excluded. This systemic neglect reflects broader socio-economic inequalities that make access more difficult in developing contexts.

Majoni and Mashatise (2017), focusing on blind schools, found that poor-quality Braille books, limited visual aids, and inadequate teaching materials hindered learning for visually impaired students. The emphasis here is not only on scarcity but also on quality, since poorly produced Braille texts reduce usability. Their findings echo Akano's (2017) observations, showing that both mainstream and special education systems in Nigeria fail to provide adequate learning resources. Onoyeyan (2019) examined Nigerian public libraries and concluded that provision for blind and visually impaired users was virtually absent. Most libraries lacked materials in alternative formats, reflecting the larger inefficiencies of the Nigerian public library system, such as poor funding and lack of modernization. This study contrasts with Akano (2017), who linked access barriers to poverty and stakeholder neglect, by stressing institutional incapacity and weak policy support. Both, however, demonstrate that visually impaired users remain marginal in the nation's library landscape. Eyinade and Bakare (2019) added a critical dimension through their study at the Federal College of Education (Special), Oyo, employing Wilson's model of information behaviour. Their findings revealed negative staff attitudes, inadequate Braille and audio resources, and lack of screen-reader-enabled computers. The study also noted delays in transcription of materials into accessible formats. Unlike earlier studies that emphasized material and infrastructural deficits, this work highlights human and attitudinal barriers that can undermine access even when resources exist

Recent studies have broadened the analysis of barriers. Nwosu, Orizu, Obiozor, and Apiti (2024), using Bronfenbrenner's ecological systems theory, explored obstacles faced by visually impaired students in a Nigerian university. Their qualitative findings revealed challenges from multiple contexts: peers, lecturers, institutional structures, and families. Students reported stigma, lack of instructional support, insufficient assistive technology, and limited family assistance. This study expands the discourse beyond libraries to show how educational and social environments simultaneously constrain learning outcomes, calling for multi-level interventions. Similarly, a study presented at the ACM conference (2023) examined visually impaired students' experiences with web-based result-checking platforms in Nigerian higher institutions. Participants reported difficulty navigating inaccessible portals, a lack of assistive devices, and privacy concerns when relying on others to access academic results. While earlier Nigerian studies, such as Onoyeyan (2019) and Eyinade and Bakare (2019) focused on library environments, this study illustrates how barriers extend into administrative and digital service platforms. The recommendation to adopt mobile apps, IVR, and USSD technologies indicates a pathway for addressing such digital divides.

Horsfall and Opara (2023) surveyed 20 Nigerian university libraries and found that most lacked adequate information resources for visually impaired students. Their study identified outdated resources, erratic power supply, insufficient funds for maintenance, and inadequate user skills as major barriers. A detailed breakdown showed that no library provided Braille textbooks, fictions, or journals, though some offered limited audio books, magnifiers, and tape recorders. These findings confirm persistent gaps in resource provision. Ailakhu (2021) also underscored the role of academic libraries in Nigeria, finding that services for visually impaired students were minimal. Libraries lacked materials in Braille and audio formats, had little assistive technology, and employed staff without specialized training. Beyond resource deficits, the study noted that the needs of visually impaired users were rarely prioritized in policy or planning,



reflecting low institutional commitment. This aligns with Horsfall and Opara's (2023) findings on weak implementation of inclusive library services. Aramide, Lawal, and Odunlade (2018) investigated visually impaired students in Oyo State, identifying major information needs such as educational, health, and coping strategies. However, the only library services consistently available were circulation, reference, and limited screen-reader support. Barriers included poor borrowing policies, difficulty accessing staff assistance, and lack of path sounders to guide navigation within libraries. This study adds important detail by showing how everyday practices and policies constrain use, not just the absence of resources.

International comparisons provide useful context. Kumar and Sanaman (2015) in India found visually impaired patrons struggled with inaccessible online content, while Sehic and Tanacković (2014) in Croatia reported that blind students relied more on informal sources such as radio and personal contacts than on academic libraries. Similarly, Kiambati (2021) in Kenya found that digital libraries were often unfriendly for visually impaired users and recommended prior training in assistive technologies. These international studies indicate that accessibility barriers are global, but the Nigerian context appears more severe because of compounded infrastructural, financial, and attitudinal challenges. Across the reviewed literature, a layered picture of barriers emerges. Nigerian studies consistently emphasize the absence and poor quality of accessible resources, while others reveal how negative staff attitudes, weak policies, and lack of supportive services deepen exclusion. More recent contributions highlight digital exclusion in administrative platforms, expanding the scope of barriers beyond libraries. Compared with international contexts, Nigeria remains under-researched, and where studies exist, they expose more fundamental service-level gaps. This indicates that barriers in Nigeria are not only technological but also systemic, cultural, and relational.

