Inclusive Libraries, Use of Assistive Technologies, Librarians Digital Competency and User Satisfaction of Physically Challenged Students in Public Higher Institutions, Oyo State, Nigeria

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Certification

This is to certify that **Oluremi Adebowale ADEBAYO** with matriculation number **LCU/PG/002557**carried out this research work titled "Inclusive Libraries, Use of Assistive Technologies, Librarians Digital Competency and User Satisfaction of Physically Challenged Students in Public Higher Institutions, Oyo State, Nigeria" in the Department of Information Management, Faculty of Communication & Information Science, Lead City University, Ibadan, Oyo State, for the award of Doctor of Philosophy Degree (PhD) in Library and Information Science and that this has not been previously submitted

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(Head of Department)

Dedication

This research work is dedicated to the Most High God the Alpha and Omega, the King of kings and the Lord of lords who has been the main source of my strength, wisdom, understanding, knowledge, protection and blessings from the inception to the end of this programme.

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Abstract

The study aimed at investigating the influence of inclusive libraries, availability of assistive technologies, librarians' digital competency on user satisfaction of physically challenged students in higher institutions, Oyo State, Nigeria. This becomes necessary as observations revealed that the physically challenged students are hardly seen in libraries. Therefore, the study sets out to; identify the level of users` satisfaction of the physically challenged students in higher institutions, ascertain level of inclusive libraries practices among higher institutions, also, identify level of assistive technologies and librarians` level of digital competency for the physically challenged, ascertain the influence of inclusive libraries on user satisfaction of the physically challenged and determine the combined influence of inclusive libraries, use of assistive technologies and librarians' digital competency on users satisfaction of the physically challenged. Hypothesis were also formulated and tested. The study employed the use of both qualitative and quantitative method of data gathering involving all the heads of libraries in public higher institutions in Oyo state, given the size of the population for this study, total enumeration was adopted. Personal interview and structured questionnaire were used as instruments for the study. The result revealed that while there was a generally high level of satisfaction with library services, areas like support services require improvement. Additionally, the inclusiveness of library collections was deemed moderate, with positive perceptions but with gaps in areas such as Wi-Fi reliability and accessibility facilities. The study also highlighted that the use of assistive technology is at a moderately high level, though further enhancements in accessibility and user training are necessary. Moreover, librarians demonstrated above-average digital competencies, contributing positively to the library experience for students with disabilities. A significant positive relationship between the use of assistive technology and user satisfaction emphasizes the importance of technological support in fostering a more inclusive and satisfying library environment. Conclusions were made that Libraries should focus on improving support services by offering more tailored assistance and user-centric programs to meet the specific needs of physically challenged students, thereby raising overall satisfaction levels. In order to address shortcomings in inclusiveness, libraries should prioritize improving Wi-Fi reliability, enhancing restroom accessibility, and expanding services tailored for users with disabilities to ensure an equitable experience. Other recommendations were also raised ranging from the need to implement more extensive training sessions on the use of assistive technology and foster a culture of peer support to enhance accessibility and user confidence in utilizing these technologies as well as continuous professional development and digital training programs for librarians should be maintained, focusing on keeping their skills up-to-date, especially in new digital tools and platforms that can benefit physically challenged students. The study therefore contributes to the understanding of the interrelationship between library service quality and user satisfaction among students with disabilities knowledge, as necessary suggestions for further research were equally made.

Keywords: Inclusive libraries, use of assistive technologies, librarians' digital competency, users' satisfaction, physically challenged.

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Chapter One

Introduction

1.1 Background to the Study

User satisfaction could be considered as the satisfaction users' derive from the library by using the various types of information resources and services to fulfil their information needs for their various daily activities. User satisfaction can therefore be summed up briefly as the satisfaction the physically challenged obtain from utilizing the library's range of information resources and services to accomplish their everyday needs. This means that rendering quality services to the physically challenged users will significantly influence their satisfaction with the services rendered to them. This will therefore increase their library usage frequency and also attract more users. It is therefore important to evaluate user satisfaction with academic library services from the student's viewpoint to determine if their needs are being met and also if the library services need improvements[1].

Any service-providing organization strives to render quality services that will satisfy its customers[2]. Libraries are no exception as they strive always to innovate and deliver better and quality library and information services to their users. Furthermore, academic library services are supposed to satisfy their users' expectations, regardless of their handicapping conditions (students, teachers, faculty workers, librarians, among others.), their learning, teaching, and research needs because without these users utilizing these resources and services, it will be at waste and redundant. Moreover, from the statement above, it is important to note that long-term innovations and improvements of library services will be

determined by evaluating users' satisfaction to ascertain the level of satisfaction with library services. Moreover, users' satisfaction should be given its place of priority in the business of information acquisition, processing and dissemination as this is capable of bringing a chain effect of assisting these physically challenged individuals and the entire stakeholders to contribute their quotas towards achieving meaningful development.

The primary and utmost mission of the library is to serve all patrons, regardless of their nature or levels of disabilities. Although, experiences have shown, most especially in the current generation where there exist some information service providers and their administrators who are of the opinion that their library does not have people with disabilities within their service area, mainly because they do not see special needs category in their library.

Basically, the library is an information-based system, where relevant information materials in diverse forms and formats are selectively acquired, systematically organised, stored and preserved for dissemination to potential users, regardless of disability[3]. Obviously, according to Dr. S.R Ranganathan, "the books are for use'. Therefore, if books are for use, it must be made available to all and sundry, regardless of any handicapping condition. By implication, the crux of the matter is that people with disabilities abound everywhere, even within our immediate locality. The physically challenged live, love and learn everywhere. This accounts for the reason why special educators maintain that there are no ghettos of people with disabilities, except if such libraries are in alternate reality, hence the need for total and complete inclusion.

Inclusion entails the provision of education on the basis of human rights underlying educational management. Inclusion can be regarded as education provided by schools for all children regardless of their impairment, economic, social and cultural backgrounds. Schools seek means to facilitate children learning together and sharing learning benefits[4]. In the same vein,inclusion in school setting is to provide education for all as it is commonly a place participated by everyone, accepted and supported by peers and staff as well as the community, in response to the need for student development. Hence, inclusive management takes into account education that allows every child to learn together, to be recognised and provided with equal education opportunities[5].

Presently, inclusion has attained a meaningful level of general acceptability by countries worldwide in line with the universal declaration of rights of child. The United Nations Educational, Scientific and Cultural Organization (UNESCO) emphasised that schools by mandate are to provide inclusive education for all children including both disabled and the normal without discrimination[6]. Inclusion has increasingly gained attention internationally, and by implication, a number of schools and classrooms are under instructional transformation to become inclusive regardless of differences in learning, ability, and level of impairment. ‘’since disability is only one among diverse characteristics of human occurred in every society. ’ supporting education rights for every student is thus the basic rights and it is the right of every single person to be treated in respect of human right[6]

The current definition of inclusion has been adopted from collective meetings with mutual agreement so called the World Declaration on Education for All children. Every physically challenged is entitled to education without distinction and education is provided to persons with physical challenge in absence of discrimination. The physically challenged students are legally protected to access education irrespective of impairment, religion, language, gender, ability levels, and other reasons. It was initiated in the international conference on human rights following the United Declaration of Human Rights in 1984 with a significant statement that every single individual shall have the rights to equal education and shall acquire school education for as high as possible based on their potential and capacity. Education should enable the physically challenged to use and improve their capability and potential. The physically challenged should be taught to live their life peacefully, preserve environment, and respect the rights of others. However, as novel and adorable this standpoint connote, it cannot be realistic except a meaningful provision of an inclusive library[6].

Basically, inclusive education is an arrangement which ensures that every student, disabled and non-disabled students, with or without special needs learn in the same school environment, with appropriate provisions made for the unique needs of each student in the environment. In an inclusive education environment, students participate in the mainstream to the best of their abilities, talents and endowment, without the presence of any special needs serving as hindrance in this regard. As a placement option, inclusion seeks to integrate general and special education students in such a way that the regular school is restructured to make it fit for all learners, irrespective of any organic or social conditions[7].

Obviously, the library mission is to serve all patrons, as people with disabilities live, love and learn everywhere. Libraries, as a mandate should be aware of laws that govern access to information for persons with disabilities, as failure to comply may result in cause for litigation. Applicable laws are sections 504 and 508 of the Rehabilitation Act (ADA) of 1990, which was amended in 2008 and reaffirmed in 2009 section 8 of the Americans with Disability Act Accessibility Guidelines (ADAG) specifically, address libraries. Briefly, these laws mandate persons with disabilities to have access to public programmes and services. Thus, if library offers free access to computers and training, it must offer access for persons who need adapted access avenues. Reasonable accommodations must also be made to meet the needs of staff with disabilities[7].

An inclusive library therefore could be regarded as a library that is fully structured, planned and positioned with adequate human and material resources, including necessary facilities and access provision to meet the reading needs of people with disabilities. This establishes the need for a functional audio-visual unit or sections, not only for the hearing impaired, intellectual disabled, the learning disabled and the host of others with mild or major challenges, and visually impaired but for persons with physical challenge

Physical disability is a limitation on a person's physical functioning, mobility, dexterity or stamina. Other physical disabilities include impairments which limit other facets of daily living; getting around in the physical world is something many take for granted. Curbs, thresholds, stairs, sidewalk gratings, obstructions, narrow passages- these are barriers many walk over, around or through times a day. In other words, physical features that people without physical disabilities take for granted can present serious problem for

people with different abilities, mostly because their needs have not been considered in designing those features. Physical disabilities equally include amputations and loss of limbs, birth defects, and maintaining a healthy weight. Therefore, physically handicapped person means a person who is blind, deaf or a person, who suffers from a permanent and disabling physical characteristics resulting from disease, injury, functional disorder, or congenital condition[8].

A physical disability is a condition that substantially limits one or more basic physical activities in life (that is; walking, climbing stairs, reaching, carrying, or lifting). These physical disabilities are highly individualised, the same diagnosis can affect students very differently. The effect of physical/ mobility disabilities can be visible or invisible. They can include the inability to walk and / or use arms, hands, and fingers. Many of this students use wheelchairs, crutches, or canes, these students may also have pain management issues[9]. Inclusive library includes physical access to buildings, public spaces, and any other place a person might need to go for work, play, education, business, services, etc. Physical access also includes things like accessible routes, curb ramps, parking and passenger loading zones, elevators, signage, entrances and restroom accommodations. Under access Design Acts (ADA), it is expected that the government body, the owner or tenant of the space, the service provider, the employer, or the school must make a ``reasonable accommodation`` to enable access for the physically challenged students[10]. Accessibility therefore, means more than simply being able to get there in a wheelchair, it implies having features and amenities that are usable by everyone, and being emotionally and socially accessible[8].

Spaces that need to be physically accessible include public facilities; these are buildings or spaces generally used by the public, they can include libraries, restaurants, retail stores, conference centres, medical and other offices, other educational facilities and others. Access here includes not only access to the buildings, but also to the specific rooms or halls where events take place or where the public, including the physically challenged must go to conduct business or receive services[9]. A plan for emergencies must not be ignored; this means there should be escape plan for the physically challenged students in case of power failure, or in case the accessible entrances are blocked by fire or rubble.

Also, the disability termed visual impairment is a broad-based term to describe a myriad of vision problems. Most people do have some types of impairment, weather is being near-sighted or farsighted or having dry- eyes syndrome, but they can use computers without special accommodation. However, there are also impairments that cannot be remediated, such as macular degeneration, colour blindness, or simply poor vision. These people will have usable vision, for example, they may be able to drive, but they cannot read standard prints (print that is smaller than 14points; most commercial point is standard print). People with a visual impairment will prefer using text and manipulating the text display to suit their needs. Patrons with low vision may seek to enlarge the display font just a little, or they may supervise the cursor. People who have colour blindness may need to change the background on page displays. Most people with disable vision will not use a screen reader[11].

The acceptable definition of legal blindness is complicated and basically summed up as lack of the ability to see anything regardless of object being close or far. People who are blind may be able to differentiate daylight or night time; however, the vision is so limited that they cannot safely move about in unfamiliar areas without the aid of a cane or a guide dog. People who are blind listen to books and can listen to the internet. If they read Braille books, they can use Braille displays to access the internet. They are best accommodated by software that read text aloud using synthetic text-to-speech software or by using refreshable Braille displays[11].

Over the last century, disabled person has been beneficiaries of many effort aimed at solving their problem of inadequate provision of access to relevant information. In Nigeria where disabilities are prevailing and in serious reality, this category of persons need to be adequately considered for special and rehabilitative education, inclusion becomes necessary because access to information through inclusive library is seen to be the most important precondition to education, employment and participation in the cultural and civic affairs of the community[12].

