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The Place of Assistive Technologies in the Service Delivery of Special Need Users in Academic Libraries of Kogi State

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Abstract

In many universities today, certain students cannot benefit fully from their educational programs due to learning disabilities. The research sought to understand the availability and roles of assistive technologies in libraries of Kogi State. Quantitative research methodology and survey design were adopted, an online questionnaire was structured with Google forms and administered to the Kogi State Library WhatsApp group and individual mails. The total of twenty-one questionnaire from a population size of seventy-eight (78) was returned fully completed. The study found emphasis was placed on certain assistive technologies like Computers and LCD projectors, while the majority of the assistive technologies were not present at the institutions. The study further found the provision of equal opportunity and rendering of library service to users with the use of these technologies were some of the roles of Assistive technology. The study recommendations; libraries and Library management to solicit funds from relevant stakeholders (NGOs and Government organizations) to aid purchase or acquisition of certain assistive technologies that are absent from the library holdings. Also, train the trainer workshops should be organized to teach librarians on how these technologies can be used, as it will enlighten them to educate users properly.

Introduction

Information in the life of an entity fosters influence as such it is important to the success of every aspiring individual, it cannot be undervalued. Timely and credible information determines to a very large extent one's success and future development. Every person, regardless of status, race, gender, age, and physical challenge deserves the right to access information for decision making and the creation of knowledge creation. The library plays a crucial role in this knowledge creation and dissemination by providing materials and services to users. As such the library serves as a balance, entertaining different categories of users, some of which may be special needs or less able. Libraries fulfill one of their primary functions by the provision and access to their resources by every single user. Libraries add to the advancement of knowledge, they not only provide resources but also ensure that the resources are effectively used. Libraries are one among many institutions that have the mandate to alleviate deprivation by ensuring unhindered access to learning resources and empower people with special needs by offering more accessible and usable services to them (Fagbola, Uzoigwe, & Ajegbomogun, 2011). Special needs persons are those who are disabled either physical, intellectual, sensory impairment, medical conditions, or mental illness, and these impairments being permanent or transitory (Jaccarino 2009). According to Roy and Bandyopadhyay (2009) physically challenged users are the handicapped people who are in one form or the other unable to make effective use of the library resources. It can also be defined as a physical or mental condition that prohibits an individual use of the body, partially or completely in performing daily tasks (Chaputula & Mapulanga, 2017). Other definitions are given by as the inability to perform some or all the tasks of daily life or a medically diagnosed condition that makes it difficult to engage in the activities of daily life (Lin 2008). Some of these disabilities as stated by Rubin (2002) include the blind and visually impaired, deaf and hearing impaired, mobility impairment, leprosy cure, mental illness, and

mental retardation. Below are some examples of physically challenged library users according to: (Rubin 2002, Rayini 2017,Gavin, 2018).

Challenge	Meaning
Visual impairment	The vision loss of someone, or whether he or she could not see at all or also known as someone who was partially vision loss.
Hearing impairment	A hearing loss that prevents the person from receiving any sound through the ear
Mental illness	Mental disorder
Physical impairment	The capacity to coordinate actions, to move, or to perform physical activities is significantly delayed, impaired, or limited
Intellectual disability	A person with an intellectual disability may have significant limitations in the skills needed to live and work in the community, including difficulties with communication, self-care, social skills, safety, and self-direction.

Academic libraries in carrying out their responsibility of making library collections and services completely accessible to clientele irrespective of race, color, or disability, adhere to Ranganathan's Five Laws of the profession. There are nearly one billion people with physical challenges all over the world and more than a hundred million people have heavy need and assistance (WHO, 2012). With the constant changes and advancements in technology, these challenged people can have access to information easily and fast. 21st-century libraries provide necessary equipment and facilities that are needed to assist their impaired students in tertiary institutions, to ensure their timely access to information for learning and research.

Assistive Technologies in Libraries

Technology has removed many barriers to education for physically challenged individuals, physically challenged students with technology can now complete homework, undertake research, tests, and read books along with their classmates. Libraries, irrespective of type should be able to cater to the information needs of people with physical challenges. This is based on equal rights to education and libraries standing as advocates to these rights this then introduces the need for Assistive Technologies in libraries. Assistive technologies are solutions which aid people with disability to live independently and work easily. The use of these technologies could help people with visual impairments, for example; magnifiers aiding users to enlarge text on the screen, it could also enable independent reading among such users. Many scholars have attempted to define assistive technologies; Hopkins, (2004) defined assistive technology as a "system or support that allows a person with a disability to work around his/her area of challenge". Similarly, as defined by Sanaman & Kumar, (2014) it is "a device or a computer-based accommodation that helps an individual with special needs to work around or compensate for a disability and enhancing individual ability". Lastly, Coleman (2011) defined Assistive Technology as anything that helps a student with a disability to perform a task that he or she otherwise would not be able to perform or to increase the efficiency with which the task is performed. Magnifiers and Magnification software, electronic readers, optical character recognition software, speech output systems, electronic Braille devices, and accessible entrances all provide a solution for a particular individual with a disability, and those computer-related aids and equipment are commonly referred to with the terms "assistive", "adaptive", or "enabling technology". The blending of these technologies can be used to enable people to interact and work in the electronic environment. For example, a user can choose a speech output system