Implications for the Nigerian Educational System

The evidence reviewed suggests that barriers to information access for visually impaired students in Nigeria are not isolated library or technological issues but deeply systemic, reflecting weaknesses in the nation's educational infrastructure, funding priorities, and policy implementation. The persistence of basic deficits such as a lack of Braille textbooks, poor staff training, and inadequate assistive technologies indicates that inclusive education remains largely aspirational rather than fully realized. Unlike in many international contexts where attention has shifted to refining digital accessibility standards and inclusive design, Nigeria continues to grapple with foundational service delivery. These challenges limit visually impaired students' participation and achievement, reinforcing educational inequality and restricting future opportunities in higher education and employment. To move forward, Nigeria must adopt deliberate strategies ranging from policy reforms and institutional restructuring to technological innovations that can dismantle these barriers and promote a genuinely inclusive educational system.

Strategies and Technologies for Improving Information Access to the Visually Impaired Students in Nigeria

According to Manirajee et al (2024), People with visual impairment experience vision problems from birth or because of an accident or injury. Assistive technology could be explained as a method that helps people with disabilities to facilitate their daily lives. Assistive technologies are also used in the recovery process to improve the functionality of limbs disturbed by disabilities while improving the quality of life of these people (Mishra, 2023). Assistive technology of visually impaired students refers to the devices created to help them identify their position, direction and provide assistance while doing activities inside or outside the premises (Tripathi & Shukla, 2014). Adults with vision problems require practical technology to increase their potential during the teaching and learning process in and out of the classroom. The lives of students with vision problems are greatly simplified with the help of assistive technology in the aspects of learning, reading, digital document management, two-way



communication and digital information acquisition processes.

This facility could increase the accessibility of the visually impaired students to gain knowledge without limitation (Tripathi & Shukla, 2014). Assistive technology plays an important role in ensuring that the quality of life of visually impaired students can be improved. The use of aids such as white sticks is no longer effective and requires more effective aids to facilitate their daily living. Adetoro (2015) posited that the problem of converting information materials into alternative formats is that the process is not only time-consuming but also expensive. The consequence of this is that information materials in adjusted format becomes available to the visually impaired several months later (if at all) than to everyone else. A small amount of published works is ever made accessible to the visually impaired. The provision of information materials to persons with visual impairment has remained worrisome to producers and providers of alternative formats.

Availability of information materials for persons with visual impairment in Nigeria does not come easily. This is because readable materials for them have to be in special formats, in braille, large print and audio recordings such as talking books. To convert normal print materials to braille, special machines, a braille press and computer software are needed. There are a few large print publications, if any, in Nigeria (Oneneyan, 2019). For audio materials, a soundproof studio is required in addition to readers willing to volunteer time and energy to record materials. These factors combine to create difficulties in the provision of information materials for persons with visual impairment. (Adetoro, 2014).

Mishra (2023) listed and explained types of Assistive Technologies. Various assistive technologies have been developed to enhance accessibility and provide support for individuals with visual impairments. These technologies aim to assist individuals in accessing information, navigating their surroundings, and engaging in various activities. Some examples of assistive technologies for individuals with visual

impairments include:

- **Screen Readers:** Screen reading software converts text on a computer screen into synthesised speech or braille output, allowing visually impaired individuals to access digital content.
- **Optical Character Recognition (OCR):** OCR technology enables the conversion of printed text into digital formats, making it possible for visually impaired individuals to access printed materials through electronic devices.
- **Braille Displays:** Braille displays provide tactile output by converting digital text into Braille characters, allowing individuals with visual impairments to read and navigate through electronic content.
- **Electronic Magnifiers:** Electronic magnifiers, also known as video magnifiers or closed-circuit television (CCTV) systems, enlarge printed text or images, making them more visible for individuals with low vision.
- **Voice Assistants:** Voice assistants, such as Amazon's Alexa, Google Assistant, or Apple's Siri, offer hands-free access to information, allowing individuals with visual impairments to interact with devices and access a wide range of services through voice commands.
- **Mobile Apps:** Various mobile applications have been developed specifically for individuals with visual impairments. These apps provide functionalities such as text-to-speech, object recognition, navigation assistance, and assistance in daily activities.
- **Tactile Graphics:** Tactile graphics are raised, touchable representations of visual information, enabling individuals with visual impairments to perceive and interpret diagrams, maps, and other graphical materials through touch.
- **Navigation Systems:** Navigation systems, including GPS-based apps and wearable devices, provide audio cues and directions to assist individuals with visual impairments in navigating indoor and outdoor environments independently.



These assistive technologies play a crucial role in empowering individuals, including adults with visual impairments in Nigeria, by improving their access to information, education, employment opportunities, and social interactions. They enable greater independence and inclusion for individuals with visual impairments in various aspects of their lives (Mishra, 2023)

Role of Libraries and Information Professionals in Promoting Inclusive Information Access for Visually Impaired Students in Nigeria

The provision of library services for the blind and physically disabled is a constantly growing phenomenon that is fueled by both technological advancements and the creative spirit of the community. People could get the vital knowledge they need to engage in the burgeoning information society thanks to libraries and librarians. As a result, they have a moral duty to ensure that all user groups, irrespective of gender, age, color, political affiliation, or handicap, may access the material. Since some individuals still lack adequate access to information, such inclusive, nondiscriminatory services are still the ideal rather than the standard. Among this vulnerable population are the visually challenged.