Vision allows an individual to explore the environment and interact with various object and people. Those explorations and social interaction are critical element for optimal development of an individual[13.] Visually impaired persons exhibit a spectrum of special needs as a result of their sensory limitations; the ranges of such needs are manifested in the series of differences demonstrated by the person abilities, aptitudes, learning styles, learning readiness and motivation. However, the visually impaired can only be made

functional and contribute optimally to the development of any nation when they have access to relevant assistive technology devices[13].

Assistive technology enables people to live healthy, productive, independent and dignified lives and to participate in education, the labour market and civic life. Assistive technology is an umbrella terms covering the system and services related to the delivery of assistive products and services. Assistive products no doubt maintain or improve an individual's functioning and independence, thereby promoting their well-being.

Assistive technology reduces the need for formal health and support services, long term care and the work of caregivers. Without assistive technology, people are often excluded, isolated and locked into poverty, thereby increasing the impact of diseases and disabilities on a person, their family and society. However, it must be noted that today 1 in 10 in people with special needs have access to assistive technology due to high cost and lack of awareness, availability, trained personnel, policy and financing.

Obviously, the low level of transition from secondary to higher education especially in the case of visually impaired individuals contributed too many barriers which they face in perceiving and processing of information and knowledge. It cannot be said completely but partially, these barriers are minimized with the adoption and use of assistive technologies by these students as well as by the institute. There are various technologies like Braille technology, video magnifiers, screen reading software's etc., which have made the visually impaired students to excel in institution of higher learning in the present[14]. As defined by national institute of standards and technology, Assistive Technology (AT) could be regarded as any item, piece of equipment or product system,

whether acquired commercially off the shelf, modified or customized that is used to increase, maintain or improve the functional capabilities of individual with disabilities. (AT) enables individual with disabilities to participate in society as contributing members. Advancement in assistive technology has provided better enablement of improved quality of life for people with disabilities[15]. The goals of assistive technology is to give persons with disabilities access to literacy and communication in the academics, home and community, the use of assistive technology is not a new phenomenon in the area of education of visually impaired and other physically challenged. Rather, it has been used for centuries to provide opportunities in different aspects of life. In earlier days, person with visually impairment were using cane, stick or bamboo[16]. Today it has been added with more advance tools helping them in participating in several of activities involving individuals with visual impairment[16]

The certainty of Braille code in the 1800s allowed the visually impaired to be truly literate. It was the first handled tools with which the visually impaired started writing on their own after Braille training. Later in 1900s, audio technology such as radio and records were developed and it facilitated those children more access to information than the braille[15]. But the actual explosion of technology was led after the development of computer in 1960s, this followed with many new technologies such as scanners, optical character recognition software, computer screen reader, and CDs. All these contributed in the enhancement of the ability of visually impaired to explore and experience the knowledge and information[15]. Assistive technologies are used to promote access to the general education curriculum for student with disabilities[17]. Through the use of assistive technologies, students with visual impairment are better able to use the demands of

challenging inclusive settings in education. The recent development in this field includes Flax players, talking book libraries and tables which is making the process of learning quicker and easier for visually impaired children. Hence, the class handout can easily be converted from the text into Braille and print it on the embosser[18]. These technologies allow them to work independently on their own pace.

Assistive technology is not a magic stick, with which the physically challenged students learn automatically. Rather to be a success, it requires the right devices, training and time. When this is achieved, student can take control of part of their learning journey, improving not only their academic progress, but also their self-confidence in learning and wider life. However, it is pertinent to note that despite these facts that today, we talk about inclusive education for disabled students, but there are many barriers in using these devices by visually impaired students and other physically challenged. There is dirt of proper infrastructure, trained human resource in mainstream education institutes to support the education of those students, the best positive and effective way. It is equally saddling to reveal that even in special education setting there is lack of trained human resources who can teach these students to operate assistive technologies effectively and efficiently. Moreover, the adoption and use of assistive technologies is dependent on the users' level of digital skills acquisition, by which the ease of use becomes a determining factor[19].

The 21st century is a period in which the transition from an industrial society to an information society is experienced and in this transition process, the importance given to information has increased. As a result of the increase in the usage of information and

communication technologies (ICT), the facilitation of access to information, the increase in the amount of information that can be accessed and the facilitation of communication are among the most important reasons for this change in society. In order for societies to keep up with this process of change, the physically challenged students should be provided with various skills, and one of these skills is digital literacy. According to a functional definition provided, digital (or computer) literacy often appears to amount to a minimal set of skills that will enable the user to operate effectively with software tools or in performing basic information retrieval tasks[19]. Digital literacy is more than the capability to use a digital device or software, and includes many skills that can be used in digital environments. Digital literacy includes the capacity to read and understand text, graphics and audio data in digital media, to create new data by processing this digital data, and to interpret and use new knowledge acquired in digital environments[20]. Digital competency therefore refers to the ability to effectively use digital technologies to access, evaluate and create information. It involves having the skills and knowledge to navigate and utilize digital tools, platforms, and resources to achieve personal and professional goals. Some key aspects of digital competency include; digital literacy and information literacy. Digital literacy has to do with basic computer skills, online navigation, and understanding digital concepts

It is believed that the date of birth is an important factor on students' digital skills and that young people can develop these skills more easily[21].The new generation who grew up with new technologies are ‘’digital natives", and individuals who were not born in the digital world but later adapted to this world are "digital immigrants[22]. It is argued that individuals included in the digital native group have advanced knowledge and skills

related to information technologies (IT) and digital literacy. However, rather than determining the date of birth as the main factor for predicting students' digital skills, the student's familiarity and experience with using ICT is more important[23,24]

This also lays the groundwork for a misconception about digital natives. According to this misconception, young people growing up surrounded by digital technologies instinctively acquire digital skills and therefore do not need teaching or digital education[25]. Meanwhile, it is expected that facilities and needed strategies are put in place to ensure a timely acquisition of digital skills by the physically challenged users as a way of enhancing user satisfaction. This therefore boils down to the need to ascertain user satisfaction of these categories of the special needs in an intensive setting[26].

1.2 Statement of the Problem

The increasing enrolment of physically challenged students in public higher institutions highlights the need for inclusive library services. However, these students often face barriers in accessing library resources, hindering their user satisfaction. By implication, the physically challenged students attend institutions of higher learning, and as such need library services just like other students. In addition, cities and human settlements should be made inclusive, safe, resilient and sustainable. Any attempt not to comply with this directive by Sustainable Development Goals is tantamount to discrimination [14.]. Therefore, the Nigeria Disability Act seeking to criminalise discrimination against persons with disabilities was signed into law in the year 2019 [27, 28]. Also, the universal declaration of right of child, World Declaration of Education for All, and UNESCO's stand that schools by mandate are to provide inclusive education for all, including both

the physically challenged and the normal without discrimination, a contravention of which attracts severe punishment, but most of our educational institutions cannot be said to be inclusive[8]. Despite efforts to promote inclusive education as a way of enhancing user satisfaction, physically challenged students in public higher institutions encounter significant challenges in accessing library resources and services probably due to: inadequate physical and digital features in libraries, insufficient assistive technologies, and librarians limited digital competency among others.

Apart from the above, the initiative of International Conference on Human Right in 1984 had earlier mandated that every child shall acquire school education for as high as possible based on her potential and capabilities[6]. However, as novel and adorable these standpoints connote, they cannot be realistic when there is a dissatisfaction among the physically challenged library users, most especially judging from the fact that the physically challenged can be hardly seen in libraries of most of our regular institutions. Therefore, it becomes expedient to incorporate the interrelationships between inclusive library practices, use of assistive technologies and librarians' digital competency as a way of facilitating users' satisfaction. As a result, this study sought to research into the compliance levels of our higher institutions on the above submissions and mandates, as a way of ensuring satisfaction by the physically challenged.

1.3 Aim and Objectives of the Study

The aim of this study focuses on inclusive libraries, use of assistive technologies, librarians' digital competency and user satisfaction of physically impaired students in higher institutions, Oyo State, Nigeria. The objectives are to:

i. identify the level of users` satisfaction of the physically challenged students in higher institutions in Oyo state, Nigeria

ii. identify the level of inclusive library among higher institutions in Oyo state, Nigeria

iii. identify the extent of use of assistive technologies for the physically challenged in higher institutions in Oyo state, Nigeria

iv. identify librarians` level of digital competency in higher institutions in Oyo State, Nigeria

v. ascertain the influence of inclusive libraries on user satisfaction of the physically challenged in higher institutions in Oyo state, Nigeria

vi. examine the influence of the use of assistive technologies on user satisfaction of the physically challenged in Oyo state, Nigeria

vii. ascertain the influence of librarians` digital competency on user satisfaction of the physically challenged in higher institutions in Oyo state, Nigeria

viii. determine the combined influence of inclusive libraries, use of assistive technologies and librarians' digital competency on users satisfaction of the physically challenged in higher institutions in Oyo state, Nigeria

1.4 Research Questions

1. What is the satisfaction level of the physically challenged users in higher institutions in Oyo state, Nigeria?

2. What is the level of inclusive library practices among higher institutions in Oyo state, Nigeria?

3. What is the level of use of assistive technologies for the physically challenged in higher institutions in Oyo state, Nigeria?

4. What is the level of librarians` digital competency in higher institutions in Oyo state, Nigeria?

1.5. Hypotheses

The null hypotheses formulated for this study were tested at $\alpha = 0.05$ level of significance.

Ho1: There will be no significant influence of inclusive libraries on user satisfaction of the physically challenged in higher institutions in Oyo state, Nigeria

Ho2: There will be no significant influence of the use of assistive technologies on user satisfaction of the physically challenged in Oyo state, Nigeria

Ho3: There will be no significant influence of librarians` digital competency on user satisfaction of the physically challenged in higher institutions in Oyo state, Nigeria

Ho4: There will be no combined influence of inclusive libraries, use of assistive technologies and librarians' digital competency on users' satisfaction of the physically impaired in higher institutions in Oyo state, Nigeria

1.6 Scope of the Study

The study focuses on inclusive libraries, use of assistive technologies, librarians' digital competency and user satisfaction of physically challenged students in public higher institutions, Oyo state, Nigeria**.** The scope of the research work will dwell on physically challenged user`s satisfaction with accessible services, accessible information and accessible websites. Also with inclusive libraries alongside its metrics ranging from library collections; its types and usability, architecture; space and equipment, library programmes; services, library marketing and partnerships. It equally focuses on assistive technologies which centre on performance expectancy, effort expectancy, facilitating condition, social influence, and behavioural intention. It also covers Librarian`s digital competency which entails information and data literacy, communication and collaboration, digital content creation, safety and, problem solving.

The study will be limited to public higher institutions in Oyo State; this includes three (3) Universities,i.e University of Ibadan, Ibadan, LadokeAkintola University of Technology (LAUTECH), Ogbomoso, Emmanuel Alayande University of Education Oyo, comprising one (1) Federal, and two (2) state universities respectively, together with one (1) Federal monotechnic, which is Federal School of Surveying, Oyo, and Federal college of education (Special), Oyo. The study covered students that are physically challenged learning in public higher institutions, Oyo State. Also, the University Librarian, the

Polytechnic, the College librarians, and other, will be interviewed. The choice of these public higher institutions becomes expedient, as they have been in existence over several decades, and they are directly being funded by the duo of federal and state government, and as policy makers, they are in the best position to enforce and ensure standards.

1.7 Significance of the Study

The findings of this study will be of immense benefit to government, Non-governmental organization (NGO), the curriculum planners, software developers, and other information providers ranging from librarians, archivists, publishers, web developers, book vendors etc, Also, the international agencies like Book Aid International and philanthropists, enforcing agencies, Architects and planners, the physically challenged students and library administrators among others.

By implication, the findings of this study will assist the government who will facilitate policy formulation on the need to include the physically impaired in the scheme of things, most especially, in the effort to ensure meaningful access provision to information, it will sensitise the government on the dangers of discrimination, and the need to recognise and ensure the rights of the physically challenged are religiously protected by putting every machinery in motion to satisfy the educational needs of the physically challenged and make Nigeria an inclusive setting, as is the practice in advanced nations of the world.

So also, the Non-governmental organisation with their philanthropic gestures will be more informed in their efforts to better the lots of the physically challenged, as it will serve as eye opener towards remediating the challenges faced by the physically challenged in their efforts to access information like their abled counterparts. It will give

more insights into the areas of needed intervention by the physically challenged students, some of which includes adequate provision of adapted resources and facilities which are capable of improving the physically challenged undisturbed access to diverse pool of information within and around the library premises.