predominantly with Braille output to verify unusual spellings or language. A Magnifier may be used to explore a page, with speech output to read out more text-rich parts of the page. To promote a learning culture for the disabled, the use of these assistive technologies in libraries and information centers would greatly influence the reading and learning culture of disabled users. As such, they are being allowed to develop themselves. Librarianship is an enabling profession hence librarians need to think beyond their discomfort and try to provide the same level of service to this category of the population as they do to more physically or mentally capable persons (Cohen 2006). Assistive Technologies provides various means for a blind or partially sighted person to overcome several barriers such as the need to read print, use a computer workstation, taking notes, and communicating on paper and in electronic settings (Brophy and Craven 2007). The use of assistive technologies in libraries creates room for new ideas, as such increasing the functional productivity of the physically challenged. Simply put, Assistive technologies refer to products, devices, or equipment that are used to maintain, increase or improve the functional capabilities of people with disabilities (Koulikourdi 2008).

Ezeani, Ukwoma, Gani, Igwe, & Agunwamba, (2017), asserts that libraries can make a large impact on the education of persons who are physically challenged, by providing access to resources through Screen Reader and Screen Magnification Support; Alternate Format Services; Accessible Website, and Digital Library. Ennis-Cole and Smith (2011) believe "Assistive technology can supplement compliance to "level the playing field" and bridge the digital divide for students with disabilities". These technologies can be in several forms; no-technology, low-technology, and high-technology (Islim & Cagiltay 2012). No-tech assistive technology is using strategies that provide the opportunity to learners instead of technology such as extended time, colored folders, chunking materials, and index cards. Low-tech assistive technology is the use of

tools such as simple speakers, adapted scissors, raised-lined paper, step-by-step picture schedules, pencil grips, paper communication boards, calculators while High-tech assistive technology means using especially computer or computer components such as specialized software and advanced hardware devices (Poel, 2007; Floyd, Canter & Judge, 2008; Coleman, 2011).

There are numerous technologies available today for individuals with disabilities to help them to access the printed or electronic material available in the libraries. therefore, there is a requirement of highly knowledgeable IT and computing staff for handling this technology and creating innovative ways to apply it. The staff providing the disability services should be well aware of the needs of the students and find solutions to keep pace with emerging technologies (Berkeley, Kressin, and Oberlander 2007).

Assistive Technologies and University Library Services of Nigeria

Libraries are increasingly becoming community hubs where knowledge is delivered and people engage in lifelong learning. Technology has changed and allowed new ways of creating, storing, organizing, and providing information, public expectation of the role of libraries has also increased. Librarians have assumed the role of educators to teach their users how to find information both in the library and over electronic networks. The work of librarians has also moved outside library walls. Librarians have begun to work in the information industry as salespeople, designers of new information systems, researchers, and big data analysts, analyzing very large amounts of information with a variety of digital technologies. Modern libraries are being redefined as places to get unrestricted access to information in many formats and from many sources. University libraries engage in reference and information services to provide a wide range of services and facilities, which will enhance exploitative use of the library resources

and services. Library Services are services provided by the library to the users. This can include instruction on how to access and use library materials. The Library services/facilities include Circulation Service, Reference Service, Online reservation of books, Recommendation of library material, Current Awareness Service, Inter-Library Loan Service, Photocopying / Printing Service, Orientation, and Information Sessions, Selective Dissemination of Information, Audio Visual Service and Multimedia Section. To bridge the gap between the information-rich and information poor it is essential to ensure that no one is denied access to library services due to any disability or lack of equipment that exists to hinder access to ICT services (Cahill and Cornish 2003). Andeniran (2011) noted that academic libraries are service-oriented organizations established for the provision of relevant information resources and quality services to meet their users' information needs. Kumar (2014) explained that most services delivered in university libraries are information services, which is the "provision of information on demand and indicates that a user who makes a specific request will be provided an answer to his query on-demand". The university library is to provide reference and information services to users who rely solely on the libraries for their desire and needed information in advancing knowledge irrespective of their status.