Juniad (2017) posited that libraries should be at the forefront of removing the obstacles preventing people from accessing information because they are the information producers. According to the researcher, the United Kingdom's (UK) Union of the Physically Impaired Against Segregation (UPIAS), which was established in the middle of the 1970s, provides the foundation for Oliver's (1990) social model of disability. The Access Working Group of the Society of College, National and University Libraries (SCONUL) in the United Kingdom likewise supports this paradigm (Robertson 2012). In respect to the model, libraries must have universal access, which can be accomplished by building ramps next to stairs, installing automatic doors, providing information in large print and Braille, and having assistive technologies like JAWS, Closed Circuit Television (CCTV), Braille embossers, and screen magnification available. For persons with disabilities to have access to mainstream library services, anti-

discrimination laws must be passed in many nations. Access for those with disabilities should not be an add-on to already-existing services; rather, libraries should be built with universal access in mind. In conclusion, libraries have to be equipped with devices that make it simpler for people with vision impairments to move around and access information (Junaid, 2017).

Recommendations for Improving Information Accessibility and Promoting Inclusive Practices in Nigeria.

1. Improving information access for visually impaired students in Nigeria requires deliberate and coordinated action across government, libraries, universities, professional associations, and non-governmental organizations. At the policy level, the Federal and State governments, working through agencies such as the Ministry of Education and TETFund, should establish a dedicated budget line for inclusive library services and the acquisition of assistive technologies. A review of existing education and library policies is equally necessary to ensure that inclusive practices are not only recognized in principle but also enforced in implementation. Such reforms should be pursued in the short to medium term, with measurable indicators such as annual budget allocations, documented policy adjustments, and the adoption of inclusive service guidelines by universities.
2. On the infrastructural and technological front, higher institution libraries, ICT units, and donor agencies need to prioritise investment in assistive technologies such as screen readers, Braille embossers, tactile graphics, and navigation aids. Alongside this, digital repositories should be developed to provide resources in accessible formats, including Braille, audio, large print, and OCR-enabled texts. These investments, which are more medium- to long-term in nature, can be evaluated through the number of functional assistive devices in use, feedback from visually impaired



students, and the extent to which accessible digital collections are being utilised.

3. Capacity building for library staff and information professionals is another critical step. Higher institution libraries, supported by the Nigerian Library Association, should implement regular training and retraining programs on the use of assistive technologies and inclusive service delivery. Incorporating modules on inclusive information services into library and information science curricula would help to institutionalize these practices. Progress in this area can be measured through the number of staff trained annually and improvements in the quality of service as reported by students with visual impairments.
4. Awareness and advocacy also play a vital role. Non-governmental organizations, professional associations, higher institutions and student unions should collaborate to organise sensitisation campaigns aimed at reducing stigma and negative attitudes toward visually impaired students. These campaigns should also publicise available library services and assistive technologies to increase visibility and usage. Positive outcomes would include higher awareness among the university community, reduced reports of discrimination, and greater utilization of assistive resources.
5. Finally, collaboration and networking are essential for sustainability. The Nigerian Library Association, in partnership with universities, NGOs, and international organisations, should lead efforts to share resources, avoid duplication of services, and promote collective problem-solving. Inter-school networks can be established to exchange accessible materials and jointly fund expensive assistive technologies. Indicators of success in this area would include the number of formal partnerships created, the availability of shared resource platforms, and evidence of reduced duplication in service provision

Methodology

This study adopts a conceptual literature review design. Relevant materials were gathered through searches in databases such as Google Scholar, Scopus, Web of Science, EBSCOhost, and the ACM Digital Library, as well as conference proceedings and reports. The search focused on terms including *visually impaired students*, *information access in Nigeria*, *assistive technology*, and *inclusive education*. Publications were included if they discussed barriers or strategies relating to information access for visually impaired students, particularly within Nigeria, and were published between **2010 and 2024**. Studies centered only on medical aspects, written in non-English languages, or lacking analytical value were excluded. The reviewed works were analysed thematically under infrastructural, technological, institutional, attitudinal, and socio-cultural barriers. Nigerian findings were also compared with international studies to highlight unique challenges and shared global trends. This approach provided the basis for identifying research gaps and drawing out strategic recommendations

Conclusion

The visually impaired student population in Nigeria faces significant challenges in accessing information, which is essential for their social inclusion, personal growth, and overall well-being. Despite advancements in technology and increased awareness about disability rights, barriers persist, hindering their ability to acquire and utilize relevant information. This study has highlighted the complexities of information access for visually impaired students in Nigeria, including inadequate accessibility features, limited assistive technologies, and insufficient training for information professionals. To address these challenges, this research recommends strategic interventions, including adequate funding, reader training and awareness, marketing and advocacy, provision of advanced assistive technologies, national advocacy, staffing, and resource sharing and collaboration. Libraries and information professionals play a critical role in promoting inclusive information access for visually impaired students. By implementing these recommendations, Nigeria



can bridge the existing gaps and ensure equal access to information for this marginalized group. Ultimately, promoting inclusive information access will empower visually impaired students to participate fully in education, employment, healthcare, and civic engagement, enhancing their quality of life and contributing to a more equitable society.

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