The outcome of this research work will also equip the curriculum planners who will ensure a purposeful curriculum review towards ensuring the inclusion of the physically impaired in the processes involved in curriculum planning, processes and execution. It is expected that a meaningful and purposive curriculum will spell out the needed curriculum content and materials needed for meaningful implementation and standard maintenance of the required curriculum for the physically challenged.

Apart from the above, this research output will also assist the software developers in their efforts to ensure meaningful development of adequate software towards web accessibility of the physically challenged students. It will serve as a propelling force that will keep charging them to ensure constant development and proper maintenance of relevant software capable of assisting the physically challenged in their efforts to have easy and direct access to information

The librarians as information providers will dwell on the knowledge of this research outcome to ensure a balanced collection of information resources in diverse format and as well strategize towards advocating for partnership formation, continuous in-service training and meaningful marketing in order to remain relevant in the business of information dissemination to advance the course of physically challenged. The output of this research work will also inform the sensibilities of the Librarians as information

providers, to be proactive enough while setting up and developing the library as information based system, in terms of making adequate provision to enhance inclusiveness, as well as ensuring that accessible structure and adapted resources and environment are instituted.

The research output will equally benefit the archivists to ensure a proper documentation and preservation of archival materials for the present and future needs of the visually challenged, thereby advocating for their inclusion in the scheme of things. Therefore, the advocacy here is multidimensional, as it entails every need to ensure that the immediate and future needs of the physically challenged students are incorporated into the services of the archival centre, this ranges from adapted environ to adapted resources and facilities. Efforts should be geared towards serving the physically challenged with relevant needed information within the quickest possible time, while barrier free access should also be incorporated into the building.

In addition, the publishers remain the link between the authors, the library and the reading public, therefore, this research outcome will assist the publishers on the need to adhere strictly to the mandate of producing a soft copy of every publication, as a way of including the physically impaired in the scheme of things. This research output will serve as a catalyst to sensitise both the author and the publisher, even on the need to organise every needed in-house and on-the job training and re-training to ensure that every stakeholders are equipped with adequate knowledge to serve the physically challenged better.

It will also serve as impetus for the web developers to expedite actions on the mandate of developing websites that is capable of serving the remote users, majority of which are the physically impaired, with vital and relevant information resources, as the case may be, from time to time. It is becoming more evident that majority of the physically challenged, especially those with mobility concerns need to be given the needed support, by way of ensuring remote information provision to this category of students, having established their user`s profile.

The book vendors as information providers will benefits a lot from the findings of this study, and thereby be more assured and informed about the need for the acquisition of both off line and on-line digital resources as a matter of policy, in order to serve the information needs of the physically challenged students across the institutions of higher learning. This research output therefore, will re-inform the vendors to be fully aware of the needed information resources by the libraries for the physically challenged students, and thereby ensure they stock their warehouse with relevant and adapted resources capable of serving the physically challenged students better.

More, importantly, the international agencies like Book Aid International and philanthropists will be better informed as regards the need for their continuous supply of information resources capable of advancing the course of humanity, as well as the supply of vital equipment capable of promoting the inclusion of the physically challenged in library information services provision. It will serve as a specific standard and working principle in every of their intervention plans, by this, every philanthropist will be better

informed on the exact needs of the physically challenged in term structural and resources provision in an attempt to aid their satisfaction.

This research outcome will also be of interest to the law enforcing agencies; the department of justice (DOJ) and other agencies concerned with enforcing all or part of ADA can do more than simply respond to complaints. DOJ, for instance, can conduct a survey of state and local governments to determine whether they were in compliance with the law, then work with those that were not to draft agreement about how they are going to reach compliance

In the same vein, Architects and planners will benefit maximally from the findings of this research work as it would afford them the opportunity to incorporate accessibility standard into all their designs as they will be aware of the issue and attentive to the needs of people with disabilities.

It is also anticipated that the outcome of this research work will transform the status of the physically challenged from being a forgotten majority to key players in nation building and national development, as it will facilitate acquisition of relevant assistive technologies and resources for their reading needs. The outcome of this study will add more to the body of knowledge in the field of library studies. Finally, it will assist the library administrators to ensure necessary staff trainings and developments are in place for retooling, so as to improve staff proficiency on the use of assistive technologies towards the satisfaction of the physically challenged library users.

1.8. Operational Definition of Terms

User satisfaction: This can be summed up briefly as the satisfaction the physically challenged students in Oyo state obtain from utilizing the library's range of information resources and services to accomplish their everyday needs

Service Quality: This has to do with the level of excellence or superiority of services provided to the physically challenged students. It encompasses various aspects, which include reliability, responsiveness, assurance, empathy and tangibles which has to do with the available physical facilities and equipment in place to impact or enhance user satisfaction.

Brand Image: This is the perception of the physically challenged students about the recognition given to the library, owning to several factors, ranging from word of mouth, i.e the librarians manner of approach, the way and manner the library attends to issues of information provision for the need of the physically challenged individual and other image enhancing policies or standard, will go a long to either make or mar the image of the library

Library Support: This has to do with the services rendered by the library to aid users' patronage. Such library support services could be in terms of selective dissemination of information (SDI), current awareness services (CAS) provision or prompt and regular provision of reading list.etc.

Inclusive libraries: These are libraries that are fully structured, planned and positioned with adequate human and material resources, including necessary facilities and access

provision to meet the reading needs of students with physical disability in higher institutions in Oyo state. It is equally a community resource that respects and responds to the needs of all library users, regardless of their differences, inclusive libraries aim to eliminate barriers, promote equity, and foster a sense of belonging and empowerment.

***Programs*:** This is the list of activities and training that libraries offer to the physically challenged students in Oyo state institutions of higher learning

Physical Barriers: This includes the accessibility of the library's infrastructure and facilities with the necessary equipment for the physically challenged students.

Partnerships: This has to do with the cooperation of libraries with various organisation and communities of people with physical challenge, care institutions, centre for social services, special schools etc as a way of facilitation better services delivery for the physically challenged

Marketing: This emphasises the publicity of library services for the physically challenged students in Oyo state, thereby creating necessary awareness of available services and resources

Library Collections*:* This has to do with the types of library information resources and format, that is, availability of relevant accessible collection for the physically challenged students in public higher institutions in Oyo state

Assistive Technology*:* This enables the physically challenged students to live healthy, productive, independent and dignified lives and to participate in education, the labour market and civic life. Assistive technology is an umbrella terms covering the system and

services related to the delivery of assistive products and services. Assistive products no doubt maintain or improve an individual's functioning and independence, thereby promoting their well-being.

Performance Expectancy: This has to do with a level that the physically challenged students in Oyo state believes using the system can improve performance. It is a derivative of perceived usefulness, external motivation, relative advantage, expectancy to the achievement, and, ability to obtain significant rewards after using the system

Effort Expectancy*:* This refers to the perceived easiness that the physically challenged thinks of when using the system. It includes consciousness of easy to use, systematic complexity, and operating simplicity

Social Influence: This refers to the level that the physically challenged student senses that the person who is important to him/her thinks that he/she should use the new system.

Facilitating Condition: This is the level of support that the physically challenged students received from the organizational and technical relevant equipment towards system use, such as training, manual, hands-on and others. It has to with promoting condition, and compatibility.

Behavioural Intention*:* This is the degree to which the physically challenged students plan, intend, or expect to use a technology in the future.

Digital Competency: This refers to the ability to effectively use digital technologies to access, evaluate and create information. It involves having the skills and knowledge to

navigate and utilize digital tools, platforms, and resources to achieve personal and professional goals.

Information and Data Literacy: This is the ability to articulate information needs, to locate and retrieve digital data, information and content. To store, manage and organise digital data, information and content needed by the physically challenged students

Communication and Collaboration: This has to do with the ability to interact, communicate and collaborate through digital technologies while being aware of cultural and generational diversity of the physically impaired students to participate in society, through public and private digital services and participatory citizenship, to manage ones digital presence, identity and reputation

Digital Content Creation: This has to do with the ability to create and edit digital content, to improve and integrate information and contents into an existing body of knowledge while understanding how copyright and licenses are to be applied. To know how to give understandable instruction for a computer system

Safety: Ability to protect devices, content and personal data and privacy in digital environment, to protect physical and psychological health, and to be aware of digital technologies for social well-being and social inclusion of the physically challenged students, and also, to be aware of the environmental impact of digital technologies and their use.

Problem Solving: This entails the ability to identify needs and problems, and to resolve conceptual problems and problem situations in digital environments, to use digital tools to innovate processes and products and to keep up – to –date with the digital evolution.

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Chapter Two

Literature Review

This chapter attempts an in adept review of literature on the topic under study. It is an inevitable part of the study where the researcher objectively and critically assesses trends, showing areas of strengths and weaknesses of previous studies, and identifying different assertion, reviews, opinions, arguments, omission or bias, tendencies as well as thoughts on the research topic. Literatures will therefore be reviewed under the following subheadings;

2.1 Conceptual Review

2.1.1 Overview of User Satisfaction

2.1.2 Overview of Inclusive Libraries

2.1.3 Overview of Assistive Technology

2.1.4 Overview of Digital Competency

2.2 Theoretical Framework

2.2.1 Thomassen`s Customer satisfaction Model

2.2.2 IFLA model of an inclusive library

2.2.3 Unified Theory of Acceptance and Use of Technology (UTAUT).

2.2.4 Digital Competence framework for Citizens.

2.3 Review of Empirical Studies

2.3.1 Inclusive Library and User Satisfaction

2.3.2 Assistive Technology and User Satisfaction

2.3.3 Digital Competency and User satisfaction

2.3.4 Inclusive Library, Assistive Technology, Digital Competency and User satisfaction

2.4 Conceptual Model

2.5 Summary of Gap in Literature Reviewed

2.1. Conceptual Review

2.1. 1. Overview of User Satisfaction

In library professional parlance, various terms are being used to signify user, such as clients, customers, borrowers, members, patrons, etc. But the most frequently used term in libraries is user. It specifies the context clearly and has a wide acceptability in the profession. It represents a person who uses the library for his information needs.Users mean "someone who uses a product, machine, or service. A user may be defined as a person who uses one or more of a library's services at least once a year." The library user is the focal point to the 21st century library and information services, as the library primarily exist to satisfy the user[1].Usercan be defined as anybody who visits the library with the purpose of exploiting its resources to satisfy his information needs. Users are the important factor without which an information system loss its whole purpose. In the library operation, it is extremely important to understand who the users are, what their needs are and how those needs can be satisfied and fulfilled by the library[2].

Users' satisfaction is one of the probably most complicated phenomena connected with measuring library quality is the issue of customer satisfaction in library. Satisfaction means," a pleasant feeling that you get when you receive something you wanted, or when

you have done something you wanted to do." User satisfaction has been recognized as an important measure of library performance, in general user satisfaction has been defined as the degree to which the library is able to meet the demands of the user[3]. The most acceptable definition of satisfaction could be referred to as "person's feeling of pleasure or disappointment which resulted from comparing a product's perceived performance or outcome against his/ her expectations"[4].

User satisfaction is widely used by researchers and Information professional to evaluate Information retrieval system success. Oliver's theory divides potential customer satisfaction levels into three categories. First, negative disconfirmation happens when the level of service turns out to be worse than expected by the customer. Second, Positive disconfirmation, is the case where the service is better than expected by the customer. Third, simple disconfirmation, happens when the level of service matches the level of service expectation."User satisfaction is the utility received by an information seeker from the services rendered by the library and information centre, at an affordable costand convenient time"[5].

Every service-providing institution has its clients or customers to whom services are rendered to. The main goal of these institutions is to deliver quality services that will satisfy the needs of their customers. The educational industry as an example has students as their main customers and therefore obliged to render quality educational resources and services that satisfy students' academic needs. This establishes that the achievement and failure of any educational institution are mainly dependent on students' satisfaction. However, academic libraries which are part and the backbone of these educational

institutions also have a major part to play for every educational institution to achieve its set objectives. They are therefore obligated to deliver quality library services to satisfy student study, learning, and research needs for the development of the institution, community, and the nation as a whole. It is therefore clear and obvious that clients', customers', or users' satisfaction is an integral and significant value to hold on for any service-providing institution[5].

Furthermore, customer satisfaction is defined as assessing a product or service to determine if it meets the needs and desires of the customers being delivered to. This means that failure to meet their set standards and expectations results in dissatisfaction[2]. It was stated that sometimes a customer may be satisfied because the library staff was polite even though his or her need was not met[6]. It was therefore affirmed that customers' satisfaction may or might not be directly related to the performance of a library on a specific occasion. The current study however considers the library's support for users in terms of service provision and how the library treats its users[7].