Statement of Problem

Presently, the library now has the potential to act in a non-discriminatory manner by ensuring information is accessible to everyone. With technology, skilled manpower, and facilities, today's libraries stand as pillars against discrimination in all forms. Serving people with disabilities and working towards making a positive difference in the lives of these library users through the use of assistive technologies. Universities libraries now are filled with students who every day retrieve archived information with a mouse click or stream video footage of events occurring

around the world right into their classroom computers. In many of these universities, certain students cannot benefit fully from their educational programs due to learning disabilities. Besides providing exciting new ways to communicate, digital technologies can be a lifeline to this latter group through the use of "Assistive Technologies". This paper intends to showcase the place of these assistive technologies in the library services of university libraries of Kogi state.

Research Questions

1. What assistive technologies are available to your library users?

2. To what extent are these assistive technologies utilized?

3. What are the roles of these assistive technologies on library service delivery?

4. What are the challenges faced in the use of these assistive technologies in the library?

Literature Review

Libraries have always played a significant role, enabling people to engage with all kinds of information and knowledge resources (Curran et al., 2006). Information can be provided to people with disabilities if libraries make necessary arrangements to provide a conducive environments, for maximum utilization. According to the IFLA (2002) in its guidelines for library service to special needs, to provide adequate and appropriate service to special needs, a librarian must have an understanding of their special needs, culture, special collections of materials, captioning of video programs, assistive listening devices, specialized alerting devices, and technological communication aids. Assistive technologies play an important role in equalizing opportunities for people with disabilities in several aspects of life as this technology

enables them to overcome various limitations and obstacles faced in all types of environments (Koulikourdi, 2008). Watson (2011) categorized ways of improving access and services by libraries for the physically challenged into four main areas: Physical access to buildings, service counters, workstations, reading rooms, and shelves; Intellectual access to the content of information carriers, including the availability of alternative format materials, adapted workstations and special software; Training for library staff members in helping the physically challenged; Virtual access to library services for those who are not able to visit the actual building. Kovalik and Kruppenbacher (2014) explained that libraries should provide auxiliary aids and services to individuals with impairment so that they can have equal opportunities to benefit from library services. One of the roles of a library is to provide equal services to users as regards their information need. These collections, services, and devices should be made available and accessible in the library, to justify the role of the library in meeting the information need of all users, physically challenged or not. Chima and Eskay (2013) noted that the responsibility for the development, implementation, and operation of library services to the deaf community should be assigned to professional librarians, for optimum performance. In a study by Blijlevens & Lin, (2013), it is estimated that merely 7% of the world's published output is made accessible in alternate formats for people who are partially sighted or blind or have print disabilities. Partially sighted students do not have equal access to reading material for meeting their information needs, as such, an ergonomic keyboard tray and a large monitor around 20 inches or larger can also be part of the workstation which allows patrons using screen-enlarging software to see more of the displayed text while moving through the documents (Mates, 2012) Subramaniam, Oxley, and Kodama (2013) assert that the basic technology resources & assistive technologies for any library for users with impairment must include the following: Computers

Laptops iPods/iTouch/MP3 players iPads/tablets, Kindles/Nooks/E-readers, Large-screen monitors, Braille keyboard, Scanners, LCD projector, JAWS software, Text-to-speech software TTY/TTD (communications for hearing impaired), Dictation software, Talking browser, Optical scanners, Interactive whiteboard. Similarly, Abdelrahman (2016) classified the assistive technologies for impaired users as; Computer technologies, tactile tools, and auditory tools. The importance of assistive technology to visually impaired students was highlighted by Daroni, Gunarhadi, and Legowo (2018) as helping them to learn difficult ideas and concepts by broadening their understanding. A research study investigated the current use of Assistive technologies (AT) in Greek libraries and revealed there is a lack of assistive technology in Greek libraries and depicted that the current legal and regulatory framework concerning assistive technology is insufficient (Koulikourdi, 2008). Royini (2017) recommended for libraries install different software to meet the varying information needs of visually impaired students. These are JAWS for windows, window eyes screen-reading program with a portable application, ZoomText magnifier and reader, ZoomText keyboard, Dragon Naturally Speaking (a speech to text engine for dictating into windows), and Text Aloud (a text to speech software). Eskay and Chima (2013) insist that voice recognition software irrespective of the brand allows visually impaired students to input data into the computer by voice. Similarly, Hasselbriry and Glaser (2000) as cited in Daroni et. al. (2018) found out that Optical Character Recognition (OCR) can scan and read printed texts thereby helping the visually impaired users to read on their own. Azimi, Maryono, and Yuana (2017) conducted research that aimed at developing the English for Disability (EFORD) application on Android-based learning English media for visually impaired users and found out that EFORD is very needful for grammar and speaking English contents. Libraries should make necessary considerations before adopting these technologies into their