Any service-providing organization strives to render quality services that will satisfy its customers. Academic libraries are no exception as they strive always to innovate and deliver better and quality library and information services to their users. Furthermore, academic library services are supposed to satisfy their users' (students, teachers, faculty workers, librarians, etc.) expectations, their learning, teaching, and research needs because without these users utilizing these resources and services, they will be at waste and redundant. Moreover, from the statement above, it is important to note that long-term innovations and improvements of library services will be determined by evaluating users' satisfaction to ascertain the level of satisfaction with library services. Since students are

the majority users of any academic library, it is significant to acknowledge their views and needs, and this study, therefore, considers their perspectives on the services rendered to them and if they are satisfied with these services.

User satisfaction is one of the main determinants of academic libraries' performance in delivering quality to the users. The main objective of all academic libraries is to deliver quality services to satisfy the needs of all their users being it teachers/lecturers, students, and library staff to assist them in their teaching, learning, and conducting scientific researches for the development of the library, the university, and the nation as a whole. It is therefore expedient for academic libraries which are the main brain behind the learning and research process of university institutions to satisfy the needs of the users of the library by rendering quality services to users and also conducting regular user surveys to elicit their views and their satisfaction for better improvement on current services.

Academic libraries must strive to survive and grow with their user's base on focusing to meet their users‟ expectations. Academic libraries are libraries attached with institutions for learning, teaching and research activities of institutes. Although ICT revolutions has created a lot of challenges to LIS professionals as well as profession because library users have gradually been more complex in learning and information need and they access many digital content through Internet and mobile devices, thus Library collection and services have to be ready to satisfy the changing knowledge and learning behaviour of users. Libraries anywhere are regarded as service institutions where they serve their users to satisfy their information needs and library activities are geared towards serving the needs of users, because the centrality of library operation focuses user's satisfaction as

the ultimate goal[8]. Libraries must improve the quality of their services to enable them face the challenges of information explosion. Service oriented organizations have identified the customer or user as the most critical voice in assessing service quality[8].

Academic libraries play an important role in the institutions they serve. Academic users fulfil their academic information needs from library. Thus all academic library activities are geared towards serving the needs of users and make them satisfied[9].It was therefore emphasized that academic support service provided by library is very important and necessary to the attainment of any academic central mission of teaching, learning and research[9]. [10]Meanwhile, it was viewed that academic library is the central organ of the academic institutions and library together with good laboratories and faculties are the parameters used to judge the status of academic institutions[10]. While discussing the role of academic library to achieve academic excellence in academic institution, efforts were made to point out that academic library has to play very important role because academic institutions are incomplete without a good library[11].

Colleges play a significant role in higher education system and work as back bone because they are feeder institutions for universities system. The core objective of college library is to support the parent institution (i.e. college) to achieve its objectives and missions i.e. to educate and train students in their respective subject field and make them as an intelligent aware, informative and enlightened to play the role of a responsible citizen of country. The libraries hold different collections of reading materials including books, periodicals, newspapers, reports special collection of government documents and a wide range of electronic resources for their users. The college library is an important

nucleus of college campus life where we can check out books, find a quiet place to study, and may be even flip through a magazine, newspaper etc[11].

2.1.2. Concept of Inclusive Libraries

Obviously, the library mission is to serve all patrons, as people with disabilities live, love and learn everywhere. Libraries, as a mandate should be aware of laws that govern access to information for persons with disabilities, as failure to comply may result in cause for litigation. Applicable laws are sections 504 and 508 of the Rehabilitation Act (ADA) of 1990, which was amended in 2008 and reaffirmed in 2009 section 8 of the Americans with Disability Act. Accessibility Guidelines (ADAG) specifically, address libraries. Briefly, these laws mandate persons with disabilities to have access to public programmes and services. Thus, if library offers free access to computers and training, it must offer access for persons who need adapted access avenues. Reasonable accommodations must also be made to meet the needs of staff with disabilities.

An inclusive library therefore could be regarded as a library that is fully structured, planned and positioned with adequate human and material resources, including necessary facilities and access provision to meet the reading needs of people with disabilities. This establishes the need for a functional audio-visual unit or sections, not only for the hearing impaired, intellectual disabled, the learning disabled and the host of others with mild or major challenges, and visually impaired but for persons with physical challenge[12]

The general focus on school inclusion can be traced back to *The Salamanca Statement and Framework for Action on Special Needs Education* was crafted in 1994. The Salamanca document features normative principles for inclusion that recognise

institutions that include every student, highlight diversity as an asset, support learning, and respond to individual needs. Beyond Salamanca, interest in inclusive education has risen in member states and organisations that signed the statement, politics, and research and educational organisations[12].

However, the understanding and definition of the concept and development of inclusive practices differ in and between different countries and make researching inclusive education even more essential for understanding what inclusion is and how it can be achieved[12]. Lately, several schools have produced systematic reviews on the concept of inclusion and have noted that the definition of inclusive education differs between theoretical approaches. Some believe that the core concept of inclusion only concerns specific groups or categories of people, whereas others maintain that inclusion involves everyone[13]. Commonly, researchers who study inclusive education refer to the Salamanca statement to highlight the importance of social justice, democracy, and the elimination of all forms of exclusion and discrimination[13]. However, inclusive education as a normative based policy is challenging to explore in research and to achieve in specific educational situations because context and individuals differ from situation to situation[14]

Today's society expects libraries to have greater access to information resources, cultural and educational activities, opportunities for lifelong learning, and the reduction of social exclusion. The changing societal expectations influence the changing role of libraries – libraries become centres of lifelong learning and socialization[15]. The changing role of libraries is a relevant topic for research and has been studied by several authors, as changing requirements oblige libraries to meet the needs of the society and all

stakeholders and to contribute to the inclusion of people with disabilities. The services for people with disabilities is not a new area for libraries, but the changing needs of society require a new approach to this group of stakeholders and the appropriate development of services[16,17, 18,19, 20 21,22, 23, 24,25, 26].

The significance of social inclusion and libraries as socially inclusive organizations has been analysed by experts who emphasised that socially inclusive libraries also focus on the needs of stakeholders and society at large. Therefore, library services must be accessible to all individuals, regardless of age, gender, race or disability[27], [28],[29]. People with disabilities have the same rights as other citizens to participate in community life, activities, and events. However, these rights are often not guaranteed to people with disabilities, therefore, they experience social exclusion[30]. Libraries have an extensive network of institutions, a wide range of services and serve individuals of all ages and social groups. In this way, they can act as social justice operators and provide all members of society with access to information resources, and enable them to participate in educational and cultural activities.

Libraries have a unique opportunity to reduce social exclusion by becoming inclusive, open and accessible to all people[31]. However, despite positive changes in library infrastructure, people with disabilities often face negative public attitudes, inadequate infrastructure, and a lack of specialized equipment and services. This problem is particularly pronounced in places where libraries are often not adapted for people with disabilities and a variety of services does not accommodate their needs. This situation can be improved by increasing the role and responsibility of libraries in social inclusion and

by expanding a range of services for people with disabilities. Therefore, the problem of the research is how to implement practically these scientific insights and government recommendations forLibraries to become socially inclusive, the scientific problem can be analysed and presented by the following questions: What are the main features of an inclusive library? What model of a socially inclusive library for people with disabilities is provided by science today?And, what are the possibilities for putting this model into practice? The aim of the research is having conceptualized an inclusive and socially responsible library, to develop the theoretical model of an inclusive library for people with disabilities and to investigate the practical possibilities of its implementation in Nigerian libraries[27].

Basically, an inclusive library is a library that provides a welcoming and inclusive environment for all members of the community, regardless of their race, age, ability or socioeconomic status. Inclusive libraries aim to address the diverse needs of their users by collecting diverse materials and resources, providing accessible facilities and technology, most especially for persons with physical challenge, offering inclusive programmes and services, fostering a culture of diversity, encouraging diverse perspectives and voices. Examples of an inclusive library include: multilingual libraries that offer materials and programmes in multiple languages, libraries with accessible collections and technology for people with disabilities, LGBTQ+friendly libraries queer literature and resources, library with diverse staffing and leadership, and, libraries that offer inclusive programmes and services for underserved communities. Inclusive libraries play a vital role in promoting social justice, equity, and community engagement, and are essential for building a more inclusive and diverse society[28].

An inclusive library for the physically challenged is a library that provides equal access to information and resources for individuals with disabilities, ensuring that they can fully participate and utilize the library`s services. Some features of an inclusive library for the physically challenged include the followings: Physical accessibility; which entails ramps or elevators for easy entry and navigation, wide aisles and clear pathways for wheelchairs and mobility aids, accessible restrooms and facilities. Adaptive technology; could be referred to assistive computer technology, such as screen readers and magnification software.

Closed- captioning and audio descriptions for multimedia materials, includes Braille and large print materials with collection development involving materials in alternative formats, such as audiobooks, e-books, and braille, resources on disability-related topics and accessibility. It also entails Programmes and Services ranging from sign language interpretation and communication assistance, assistive technology training and support, accessible programming, such as sensory-friendly events and adaptive story time. Staff training; entails trainings on disability awareness and sensitivity training, assistive technology training, communication techniques for interacting with patrons with disabilities. Partnership and outreach involves collaboration with disability organizations and advocacy groups, outreach to local disabilities communities and organisations. So also, accessible online resources provision includes accessible online resources, accessible website and online catalogue, e-books and digital resources in accessible formats. Therefore, by incorporating these features, an inclusive library for the physically challenged promotes equal access to information, fosters a welcoming environment, and supports the diverse needs of all patrons[29].

Inclusive, libraries have faced various challenges and issues in the past, including: Physical barriers which could be inaccessible buildings, narrow aisles, and inadequate seating; limited collections which has to do with scarce resources and materials in alternative formats (Braille, large print). Lack of adaptive technologies, this includes insufficient assistive technology, such as screen readers or magnification software. Untrained staff which results in limited understanding of disability needs and how to support patrons with disabilities.

Challenge of social stigma in form of negative attitudes and stereotypes towards people with disabilities; funding constraints as a result of limited budgetary provision for accessibility initiatives and resources; limited outreach programmes including inadequate marketing and outreach to disability communities; inadequate policies in terms of absence of clear and policies and procedures for supporting patrons with disabilities; technology barriers in areas of inaccessible websites, online resources, and digital collections; patron stigma on the part of the users emanating from the fear of asking for assistance or using adaptive technology; lack of diversity owning to limited representation of people with disabilities in library leadership and staffing; and, inadequate training as a result of insufficient disability awareness and sensitivity training for library staff. Therefore, addressing these past issues has led to significant improvements in inclusive library services, and libraries continue to evolve and adapt to meet the diverse needs of their communities[29].

Presently, inclusive libraries are concerned with accessible digital resources, ensuring e-books, databases, and online materials accessibility to people with disabilities; funding

and budget constraints, securing resources to support inclusive initiatives and accessible upgrades, staff training and awareness, provision of ongoing disability awareness and sensitivity training for library staff, representation and diversity, including increasing diversity in library leadership and staffing to better reflect the community served, intensifying efforts on inclusive programming by developing programmes and services that cater for diverse needs and abilities. Ensuring technology equity through equal access to technology and digital resources for all patrons, including the physically challenged, provision of physical accessibility through library maintenance and improvement on physical accessibility, including renovations and new construction, upholding the principles of social inclusion, by fostering a welcoming environment and addressing social barriers for patrons with physical challenge, encouraging community engagement through building partnership with disability organisations and engaging with diverse communities. Initiating policy and procedure development by creating and updating policies vital policies and procedures to support inclusive library services, creation of virtual accessibility by ensuring online and virtual library services accessible to people with physical challenge, consistent data collection and analysis by gathering data to better understand and address the needs of the physically challenged, ensuring collaboration and resource sharing including best practices with other libraries and organization, strategizing for advocacy and awareness by promoting the importance of inclusive libraries and advocacy for disability coupled with continuous improvement through regular assessment and improvement of inclusive library services and programmes as a way of positioning the libraries to continue to evolve and better serve their diverse communities[32]

Inclusive library practices are crucial for equal access to knowledge and information resources, social justice through promotion of equity and challenging systematic barriers and biases. Community engagement fosters a sense of belonging and inclusivity of diverse community. Diversity and inclusion supports diverse needs, abilities and perspectives, accessibility and accommodations through provision of resources and services for people with disabilities. Cultural competence involve understanding and valuing diverse cultures and experiences, breaking down barriers by addressing systematic and structural barriers to information and resources, empowering marginalized communities to access information and resources. Curating diverse and representative collection thereby building an inclusive collection, ensuring diverse staffing and ongoing training on inclusive practices.