system by deeply examining the available research literature in the area and gaining knowledge through the experiences of other libraries. Bernardi (2004) noted that one major challenge of using Adaptive Technology by visually challenged persons is lack of accessibility. Library staff should be trained regarding particular technology and provide access to users in their respective fields of knowledge. Considering the high cost and complex nature of some assistive aids/devices, (Ejike&Amaoge 2015), stated that fund is a major challenge for libraries, if there are adequate funds provided, they will be used to build and equip the university libraries with facilities or state of the art technologies for the impaired. Eskay and Chima (2013) pointed out ways of improving library services for the impaired users in Nigeria. These include funding of libraries; reviewing policies that guide the implementation of the funds periodically; training and retraining of librarians, producing talking books; investing in assistive technologies, and networking. Putting their needs into consideration when planning for collection development is also a major factor to be considered. Training and retraining of librarians on the use of these facilities are very vital to ensure effective and smooth service delivery. Librarians in carrying out their duties to the impaired should avoid any form of bias, inconvenience, service failure, negative responses, and ethical problems, as it is against their profession (Kotler and Kevin 2012).

Research Method & Design

The research adopted a quantitative research methodology and survey design, the methodology and design are best suited in collecting data using a structural instrument such as a questionnaire, survey, or polling where the result of the analysis is based on the sample which is the representative from a population (Creswell 2013). The research instrument was an online questionnaire that was structured through the use of Google forms and ran for a period of

4weeks. The link to the questionnaire was shared to the Kogi state chapter WhatsApp group and individual emails with reminders being sent out in a three-day interval. The population of the study comprised of all registered and certified librarians of Kogi state working in Federal, State, and Public Libraries in the state. The total population for the study was Seventy-Eight (78). Twenty-One (21) questionnaires from the structured questionnaire distributed to the groups were returned fully completed. The data from the questionnaires were analyzed with the use of simple percentages, charts, and graphs.

Data analysis & Discussion of Results

The demography of the respondents as obtained from the research instrument is depicted in fig 1 below;

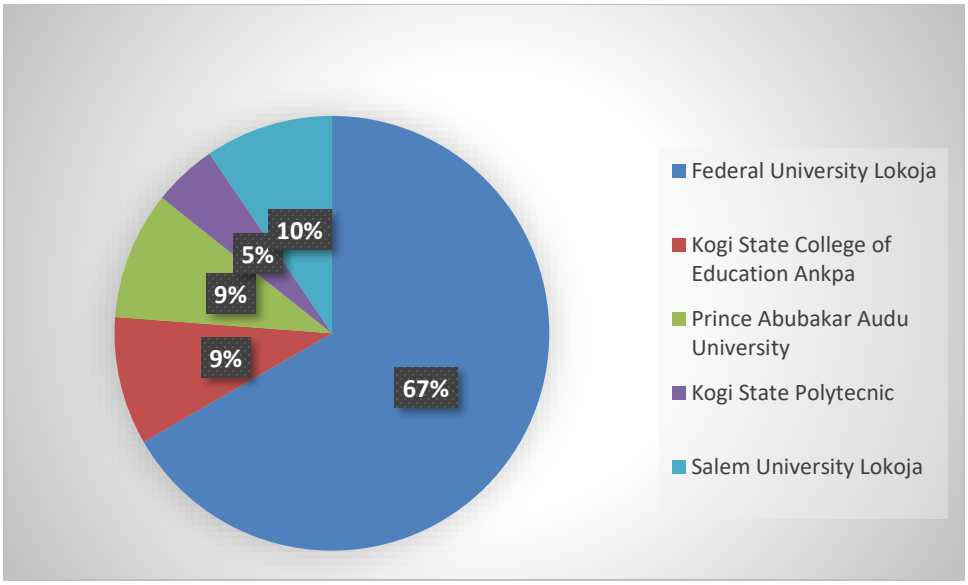

Fig 1: Demographics of Respondents by Institution

Section A of the questionnaire sought to identify the population under study, their responses show the lowest percentage with 5% of the respondents came from Kogi state polytechnic while the highest was from the Federal University Lokoja with 67%. Salem University, Prince Abubakar Audu University, and Kogi State College of Education all had similar percentages of

10%. Part B of the questionnaire looked at the available assistive technologies in various libraries sampled in Kogi State. Fig 2 shows their distribution of availability and non-availability.

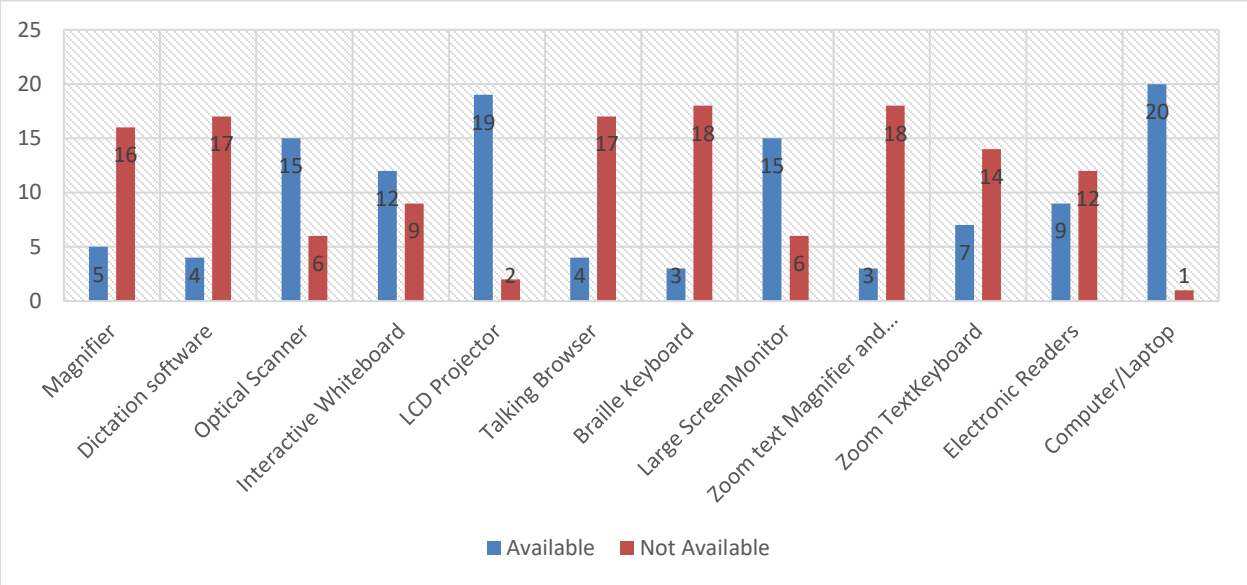

Fig 2: Availability of Assistive Technologies

This chart (fig 2) shows the distribution of assistive technologies by various libraries, majority of the sampled libraries indicated a non-availability to certain assistive technologies like the magnifier, dictation software, talking browser, braille keyboard, zoom text magnifier and reader, zoom text keyboards, and electronic readers. Based on the responses represented in the charts above, it can be stated that institutions not having at least 50% of these technologies cannot cater to special-need users as they will not have maximum satisfaction of information needs, thereby depriving them of access to certain information resources. This is against the findings of Subramaniam, Oxley, and Kodama (2013), who asserts that the basic assistive technologies resources for a library with users with impairment should include Computers, Music systems (iPods/iTouch/MP3), iPads/tablets, Kindles/Nooks/E-readers, Large-screen monitors, Braille

keyboard, LCD projector, Text-to-speech software TTY/TTD (communications for hearing impaired), Dictation/Read aloud software, Talking browser, Optical scanners, and Interactive whiteboard.