Community outreach and partnership involve building relationship with diverse community organisations, ensuring equal access to digital resources and technology. Inclusive programming involves offering programmes and services that cater to diverse needs and ability, representation and role models providing diverse representation in library materials and staffing, and social cohesion which is capable of community and social connection among diverse groups. Going by the foregoing, implementing inclusive library practices will position the library to become welcoming with inclusive spaces that support the diverse needs of their communities, promoting social justice, equity, and access to information for all[32].

However, inclusive library practices face challenges such as: limited funding and resources, lack of diversity and cultural competence among library staff; insufficient

training and support for staff; physical and technological barriers; resistance to change and lack of buy-in from staff and administration; limited representation and voice for marginalized communities; difficulty in balancing inclusivity with intellectual freedom and neutrality; limited access to diverse materials and resources; stereotyping and bias in collections and programming; difficulty in reaching and engaging with diverse communities, limited understanding of diverse needs and experiences; inadequate policies and procedures for inclusive practices, limited collaboration and partnerships with diverse organizations; difficulty in addressing and overcoming historical and systemic biases; limited data and assessment tools to measure inclusivity and diversity. Therefore, addressing these challenges requires ongoing effort, resources, and commitment to creating inclusive libraries that serve diverse communities and promote social justice and equity. Libraries must prioritize diversity, equity, and inclusion in their policies, practices, and culture to overcome these challenges and become truly inclusive spaces[33].

Inclusive libraries need to take into consideration a variety and quality of the services they provide, in order to meet the needs of society, and this requires continuous development of staff competencies. Traditional services and services that enhance socialization and employment today require a range of competencies, including competencies to work with people with disabilities (physical, mental, sensory), people with developmental disorders and to use digital technologies that increase access to library services.

Inclusive education is a practice of ensuring that all students, including those with special needs learn in similar academic environments and are provided with access to the same information materials to ensure the best academic outcomes[32, 33]. In addition, proposal was made of a method that removes barriers to education for people with a wide range of physical abilities, allowing them to attend local schools alongside their peers without facing limitations[34]. While the practicability of inclusive education as defined by these authors is open to debate, this study is concerned with the position of authors who submitted that the primary goal of inclusive education is to ensure that people with disabilities have the same opportunities to receive a high-quality education as their non-disabled peers. From this perspective, the focus is on equity and not necessarily equality[35, 36].

Inclusive Libraries is an accessibility project arising from cross-departmental work in four main areas: architecture, services, library collections and training. The inclusive libraries project was promoted in 2016 by the Government of Catalonia`s Public Libraries Network, in coordination with the public Libraries Network in the Province of Barcelona, with one main goal: to ensure that libraries were inclusive spaces, not just in compliance with legal framework and theoretical standards, but also provide future opportunities to everyone with a disability and thus guarantee their full integration into society[37].

The inclusive libraries project seeks to respond to one of the major objectives of public libraries; providing a service, being accessible to all citizens and giving an opportunity for present and future development for everyone, particularly for persons with a disability, whether it be physical, intellectual and/ or sensory. Ensuring all public library users have

the same opportunities requires an analysis of the state of library facilities, services, activities, collections and programmes on offer, through the prism of users with disabilities. For this, staff training is essential[37]

2.1.3 Concept of Assistive Technology

Assistive technology unarguably plays an important role in the lives of persons with disabilities as it enhances information access and as well allows the user in the accomplishment of their task in a more refined manner independently. The concept of assistive technology and its role and importance in the area of information access for the people with disabilities in the digital environment has been studied. Basically, there are thousands of computer based assistive aids and devices available these days for the disabled and libraries are using resources to provide services to their disabled community[38].

There are numerous technologies available today for the individuals with disabilities to help them to access the printed or electronic material available in the libraries. So, there is 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[39]. In an educational context, accessibility to the courseware is an issue for the disabled learners. The accessibility of the content can be provided to them via an interface that is compatible with the various enabling (hardware/software) technologies which need to run in conjunction with the courseware program. The functionality of the interface includes navigation, searching, indexing, bookmarking and

note-taking[40]. In a library, Assistive technology may be as simple as a magnifying glass or it can also be sophisticated as a computer workstation with software which can facilitate user with disabilities to scan a book and hear it read loud followed with highlighted text on a monitor screen.

Similarly, libraries can add workstations configured according to the needs of the specific user groups like provision of speech recognition software for the blind to control the computer or enter the text via their voices, the touch screen monitor and an electronic tracking device for those who cannot make use of standard keyboards. The libraries can create the effective assistive technology programs to find the better solutions for providing the access to the library resources and the services[41]. The accessible workstation allows patrons to adjust the height of the worktable and includes a movable arm for mounting the monitor so that user can tilt the display as required.

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[42]. Well planned technological solutions and access points based on the concepts of universal design are essential for the effective use of information and other library services by all the people[43]. New technology has opened up new areas of participation and activity for people with disabilities that were inaccessible few years ago and it is vital to ensure that users are able to use these enabling technologies[44]. Information can be provided to the people with disabilities if libraries can make necessary arrangements to provide their computing

environments to the users for maximum utilization of electronically published materials, regardless of their abilities[44].

There are many technological innovations taking place for the people with disabilities so librarians need to explore how people with disabilities use computer technology and what are the issues involved in using this technology for accessing the electronic information[45]. On the road to making libraries more accessible to people with disabilities, librarians often get stuck in technological mud. The choices are overwhelming and many librarians feel they lack the technical expertise to select appropriate equipment[46]. Therefore, before implementing new services to the library for the people with disabilities, librarians need to refer to the various bibliographical sources dealing with the problems of providing library services to the disabled and to search the literature for research articles which describes the particular library's experience with the technological equipment in detail to assist them in their decision-making process[47]. Library staff should be aware of all the available adaptive technologies which address different disabilities and should know how to assist all users with library technology[47].

The area of adaptive technology is growing rapidly and making various assistive software applications available for the computer users with the disabilities which differ and range in functionality from simple to highly specialized, to meet the user's needs like screen reading software JAWS (Job Access With Speech), OMNI 1000 which provides the ability to scan information from a book, newspaper or magazine and have it read aloud by the screen reader, OMNI 3000 which is geared specifically to those with learning disabilities etc. But, libraries should choose only those technological solutions which are

useful in the library setting. If libraries have adaptive technologies, they must advertise the fact as many users are not aware of the services being provided by the libraries for the people with disabilities[48]. It is not possible for any library to plan for every single patron's needs and selecting, installing and maintaining one or more of the most popular assistive software programs. Therefore, a study highlights five software options for the libraries which can be adopted to provide the services to the blind/vision impaired users which includes 'JAWS for Windows' from Freedom Scientific, 'Window-Eyes' screen-reading program with portable application, 'ZoomText' magnifier/reader and 'ZoomText' keyboard, 'Dragon Naturally Speaking' which is a speech-to-text engine that allows users to dictate into Windows-compatible programs, such as Microsoft Word and Outlook and last one is 'Text Aloud' which is a Text-to-Speech (TTS) software[48].

The library staff should also consider adoption of a long-term strategy for planning for patrons with disabilities[49]. Several other important software programs available for library patrons with blindness or visual impairments includes 'Duxbury Braille Translator'(DBT) which is very popular Braille translation program for Microsoft Windows; 'CakeTalking', a computer music and sound creation program that is compatible with SONAR; 'DocReader' which is a talking word processor; 'Reading Bar' a text-to-speech toolbar for Internet Explorer and it is multi-lingual with capability of translating Web pages; 'Connect Outloud', a program that allows users with visual impairments to access the Internet, surf the Web, send and receive e-mail and create documents using the Freedom Scientific word processor; Kurzweil 1000 another text reading software that can read both electronic and printed text that has been scanned into a computer. Text can also be modified, saved, signed or printed by the user. The software

includes a calendar application, dictionary, thesaurus and spell checker[50]. Large print books, books on tape, books on CD, and e-books are all additional options for accessing written information that can meet the needs of certain individuals with low vision. Assistive technologies increases independence in accessing printed information in libraries therefore librarians need to understand how computer based and non-computer based AT can assist individuals with disabilities in accessing printed information[51]. There are many special considerations which need to be made for libraries to meet the claims of equality of opportunity to all the user community.

The assistive technology services in institution libraries provide new opportunities for students with disabilities to function more productively in a variety of circumstances as it improves access to information, allowing students with disabilities to independently seek out solutions to meet their own needs. There are thousands of assistive devices available today that can be applied to address a variety of personal needs, for example, users with hearing challenges can make use of various assistive listening devices, captioning features and text telephone (TTY) or telecommunication devices for the deaf (TDD). Users unable to communicate verbally can make use of portable augmentative and alternative communication (AAC) devices to speak for them. These devices allow customized programming to facilitate communication in multiple environments[52].

The current information age has definitely transformed many library activities and as well brought about an entire new group of greater number of potential patrons in the libraries which are so called people with disabilities. It is becoming obvious that a properly adapted computer workstation can definitely enhance the ability to access information

displayed in digital format. In addition, the availability of alternative methods of computer input and output has freed and empowered the disabled population and opened up a new world knowledge and power for them[53]. Computers in libraries are essential tools and assistive technology is the key to use them for the people with disabilities. Assistive technology (AT) involves a device or a computer based accommodation which helps an individual with special needs to work around or compensate for a disability and enhancing individual ability[54].

Video magnifiers, electronic readers, optical character recognition software, magnification software, speech output systems and electronic Braille devices etc. all provide a solution for a particular individual with disability and these computer related aids and equipment are commonly known as ``assistive `` "adaptive" access" or "enabling" technology. The combination of these technologies can be used by people to enable them to interact and work in the electronic environment. The Assistive Technology provides various means for a blind or partially sighted person to overcome several barriers such as the need to read print, use of a computer workstation, taking notes and communicating on paper and in electronic settings[55]. In simple words, Assistive Technologies refer to products, devices or equipment that are used to maintain, increase or improve the functional capabilities of people with disabilities[56].

Assistive technologies play vital roles in equalizing opportunities for people with disabilities in several aspects of life as technology enables them to overcome various limitations and obstacles faced in in all types of environment[56].. Therefore, accessible technologies can have a remarkable effect on empowering persons with special needs

accompanied with the internet that provides great opportunity for connections to a range of people regardless of their location[57]. Access to information is a major problem for the disabled but today ICT along with assistive technologies have helped to reduce the digital divide between sighted and the blind by providing information on their desktop[57]

The libraries of the 21st century have devised means of reaching the library users beyond the library walls. The world over, libraries have adopted systems and software to ensure availability and accessibility of information resources to users. Today, users can access library collections through their systems (and often from home). Automating a library is a unique decision that makes the library activities easy for prompt service delivery to the users. Introduction of software to enhance the various functions of the library is a breakthrough in this era as those software include library 2.0. Library 2.0 technologies were built into library software to ensure that library users and librarians interact to accelerate service delivery to adequately satisfy users' needs. It is evident that libraries are waking up to the task and lots of innovations are into library services as to keep to the pace of users' needs; this is because more relevant new software are being introduced. This also brings to the fore why effort to address the current limitations of the legacy catalogue and to offer users more powerful searching tools is shifting libraries to use the new generation user-centred solutions[58].

Next-generation library catalogue has both commercial and open-source versions, has a new interface that makes use of federated searches and deep indexing to search beyond local collections and discover electronic content as well as digital collections. In addition, the next generation library catalogues offer user-centred features such as social

networking integration, faceted browsing and relevancy-ranking. Another current solution to ease access to resources on the next-generation catalogues is the Discovery interface. Discovery interfaces present a new search experience for library uses, including tagging, book reviews, enlarged scope, integration, relevancy ranking, faceted navigation, user-centred features, search term recommendations and syndication with web search engines. Discovery layer software seeks to provide a search experience that is simpler to use, but at the same time gives users more options to refine their searches and browse library resources, "Libraries promote and exploit new technologies and new models of scholarly communications" "A library provides a platform for continuous education which improves an individual. It provides facilities that enhance online research (that is, computer, internet connection and access, etc)." It is indicated that libraries are utilizing the computing powers of ICT to promote communication and dissemination of information resources. Nigerian Libraries and Users Libraries all over the world are consistently making effort to ensure that information needed by library users are made available and freely accessible[58].