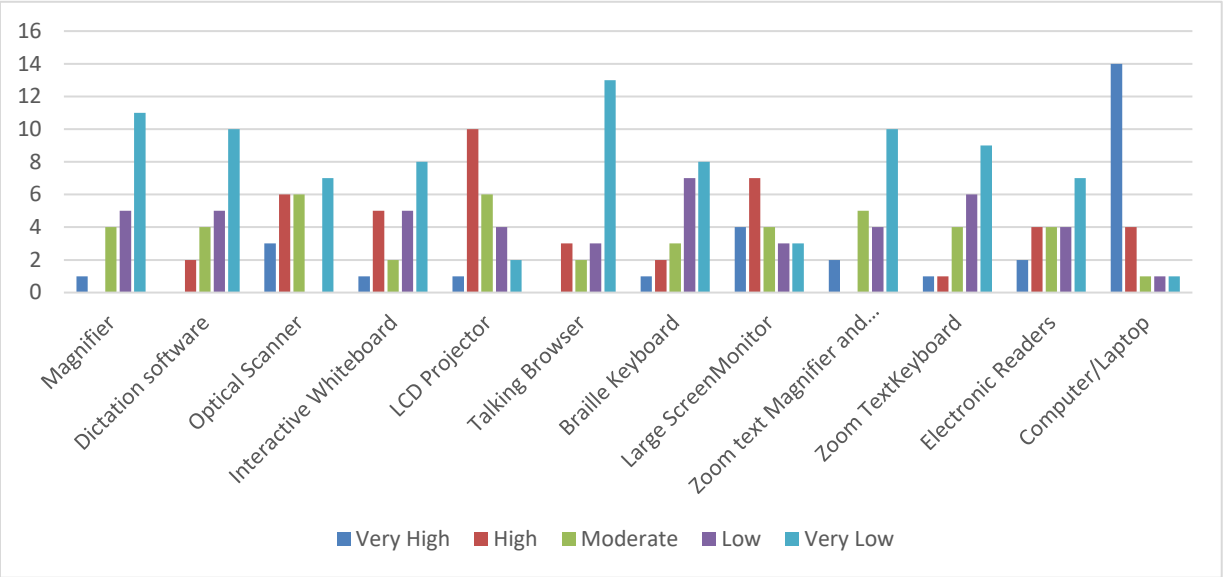

Fig 3: Extent of Utilization of Assistive Technologies

The chart (fig 3) shows that computer/laptop and LCD projector had a high rate of utilization in the institutions sampled, while optical scanners were moderately utilized, other assistive technologies such as electronic readers, braille keyboards, and dictation software had a low utilization rate. High utilization in assistive technologies like computers and LCD projectors cannot be overemphasized and is expected in universities due mainly to these technologies having capabilities that cater to a broad range of users. This is in line with Daroni, Gunarhadi, and Legowo (2018) who emphasized the importance of using assistive technology to special needs patrons being aiding the learning of difficult ideas and concepts. Also, Eskay and Chima (2013) further state these technologies especially voice recognition software allows visually impaired students to input data into the computer by voice.

Roles of Assistive Technology on Library Service Delivery	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Equalizing opportunities for people with disabilities in the library	6	10	3	1	1
It creates an Interpersonal Relationship between the Librarian and User, thereby enhances a friendly Environment for service delivery	9	9	1	1	1
It provides an opportunity for the Training and Retraining of Librarians to promote their skills	5	13	0	2	1
It encourages the library to acquire Advanced Technologies, to feed users with updated information resources	7	12	0	1	1

Table 1: Role of Assistive Technology on Library Service Delivery

Table 1 shows the role of assistive technology in library service delivery. Most of the sampled population agreed with the roles assistive technologies render to library service delivery such as equalizing opportunities for people with disabilities, creating an interpersonal relationship between librarians and their users, providing opportunities for training and retraining, and encouraging libraries to acquire technologies that would feed users with updated technologies. The benefits of these roles cannot be underrated as it creates equalizing opportunities among library users which includes users with special needs. The implication of these is librarians understand the importance of these assistive technologies and the services impaired users stand to gain from the utilization of the technologies. This is in line with the argument of Kovalik and Kruppenbacher (2014) who explained that libraries should provide auxiliary aids and services to individuals with impairment for an equal opportunity from library services.

Challenges faced	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Insufficient Fund for Acquisition and Maintenance of these technologies	10	9	1	0	1
Erratic Power Supply	0	8	11	1	1
Unskilled Librarians	5	9	2	2	3
Lack of Awareness	7	6	2	3	3

Table 2: Challenges Faced in the use of Assistive Technologies in the Library

Table 2 depicts the challenges faced in the utilization of assistive technologies in Kogi state libraries. From the table amongst the challenges listed unskilled librarians, lack of awareness and insufficient funds for the acquisition and maintenance of these technologies were the challenges which were highlighted by the sampled librarians as challenges faced in the use of assistive technologies. This is in agreement with Ejike & Amaoge (2015) and Eskay & Chima (2013), who stated that fund, training, and retraining of librarians is a major challenge for libraries, considering the high cost and complex nature of some assistive devices. The respondents could neither agree nor disagree on the power supply as a challenge faced in the use of the technologies. This implies that while some deemed power supply as an issue or challenge to the use of the technology others did not see it as such.

Summary of Findings

Based on the discussion of results from the data collected, the following are the summary of major findings;

1. The study found that a majority of the assistive technologies were not present at institutions in Kogi state. Signifying an ill-preparedness to cater to the needs of these special needs individuals or users.
2. The study found emphasis was placed on certain assistive technologies like Computers and LCD projectors due to their broad range of capabilities however specific assistive

technologies like braille keyboards and dictation software, were having little to no utilization.

3. The study further found that sampled librarians agreed with the roles of assistive technology being providing equal opportunity and aiding the rendering of library service to users through these technologies.
4. The challenges faced in the use of these assistive technologies include; a lack of awareness, unskilled librarians, and funding

Conclusion and Recommendation

Libraries and Librarians around the world have for a long time been advocates for free and fair access to information, information services, and knowledge for all. However, in Nigeria and particularly the study area Kogi state, fair access to information might still be a pipe dream and far for those with some form of impairments. Based on assertions gotten from the study so that librarians are fully able to assert and advocate for equity to information for all the need to step up on certain technologies cannot be overstated. The following are the recommendations of the study; libraries and Library management should solicit funds from relevant stakeholders (NGOs and Government organizations) to aid purchase or acquisition of certain assistive technologies that are absent from the library holdings. Also, train the trainer workshops can be prepared to teach librarians how these technologies can be used. This would enlighten them and educate their users.

References

Abdelrahman, O. H. (2016). Use of library technology and services by the visually-impaired and the blind in the university of Khartoum, Sudan. *DESIDOC Journal of Library and Information Technology*, *36*(2), 93–97. https://doi.org/10.14429/djvlit.36.2.9803

Adeniran. P (2011). User satisfaction with academic libraries services: Academic staff and students perspectives. *International Journal of Library and Information Science*, *3*(10), 209–216. https://doi.org/10.5897/ijlis11.045

Azmi, N., Maryono, D., & Yuana, R. A. (2017). Development of an Android-based Learning Media Application for Visually Impaired Students. *IJIE (Indonesian Journal of Informatics Education)*, *1*(1), 61. https://doi.org/10.20961/ijie.v1i1.11796

Berkeley, D., Kressin, L. and Oberlander, C. (2007), "Deploying assistive technology across campus: A collaborative approach", *Proceedings of the 35th Annual ACM SIGUCCS Fall Conference,* New York, USA, 7th-10th October, pp.11-15

Bernardi, F. (2004). *Library services for blind and visually impaired people.* https://core.ac.uk/download/pdf/41181179.pdf

Blijlevens, A. & Lin, J. (2013). *Blindness, books and copyright law: How the Marrakesh treaty is giving the gift of literature.* https://www.stoppress.co.nz/blog/2013/09/blindness-booksand-copyright-law-how-marrakesh-treaty-giving-gift-literature

Brophy, P. and Craven, J. (2007). Web accessibility, *Library Trends*, vol.55, no.4, pp.950-972.

Cahill, K., & Cornish, S. (2003). Assistive technology for users in the Royal Borough of Kensington and Chelsea public libraries in the UK. In *Program* (Vol. 37, Issue 3, pp. 190–193). https://doi.org/10.1108/00330330310484396

Chaputula, A. H., & Mapulanga, P. (2017). Provision of library services to people with disabilities in Malawi. *South African Journal of Libraries and Information Science*, *82*(2), 1–10. https://doi.org/10.7553/82-2-1619

Creswell, J. W. (2013). *Qualitative inquiry and research design: choosing among five approaches (3rd ed.)*. Thousand Oaks, CA: Sage.

Cohen, G. D., Perlstein, S., Chapline, J., Kelly, J., Firth, K. M., & Simmens, S. (2007). The impact of professionally conducted cultural programs on the physical health, mental health, and social functioning of older adults—2-year results. In *Journal of Aging, Humanities, and the Arts* (Vol. 1, Issues 1–2, pp. 5–22). https://doi.org/10.1080/19325610701410791

Coleman, M. (2011). Successful Implementation of Assistive Technology to Promote Access to Curriculum and Instruction for Students with Physical Disabilities. *Physical Disabilities: Education and Related Services*, *30*(2), 2–22.

Curran, K., Walters, N., & Robinson, D. (2007). Investigating the problems faced by older adults and people with disabilities in online environments. *Behaviour and Information Technology*, *26*(6), 447–453. https://doi.org/10.1080/01449290600740868

Daroni, G. A., Gunarhadi, G., & Legowo, E. (2018). Assistive Technology in Mathematics Learning for Visually Impaired Students. *Tadris: Jurnal Keguruan Dan Ilmu Tarbiyah*, *3*(1), 1. https://doi.org/10.24042/tadris.v3i1.2406

Ennis-Cole, D., & Smith, D. (2011). Assistive Technology and Autism: Expanding the Technology Leadership Role of the School Librarian. In *School Libraries Worldwide* (Vol. 17, Issue 2, p. 86).