The libraries in Nigeria are not lagging behind to meet the demands of the users' community. While users expect the library to meet their needs, most of the libraries have created repositories, OPACs, social network sites, blogs, digitalized contents to keep with the pace of users' needs. In Nigeria, some libraries have made marks, for example, Nnamdi Azikiwe Library, University of Nigeria, Nsukka, Ahmadu Bello University, Zaria and Babcock University Library, Nigerian libraries are among libraries that made their collections and databases freely accessible to users. Libraries of today must be aggressive to provide access to information for users either within or outside the library

through viable systems. The lack of books and non-book materials are increasingly becoming a thing of the past as the library has greatly played a role that guaranteed the availability of these resources. Libraries provide easy and free access to high-quality content which is a key foundation for good research. On the internet you cannot be too sure if what you are reading is true but in a non-fiction book, it is more reliable than the internet. The best feature of a library is that it either makes no charge upon the readers or collects a negligible membership fee for making available to them newspapers and journals[58].

There are numerous technologies available today for the individuals with disabilities to help them to access the printed or electronic material available in the libraries. So it requires a very 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[39]. In an educational context, accessibility to the courseware is an issue for the disabled learners. The accessibility of the content can be provided to them via an interface that is compatible with various enabling (hardware/ software) technologies which need to run in conjunction with the courseware program. The functionality of the interface includes navigation, searching, indexing, bookmarking and note-taking[40].

Human fears of technology may emerge because of its introduction, or increase in use, appears to threaten the status quo that could be a change in the schedule of work that was happily undertaken for the past years, or the fear of being left behind, or replaced by

others who have the relevant technological skills. Change generally can bring both uncertainty and discomfort into our lives. It may provoke strong emotional reactions in people ranging from the confusion, fear and stress often associated with loss and bereavement. The effects of automation on library staff have been a focus of research for the last 20 years and the introduction of automated library systems was a major point in the working lives of library staff since it involved learning new technologies, new processes and procedures. Years of routine were reversed instantly with the introduction of a computer for staff to work with. More recently, change might have involved moving to a more modern library management system or the acquisition of Blue-rays and e journals all of which might prove very intimidating for staff in libraries with little or no prior experience of such innovations[41].

It is argued that libraries generally are in a period of general uncertainty which can be worrying for staff and might provoke hostility or resistance to the introduction of new technologies. Attitudes chiefly positive attitudes are assumed to be fundamental in the acceptance, implementation and success of new technologies. For ICT systems to be successful, it is suggested that staff need positive attitudes. Implementing information communication technology (ICT) in the library depends largely on the attitudes of library staff to its usage. The application of ICT has caused significant changes in libraries; for Example, automated cataloguing, circulation, information retrieval, electronic document delivery, and databases. The advent of the Internet, digitization, and the ability to access library and research materials from remote locations created dramatic changes by the end of the twentieth century. It is observed that expert systems, wireless networks, virtual

collections, interactive web interfaces, virtual reference services and personal web portals have brought changes since the start of the new millennium[41].

There have been fast and significant changes in librarianship, where digital and electronic libraries complement and in some cases replace traditional libraries. It should be noted that the drastic change in library practices brought about by rapid changes in information communication technology is posing challenges to the Librarians in recent time, particularly in the developing countries. To cope with these challenges posed by ICT, Librarians in developed countries moved quickly to learn and adopt new information technologies. Computers, software, CD-ROM, email, Internet, networks and other information management and communication technologies were introduced to perform different library functions and to provide innovative user services. At the same time, library staff raised their level of knowledge of new information technologies through continuing education programs, professional training, and through revisions in their library and information school curriculums. This helped them to leverage the benefits of new technologies. Ultimately their libraries became well equipped with sufficient hardware, appropriate software and effective technology based materials[41].

Training appears to affect perceptions of technological change and attitudes to ICT and change. Good training is shown to have valuable effects on staff and their reactions to new technologies. Staff saw training as a means of building their morale, curing techno stress and reassuring them of their ability to do the job. Training without the necessary skills or understanding of staff fears might strengthen anxieties about using ICT. Training, then, must not take place for the sake of training and must provide the necessary skills, be

of the right amount, of good quality and may have to combat fears, as well as promote understanding and confidence in using ICT. Time is a vital for good training. It is important that staff have the opportunity for hands on practice during a training programme, such as taking time away from the desk to practice. Similarly, once staff have undergone training, they should be able to put their skills to use straight away. Different training methods suit different people. It is noted that library staff prefer training which includes self-teaching with support within a specific framework and training programme[50]

Conceptually, 'public access to information' refers to "the presence of a robust system through which information is made available to citizens and others." Such a system represents a combination of intellectual, physical, and social elements that affect the availability of information to individuals. In other words, in discussing the issue of public access to information, it is important to recognise that any measurement of its practical outworking needs to take into account how individuals perceive the quality of information in the public domain, the nature of the communicative infrastructure in place to facilitate access, and how that information is ultimately utilised by individuals as members of a particular polity. Librarians familiar with the bibliographical tools of the world, identify, locate, and acquire foreign and domestic publications for the library. In this sphere of activity, the libraries support the centres; another significant difference between libraries and centres is that libraries provide their users with material in its original format. The original format in this sense would include complete books, journals, and other items which may be on film. The end product of an information analysis center

is an analysis or an evaluation or a state-of the-art report produced by the center from a variety of sources including books, journals, patents, and other sources[43].

The stored information in an information centre is usually in a condensed form. It may be in card files, on film, on punched cards, or on tape. The centre is less concerned with retaining a large collection of books, journals, and other publications, since these materials are presumably available in the library. Defining a telecentre is problematical. The word "telecentre" broadly refers to a facility "that offers the public access to advanced IT [information technology] and telecommunications equipment, together with some degree of support and training and a range of information-based services".

Multipurpose centres can be defined as an integrated community development centre. Ideally, community participation should form the basis of such a centre, which has to meet people's information needs by providing relevant services. The aim is to empower the poorest and most disadvantaged communities with access to government and non-government information and services. They are described as "one stop shops" through which communities can access government services, information technology and training. The professional responsibilities of Information Institutions and organisations should include the following: As providers of resources, they can help to enhance the amount of available resources by making stakeholders aware of the importance of sharing. In particular, as far as the sharing of content is concerned, they can operate by promoting digitization campaigns and the open access approach. These actions may result in a vast amount of new digital information accessible online which can be exploited by advanced services[59].

Within a digital framework, Information Institutions and organisations are certainly the best carrying out content description, maintenance and preservation of resources. By exploiting their large experience acquired in the past, they can contribute to the long-term availability and to the quality of the resources disseminated by the digital libraries (DLs). Long-term availability also requires the implementation of models able to support the sustainability of the resources provided. Information Institutions and organisations, either alone or as members of library consortia, can also act as the organisations deputed to define and put in place these models. As main resource providers, Information Institutions and organisations can work jointly on the definition of common policies and standards. An agreement on these aspects would strongly contribute towards facilitating the design and development of the new complex services required to fulfil the emerging user needs[43].

In the future Information Institutions and organisations can also play an important role as mediators between the infrastructure and the user communities. In particular, they can proactively promote and facilitate the creation of DLs that respond to the needs of the user communities. They can also assist users by providing, if necessary, the skills required to select, update and exploit the DL content and services. It is not hard to realize that in near future Information Institutions and organisations would be globalized and maximum services will be available from remote places[43]

The term Resource Sharing" has been used in the library profession since 1960 however; the practice is as old as librarianship itself. In the olden days, it was called library co-operation and mainly existed in the form of inter-library loan. As Kraus puts it, "the idea

that libraries should in some way, find means to work co-operatively to provide people with access to books unavailable in nearby libraries is a deeply rooted concept in librarianship." Some evidence of inter-library loan was found in the period around 200 B.C., with resource borrowed by the library of Pergamum from the great Alexandria Library of that time[44]

Network is the term that is widely used to connect computers that shares resources and information with each other through some type of medium. The main goal of networking is optimum utilisation of available information resources through sharing. In its broadest sense, a network consists of two or more entities, or objects, sharing resources and information. The exponential growth of information in all fields of knowledge, heavy demand of information, accuracy of information and the need for newest information has become the erroneous task to the library. The individual library cannot meet these challenges with its own resources. Librarians can and should play a crucial role in information exchange. Networking of libraries a co-operative endeavor of libraries, improves other areas such as cataloguing process, database creation and staff development too. In addition to that, it reduces the financial burden by the sharing of common resources[44].

Library Networking, Library Resource Sharing, Library Co-operation, Library Consortium are various term given to the same activity which mean that a group of libraries have come together and entered into some kind of formal understanding with the objective of sharing the resources of each other's materials, functions, services and the staff to their mutual benefit realising that only through library networking the greatest

amount of the best information can be provided to most of the users at the most reasonable cost. Various definitions and explanations have been given for the concept of networking. In a broad sense a library network is a distribution system composed of two or more libraries and / or other organizations engaged in a common pattern of information exchange through communication channel for some prompt purpose. A formal organisation among libraries for co-operation and sharing of resources, in which the group as a whole is organised in to sub groups with the exception that most of the need of a library will be satisfied within the sub groups of which it is a member. It is a library networking system established by libraries and information centers which are brought together by common subject, geographic proximity to share informational resources, human resources and all other elements essential for providing effective information service[44].

In a library networking the aim is to achieve sharing of resources to provide better service to customers. i.e. library network is established for exchange of data, information or resources. Modern networks are intelligent carriers that provide information interchange among attached centres. Scientists are usually heavily involved in their research and do not have the time to develop new contacts, maintain existing ones, photocopy and mail documents, etc. Librarians by their profession are information specialists. They should take it upon themselves to develop the links with the outside world and to publicize the scientific endeavours of their institution. The librarian should know all the scientists in his/her institution and be familiar with their research areas and needs. This will allow the librarian to act as some sort of public relations officer who can easily route requests from in or outside the institution for contacts. At the institutional level the librarian's

information related responsibilities can thus be defined as follows: provide a document delivery and duplicate exchange service; catalog the library holdings and make this information available to in- and outside users (electronically or printed) distribute information on research activities, internally or externally; follow-up outside queries on scientists or their work; establish links with other libraries and exchange information on the institutions and their scientists; create institutional information brochures. These are only a few examples of the important role a librarian can play in the information exchange activities of a scientific institution[46].

However, it is clear that the management of the institution must equally appreciate the professional capabilities of the librarians and give appropriate authority to this staff to develop the above activities. In theory, each component of the network should be an information user and information supplier. Links should exist between all components of the network. The following needs and objectives of library networking are currently in vague. Above phenomena has compiled for resources sharing through network. Library networking is necessary; to satisfy information needs of users, to increase the availability and accessibility of resources: clientele of each participating library can have access to resources available in all the libraries[48].

Resources can be moved from one library to another manually or through modern means. This provides an easy access to and free flow of information. To diminish cost: resource sharing helps in building specialized collection and all participating libraries need not duplicate the procurement of similar material. To exploit resources: resource sharing advocated that the reading material of one library should make available to the client of

other libraries, thus exposing the reading materials to a wider group of users. Similarly, the services of a library can be exploited by the users of other libraries or a wider community. To promote co-operative activities like acquisition, exchange, storage binding, training, reference and documentation services, library loans, etc. also, to eliminate record duplication, to promote the exchange of information with other co-operative networks[47].

The roles of these professional associations have been variously defined: "A group of people in a learned occupation who are entrusted with maintaining control or oversight of the legitimate practice of the occupation; also a body acting "to safeguard the public interest;" organizations which "represent the interest of the professional practitioners," and so "act to maintain their own privileged and powerful position as a controlling body." Many professional bodies are involved in the development and monitoring of professional educational programs, and the updating of skills, and thus perform professional certification to indicate that a person possesses qualifications in the subject area[58].

Sometimes membership of a professional body is synonymous with certification, though not always. Membership of a professional body, as a legal requirement, can in some professions form the primary formal basis for gaining entry to and setting up practice within the profession. Many professional bodies also act as learned societies for the academic disciplines underlying their professions. The mission of the professional societies is primarily educational and informational. Their influence flows from their continuing and highly visible functions: to publish professional journals, develop

professional excellence, to raise public awareness, and to make awards. Through their work, they help to define and set standards for their professional fields and to promote high standards of quality through awards and other forms of recognition. One particularly important function of professional societies relative to research publishing professional journals is shared with commercial publishers, some of which are large and influential forces in their own right. Because commercial publishers are for-profit ventures, however, their mission differs in an important way from that of the societies. With the exception of a few leading general journals such as Science, Nature, and the Proceedings of the National Academy of Sciences the prestigious outlets for research scholars tend to be the high-impact, single-discipline journals published by professional societies[58].

In addition to this for example the Nigerian Library Association (NLA) has created an online forum to share ideas and resources. This forum has greatly impacted new librarians to learn and be acquainted with the trends in librarianship. Current issues and trend in the information profession are made known and ideas are shared among members on the forum. Disciplinary societies have a great deal of influence through their journals in terms of their willingness to publish, their review procedures for papers submitted to a journal, and their ability to create new journals for sub disciplines. In addition, disciplinary society newsletters can be used to facilitate communication among disciplines[58].

Disciplinary societies could help their members by founding or promoting new journals, new sections, and other kinds of homes for emerging interdisciplinary subjects. They can also help researchers by giving awards and recognition for interdisciplinary work; this

would help faculty who are working on interdisciplinary projects and who must demonstrate the value of their work to review committees that might not be familiar with either the interdisciplinary field or the interdisciplinary journals of significance to it. Professional societies often host seminars, meetings and colloquiums that bring together scientists in different disciplines to learn about diverse fields and research topics, to learn the languages of different fields, and to discover where these research topics overlap. Some examples of professional bodies and associations in Nigeria includes; Nigerian Library Association (NLA) Institute of Chartered Accountants of Nigeria (ICAN) Chartered Institute of Bankers of Nigeria (CIBNG) Chartered Institute of Taxation of Nigeria(CITN) Nigeria Institute of Estate Surveyors &Values (NIESV) Association of General & Private Medical Practitioners of Nigeria (AGMPN) Association of National Accountants of Nigeria (ANAN)[58].

From the earliest days of human history, information has been the foundation of power and efficiency in all sectors. The proliferation of information and the reliance on it in every sphere of life paved way to information and knowledge societies[60]. However, in the current information and knowledge societies, there is great value and demand for information as compared to the agricultural and industrial societies. This is due to the rapid change in dynamics of information and knowledge society characterised by explosion of information as well as the instant pace of information flow that has been made possible by information communication technologies (ICTs). The rapid development and widespread adoption of ICT has greatly transformed every aspect of life. Consequently, information and knowledge have become the driving force for development and prosperity of every nation[59]

The development of information and knowledge societies has transformed economic, social, educational and political sectors. This rapid transformation has necessitated many institutions to adapt to this change. Universities are not an exemption since as it is now evident that the new and emerging technologies challenge the traditional process of teaching and learning as well as the way education is managed. Moreover, ICTs have created flexible delivery of education thus enabling learners to easily access knowledge from anywhere and at any time, as well as enhancing access to learning resources. In this regard, universities world over strive to be centers for research and development where access to information becomes the major driving force to achieving this goal[60].

However, universities cannot survive without libraries as their success is dependent on the services provided by their libraries[61]. University libraries are established for the purpose of supporting the core activities of the universities including learning, research and innovation. They are the learning, research and innovation centers of the universities and therefore regarded as gateways to information[62]. In this regard, university libraries are purposely designed to provide information services to support the said activities[63]. It is worth noting that university libraries serve patrons with different needs and a wide range of abilities and disabilities such as visual, speech, hearing, physical, cognitive and more[64, 65]. Consequently, university libraries have a responsibility of ensuring that the information needs of their patrons are adequately catered for without any discrimination so as to enable the patrons to excel in their research and learning[66]

According to the Library Services for People with Disabilities Policy of 2001 “libraries must not discriminate against individuals with disabilities and shall ensure that

individuals with disabilities have equal access to library resources"[67]. For libraries to adequately satisfy the information needs of persons with disabilities, they must provide relevant information in suitable formats, adequately trained personnel, conducive environment for study and appropriate technologies to enable access, retrieval and use of information[67].

It is widely acknowledged that ICTs can help minimize the obstacles encountered by people with disabilities in all aspects of their lives. According to International Telecommunications Union [ITU] (2013), ICT has the ability to uncover a variety of services, change existing services as well as increase the demand for access to information and knowledge especially among the marginalized and excluded groups particularly people with disabilities. The advancement in ICTs, has made it easier to collect, process, store and disseminate information in variety of formats. It was opined that libraries have transformed from the traditional close-access libraries to modern hybrid, digital and virtual libraries. University libraries are leveraging the opportunities provided by the new technologies in their operations especially in provision of electronic information. The emerging new technologies have not only transformed the libraries and the library professionals but also they have brought about a new generation of library patrons who are very passionate about technology[61]. Therefore the success of libraries in their role is determined by the level of satisfaction of the patrons which also relies on speed of delivery of information services and the accuracy of information[68]. In this regard, university libraries use ICT to improve and speed up their operations such as information acquisitions, processing, circulation services, Online Public Access Catalog (OPAC), library databases, websites and more.

Moreover, library patrons can now access information at the touch of a button from anywhere at any time, thanks to the internet which has connected people with information. To ensure maximum access and utilization of information resources, many university libraries are taking advantage of library websites to provide access to variety of information such as e-resources, e-databases, news, and more. Unfortunately, only persons without disabilities have benefited much while persons with disabilities have continued to suffer, yet they have the same information needs as those without disabilities[69]. This creates social exclusion of persons with disabilities as they are denied access to information rendering them unable to participate in society as citizens, unable to make informed decisions that affect their lives, and unable to fully take advantage of all that society presents. This is despite the fact that computers and assistive technologies such as braille technology, speech synthesizing technology, screen reading technology and more have brought a fundamental change in the lives of persons with visual and physical disabilities[69].

2.1.4 Concept of Digital Competency

Digital competence involves the confident, critical and responsible use of, and engagement with digital technologies for learning at work, and for participation in society. It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including cybersecurity) intellectual property related questions, problem solving and critical thinking. The competences are combination of knowledge, skills and attitudes, in other words, they are composed of concepts and facts

i.e (knowledge) descriptions of skills (e.g. the ability to carry out processes) and attitudes (a disposition, a mindset to act) key competencies are developed throughout life[70]

Digital competence encompasses a set of attitudes, knowledge, skills, awareness, and values that are of great importance when utilizing disruptive digital technologies and tools in a organization. It involves the confidence and critical use of electronic media for work, leisure, and communication. These competencies are also related to logical and critical thinking, high-level information management skills, and well developed communication skills. It can also be referred to as the critical usage of digital technologies, having the knowledge, skills awareness, and attitudes needed for the conscious, safe, critical and effective use of digital tools. A wider concept of ICT competence consist of basic ICT skill but also understanding and knowledge of how to use digital device and applications in novel and complex contexts demands in a particular context. It is the ability to use the information and communication technologies in citizens` daily life from a responsible and critical perspective[70].

Digital competence could be referred to a set of knowledge, skills and attitudes that allow the safe and efficient use of information and communication technologies (ICT). It is the confident and critical usage of digital technologies for communication, information and basic problem-solving in all aspects of life. A set of knowledge, skills, attitudes and awareness that is required when using ICTs. Also, digital competence could be referred to as the ability to keep abreast with the rapid changes of technology, it includes the related knowledge and skills people need to use ICT in an appropriate way for their own purposes, both personal and professional. Digital competence involves the confident and

critical use of electronic media for work, leisure and communication. These competencies are related to logical and critical thinking, high-level information management skills, and well-developed communication skills. It is also known as a set of knowledge, skills and values necessary when utilizing digital technologies. It could as well be referred to a set of capabilities focused on the use of ICTs to obtain, store, organize, present and exchange information together with participation in collaborative networks based on the internet[70].

Digital competence is the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative virtual networks. It requires a critical and reflective attitude towards the information available and responsible use of the interactive media. It is equally the set of knowledge, strategies and skills that helps an individual to function in the digital world, solving digital problems by using a digital support, and can also be referred to the ability to use digital tools and applications successfully. The ability to efficiently and critically use information technology for employment, learning, self-development and participation in society is also known as digital competence. According to European Commission, digital competence is one of the eight key competencies and refers to the confident and critical usage of the full range of digital technologies for information, communication and basic problem-solving. Digital competence involves the confident and critical use of information society technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the internet, also the attitude, knowledge and skills in using digital technologies for various purposes to successfully participate in a digital society[70].

Basically, it is the confident and critical usage of the full range of digital technologies for communication, information and basic problem-solving in all aspects of life. Digital competence refers to the confident and critical use of digital technologies for information, communication, and basic problem-solving in all aspects of life. It comprises the combination of knowledge, skills and attitudes regarding the use of new technologies. Digital competence is one of the key 21st century competences. For academic purposes, efficient use of digital technologies can be greatly beneficial in the teaching and learning process, especially when implementing online methodologies. It is the ability of individuals to use digital technology and communication tools appropriately to access, mange, combine and evaluate information. It is also considered as attitude, ability, and ability to communicate with others to build new information and to participate in the society effectively[71]. Therefore, Digital Competence (DC) involves the proficient and discerning use of digital technologies for information, communication, and basic problem-solving across all areas of life. It encompasses a combination of abilities, knowledge, and attitudes related to the use of new technologies. DC is a critical 21st century skillset, in academic settings, leveraging digital technologies can significantly enhance the teaching and learning experience, particularly in online methodologies. It is the act of possessing the knowledge, skills and confidence to effectively utilize digital technologies, the ability to confidently and critically use information and communication technologies for work, teaching and learning, or social use. Digital competence is the key competence for the current globalized society. It involves the confident, safe and critical use of Information Society Technology (IST) for work, study, leisure and communication. It includes then basic skills in the use of IST, namely, the use of digital devices to retrieve,

assess, store, produce, present, communicate and exchange information, as well as to participate in collaborative networks online.

Digital skills for work and for life are at the top of the European Policy Agenda. The EU digital skills strategy and related policy initiatives have the objective of enhancing digital skills and competences for the digital transformation. The European Skills Agenda, of 1 July 2020, supports digital skills for all, including by supporting the objectives of the Digital Education Action Plan, which has the objectives of i) enhancing digital skills and competences for the digital transformation while ii) fostering the development of a high-performing digital education system. The Digital Compass and the European Pillar of Social Rights Action Plan set the ambitious policy targets of reaching a minimum of 80% of the population with basic digital skills and having 20 million ICT specialists by 2030

2.2 Theoretical Review

2.2.1 Thomassen`s Customer satisfaction Model

Satisfaction is the general attitude of the user towards the service provider or is an emotional response to the difference between their expectations and perceptions taking into consideration their needs, goals and desires. Satisfaction refers to individual evaluation and emotional response to the whole process of experiencing a service, which is the interaction between users and service providers[72]. The user experience remains in his memory and, along with his expectations and perceptions, leads to either satisfaction or dissatisfaction[73].

User satisfaction is a key determinant of customer loyalty to a product or service that leads to greater profitability in the future and also predicts user loyalty. Satisfaction with the service or product will lead to the reuse that the same logic is expected to apply to digital libraries[74], and when the library user is satisfied with the services provided by the library, the intention is to support the library by offering it to others in the future[75]. Previous studies have examined the effect of US on user loyalty[76]

Satisfaction refers to the extent to which one believes that a good experience will evoke positive emotions. Engagement is considered a multidimensional structure that includes cognitive, emotional and behavioural elements of the user experience [77,78]. Therefore, it can be concluded that positive emotions originating from cognitive, emotional, and behavioural experiences when using information and services of digital libraries will lead to frequent interactions of users with these libraries. Previous research has suggested the notion of engagement as the focus of attention and attractiveness. Technological advances have allowed universities to provide users with tools to engage with digital libraries (DLE) such as websites, social media platforms and mobile applications[79, 80, 81]. Previous research has shown a relationship between satisfaction and engagement [82]

Customer satisfaction as follows: the perception of the customer as a result of consciously or unconsciously comparing his experiences with his expectations [83]. As a build up to this definition, it was stated that customer satisfaction is determined by the degree to which someone is happy or disappointed with the observed performance of a product in relation to his or her expectation [84]. Performance that is below expectation leads to dissatisfied customer, while performance that satisfies expectations provides satisfied customers.

Expectation being exceeded leads to a very satisfied or even pleasantly supplied customer[84]. However, a slight difference from that of Thomassen; ''satisfaction is the consumer fulfilment response. It is a judgement that a product or service feature, or the product of service itself, provides a pleasurable level of consumption-related fulfilment. ``The emphasis is thus on obtaining a certain satisfaction in relation to purchasing[84]. It was established that both the so-called value proposition and other influences have an impact on final customer satisfaction [83]. In his satisfaction model, efforts were made to show that word-of-out, personnel needs, past experiences, and marketing and public relations determine customers` needs and expectations and experiences determine a customer satisfaction level [83].