Eskay, M., & Chima, J. N. (2013). Library and Information Service Delivery for the Blind and Physically Challenged in University of Nigeria Nsukka Library. *European Academic Research RESEARCH*, *5*(5), 625–635. www.euacademic.org

Ejike,U. I & Amaoge D. A. (2015). Creating a friendly environment for easy access and use of the library for the Disable: Role of information professionals. *Journal of Emerging Trends in Computing & Information Services*, 6(1), pp. 1-6

Ezeani, C. N., Ukwoma, S. C., Gani, E., Igwe, P. J., & Agunwamba, C. G. (2017). Towards Sustainable Development Goals: What Role for Academic Libraries in Nigeria in Assuring Inclusive Access to Information for Learners with Special Needs? In *IFLA WLIC WROCLAW*. Retrieved from http://library.ifla.org/1679/1/220-ezeani.en.pdf

Fagbola, O., Uzoigwe, C., & Ajegbomogun, V. O. (2011). Libraries driving access to knowledge in the 21st century in developing countries: An overview. *Library Philosophy and Practice*, *2011*(AUGUST). Retrieved from https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1597&context=libphilprac

Gavin, M. L. (2018). Visual Impairments Factsheet (for Schools) (for Parents) - Nemours KidsHealth. Retrieved July 11, 2021, from https://kidshealth.org/en/parents/vision-factsheet.html?WT.ac=ctg#catfactsheet

Floyd, K. K., Lee, L., Canter, S., Jeffs, T., & Judge, S. A. (2008). Assistive Technology and Emergent Literacy for Preschoolers: A Literature Review. *Fall*, *5*(1). Retrieved from https://files.eric.ed.gov/fulltext/EJ884370.pdf

Hasselbring, T., & Candyce H. Williams Glaser. (2000). Use of Computer Technology to Help Students with Special Needs. *The Future of Children, 10*(2), 102-122. doi:10.2307/1602691

Hopkins, J., Columbia, B., & Engineering, R. (2004). Assistive Technology to support studnets with Special Needs. In *Assistive Technology(At) To Support Students With Special Needs* (p. 19). http://curriculum.org/storage/108/1278482872AssistiveTechnology.pdf

Islim, O. F., & Cagiltay, K. (2012). Disabilty and assistive technology. In *6th International Computer & Instructional Technologies Symposium*, October 4th - 6th 2012 Gaziantep University, University, GAZIANTEP- TURKEY (pp. 1–5).

Jaccarino, J. (2009). Vision impairment: treating the special needs patient with a sensory disability. *Dental assistant Chicago,* Vol. 78, Issue 4.

Koulikourdi, A., & Koulikourdi, A. (2008). *Library services for people with disabilities in Greece*. http://doi.org/10.1108/00242530810854017

Kotler, Philip, & Kevin Lane Keller. (2006). *Marketing Management (12thed.)*. United States of America: Pearson Education Ltd. https://www.pearson.com/us/higher-education/product/Kotler-Marketing-Management-12th-Edition/9780131457577.html

Kumar, S. & Sanaman, G. (2014). Assistive Technologies for people with disabilities in National Capital Region Libraries of India. *Library Philosophy and Practice*, *2014*(1).

Lin, Yee-Zu. (2008). Breaking Barriers: *The Story of Physically Challenged Students' School Life in General Education Institutions of Taiwan* – Qualitative Research. http://www.allacademic.com//meta/p_mla_apa_research_citatation/0/2/2/9/5

Mates, B. T. (2012). Chapter 1: Information Power to All Patrons. *Library Technology Reports*, *48*(7), 7–13. Retrieved from https://www.journals.ala.org/index.php/ltr/article/view/4685/5571

Poel, E. W. (2007). Enhancing What Students Can Do. *Inclusion: Implementing Strategies*, *64*(5), 64–66.

Rayini, J. (2017). Library and Information Services to the Visually Impaired Persons. Retrieved from http://digitalcommons.unl.edu/libphilprachttp://digitalcommons.unl.edu/libphilprac/1510

Rubin J.R (2002). *Serving people with disabilities*. Retrieved from http://www.ala.org/ala/aboutala/offices/olos/outreac hresource/docs/people_with_disabilit ies.pdf

Sanaman, G., & Kumar, S. (2014). Assistive Technologies for People with Disabilities in National Capital Region Libraries of India, 1200. Retrieved from http://digitalcommons.unl.edu/libphilprachttp://digitalcommons.unl.edu/libphilprac/1200

Subramaniam, M., Oxley, R., Kodama, C., County, M., & Schools, P. (2013). School Librarians as Ambassadors of Inclusive Information Access for Students with Disabilities. *Research Journals of American Association Of School Librarians*, *16*.

Watson, Sue (2011). *Tips for Working with Students in Wheelchairs*. http://specialed.about.com/od/physicaldisabiliti es/p/wheelchair.htm

World Health Organization official web site (2012). *Disabilities and Rehabilitation*. Retrieved from http://http://www.who.int/disabilities/en/