The outlines customer satisfaction has been given as a perception of the customer as a result of consciously or unconsciously comparing their experience with their expectations [84].This was expanded upon by saying that customers are satisfied with a good or service by the degree to which someone is happy or disappointed with the observed performance of a product in relation to their expectations. When performance falls short of expectations, dissatisfied customers begin to emerge. On the contrary, if performance meets expectations, then more satisfied customers exist [84]. Thomassen`s customer satisfaction model outlines a number of key factors that influence customer satisfaction. This includes word-of-mouth, personal requirements, previous experiences and marketing efforts as important aspects that guide customer satisfaction. These factors compare experiences and expectations for customers to determine the overall level of satisfaction.

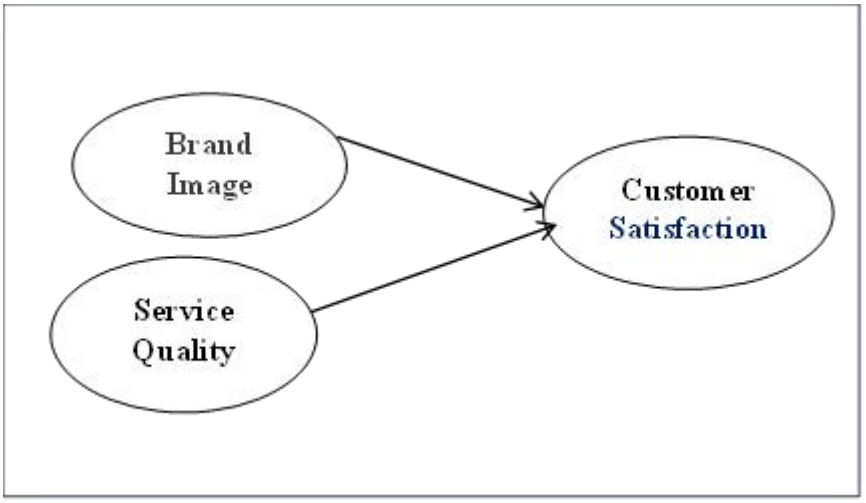


Fig. 2.1.Thomassen` Customer Satisfaction Model

The theory proposed that customer satisfaction has been recognised as an important measure of library performance. It was established as the degree to which the library is able to meet the demands of the user, a feeling of person`s pleasure or disappointment which results from comparing a product or outcome against ones expectations. It is therefore the utility received by physically challenged students as information seekers form the services rendered by the library and information centre at an affordable cost and convenience, it is equally a justification of service quality and reputable brand image. The study therefore, places users at the centrality of library operation without which an information system lost its whole purpose, emphasising that the purpose of users visit to the library is to exploit its resources to satisfy information need.

2.2.2 Theoretical model of an Inclusive Library

In the 21st century, the role of libraries is changing – from book lending to community centres with a wide range of goals: teaching of digital literacy, organizing lifelong

learning, conducting cultural, informational and educational activities, and reducing social exclusion[16], [19] ,[26,24] Today, there is a direct connection between the library and society, due to the inseparable nature of its social functions and meeting the needs of society[25]. The library community consists of the users who differ in their social status, education, mentality, therefore, public libraries' aspiration to be accessible to every member of the community[25] and public pressure on libraries to increase the accessibility of their services affect libraries' activities and roles. The scientific literature identifies the following key roles of the library: informational, educational-cultural, communal, and social. The informational role means that the library can ensure the access to literature and high-quality information (e.g. books, periodicals, Internet access) and provide services to all social groups[16]. The educational-cultural role means that the library can offer opportunities for culturalleisure[23, 24], which today is associated with educational and lifelong learning activities. By providing non-formal learning services or organizing non-formal learning activities, libraries train users in information and economic literacy, creativity, foreign languages, etc.

This training also develops general competencies that help adapt to the labour market and social life. The communal role means that the library is perceived as a space for communication and community building. Today, the effectiveness of the library depends on its cooperation with communities, educational and scientific institutions, non-governmental organizations, cultural, professional and amateur arts organizations, etc., because the library is an accessible place for everybody to create joint projects and communicate. The communal role is closely intertwined with the social role of the library as a space for social interaction. According to this concept, the library is understood as an

open space where individuals can realize their ideas through communication, learning, leisure, work, etc. This is of particular relevance for stigmatized and socially excluded groups and their inclusion in social life [25]. Libraries become the promoters of social justice, by providing everyone with information resources and enabling them to participate in educational and cultural activities. Accordingly, by providing free of charge services and access to modern technologies, libraries provide an opportunity to learn about culture, participate in lifelong learning, are open to various social groups [25].

Going by the submission of these authors, it can be stated that the social role of the library involves all previously mentioned roles and integrates them into a whole – in today's world, libraries through social interaction with individuals, informal communities, institutions, through the involvement into strategic state processes (promotion of lifelong learning, implementation and development of innovations, development of science potential, etc.) become the organizations reducing social exclusion and increasing socialization [25]. Even in the smallest towns and villages, libraries working with people of all ages, become strategically important organizations for implementing social policies, as other public organizations (schools, cultural centres, day-care centres, etc.) do not have such a wide network of organizations and such diversity.

Libraries contribute to the reduction of information, digital and social exclusion by providing access to information resources, free internet, by organizing free of charge events and educational activities. The changing roles of the library precondition the organizational change – to become an inclusive organization that meets not only users' needs but also the growing needs of society. Having the access to the latest information

resources, being equipped with the new technologies, libraries can develop the dissemination of innovative products and services, ensure their accessibility to all citizens, anticipate future public needs and prepare for them, and participate in international, national, and inter-organizational projects.

The concept of a socially inclusive organization is inseparable from the concept of a socially responsible organization. Public sector institutions take responsibility for creating the public wellbeing through the services they provide[29]. For libraries, social responsibility and inclusion are, first of all, meeting the needs of stakeholders. The social responsibility of the library comprises four levels: 1) The responsibility for information resources and books stored in the library; 2) The responsibility for the library staff; 3) The responsibility for library users; 4) The responsibility for the society in general [29].

According to this approach, the responsibility of the library transcends the boundaries of an individual organization, therefore, the availability of service becomes an important criterion for developing an inclusive organization. Therefore, it is possible to state that an inclusive library performs its informational, educational, cultural, communal, and social functions in a socially responsible manner, whose services are accessible to members of diverse communities, which takes care about its employees' wellbeing, development of their competencies, meets consumers' needs, and brings together all individuals, communities, and organizations for joint activities. Such library provides added value to society through social justice and promotes people from socially excluded groups to socialize [29].

The activities of inclusive libraries are in line with the provisions of global and national legal documents to ensure equal opportunities and accessibility; their strategic and key operational documents usually foresee the mission and change of social inclusion. An inclusive library cooperates with a variety of organizations, local communities and publicises information about its services. However, unlike other inclusive public organizations, the concept of inclusive libraries focuses on the diversity of stakeholders, and this suggests the need to constantly research their needs and expectations. The users of library services are of different age groups and come from different social groups: pre-schoolers and their parents, schoolchildren, students, employed persons, unemployed persons, retired persons, persons with various disabilities, etc.

Aiming to research and respond to a variety of needs, the collaboration with other organizations that involve learning, employment, and socialization as well as with the organizations and local communities representing and integrating people experiencing social exclusion, becomes significant. Another aspect is that inclusive libraries need to take into consideration a variety and quality of the services they provide, in order to meet the needs of society, and this requires continuous development of staff competencies. Traditional services and services that enhance socialization and employment today require a range of competencies, including competencies to work with people with disabilities (physical, mental, sensory), people with developmental disorders and to use digital technologies that increase access to library services. The main factors promoting people with disabilities to use library services are accessibility of services, qualification of staff, adaptation of library environment, material base, equipment and services [29]

.It has been affirmed that the library, which seeks to serve users with disabilities, has to take care of the universal design, annually review lists of activities, evaluate outcomes of inclusion, facilities and equipment designed for people with disabilities, plan new activities and staff training[47]. In discussions about libraries that increase the socialization of people with disabilities, researchers have proposed theoretical models of such libraries. Library service model that identifies four key aspects: 1) Compliance of the documents governing the rights of people with disabilities to access to informational, cultural and educational activities with library documents; 2) Adaptation of infrastructure and equipment for people with disabilities, use of assistive technologies; 3) Specific services for people with disabilities; 4) Staff training[31].

The model of an inclusive library for people with disabilities that highlights seven essential components: governance, programs, physical barriers, training, partnership, marketing, and adapted information resources was proposed [31]. All components are interconnected and include activities that make library services and the environment more attractive to people with disabilities. In the model proposed, the component 'governance' involves the management's approach to the development of the library as an inclusive organization and the inclusion of activities for people with disabilities in the library's plans, as well as the consistency of these plans with national documents [31]. The component 'programs' lists the activities and training that libraries offer to people with disabilities. The component 'physical barriers' includes the accessibility of the library's infrastructure and facilities with the necessary specialized equipment for people with disabilities. The component 'training' includes library staff training in providing services for people with disabilities. The component 'partnership' emphasizes the cooperation of

libraries with various organizations and communities of people with disabilities. The component 'marketing' emphasizes the publicity of library services for people with disabilities. The component 'information resources' includes specialized literature resources that are adapted for people with disabilities (e.g. audio books, Braille books). According to the proposed model of an inclusive library for people with disabilities [31, 85] and taking into consideration the factors related to the enhancement of social inclusion of libraries (planning and implementation of activities for people with disabilities, assessment of achieved results), definitions were given by various authors [86,87,88,]. Therefore, the following key components can be distinguished: organizational management, adaptation of environment (adapting infrastructure and equipment to ensure accessibility of services), services that meet the needs of people with disabilities, disabilities, adaptation of information resources, cultural, educational and information services), improvement of staff competencies, cooperation (with organizations for people with disabilities, care-homes, special schools, non-governmental organizations, etc.), and publicity of services[88]. Based on this generalization, the theoretical model of an inclusive library for people with disabilities is presented in Figure 2.2.

Fig.2.2. Inclusive Library Model

Relevance of IFLA Theory of Inclusive Library

The theory proposes that the library is an accessible place for everybody to create joint projects and communicate. The communal role is closely intertwined with the social role of the library as a space for social interaction. According to this concept, the library is understood as an open space where individuals can realise their ideas through communication, learning, leisure and work which is of particular relevance for stigmatised and socially excluded groups and their inclusion in social life. It posits that libraries contribute to the reduction of information, digital and social exclusion by

providing access to information resources, free internet, and by organising free of charge events and educational activities. The changing roles of the library precondition the organisational change to become an inclusive organisation that meets not only users` need but also the growing need of the society, it equally stressed that the main factors promoting the physically challenged use of library services are accessibility of services, qualification of staff, adaptation of library environment, material base, equipment and services. It therefore highlights seven essential components which include; governance, programs, physical barriers, training, partnership, marketing, and adapted information resources. All components remain interconnected and include activities that make library services and the environment more attractive to people with disabilities.

2.2.3 Unified Theory of Acceptance and Use of Technology (UTAUT).

A number of theoretical models have been proposed to facilitate the understanding of factors impacting the acceptance of information technologies[89,90,91]. Among these models, the Technology Acceptance Model (TAM) is one of the most influential and robust in explaining information Technology (IT)/ Information System (IS) adoption behavior[92]. Also, with regard to the study of "technology acceptance behaviour", TAM mainly offers a basic framework so as to explain the influence of external variables towards behavioural idea[89]. Technology Acceptance Model (TAM) was initially developed by Davis to provide an explanation of the determinants of computer acceptance. In general it is capable of explaining user behaviour across a broad range of end-user computing technologies and user populations theoretically justified [89]. TAM is based on the following core concepts: • Perceived usefulness, which has been defined as a user's

subjective perception of the ability of a computer to increase job performance when completing a task, and • Perceived ease-of-use, which is a person's subjective perception of the effortlessness of a computer system, which affects the perceived usefulness thus having an indirect effect on a user's technology acceptance. The Unified Theory of Acceptance and Use of Technology (UTAUT) model was developed to consolidate previous TAM related studies[91]. The UTAUT aims to explain user intentions to use an IS and subsequent usage behaviour. The theory holds that four key constructs (performance expectancy, effort expectancy, social influence, and facilitating conditions) are direct determinants of usage intention and behaviour[91]. Gender, age, experience, and voluntariness of use are posited to mediate the impact of the four key constructs on usage intention and behavior[91]. The theory was developed through a review and consolidation of the constructs of [eight] models that earlier research had employed to explain IS usage behaviour.

The eight models are Technology Acceptance Model (TAM) [89,93]. Innovation Diffusion Theory (IDT) [94,] the Theory of Reasoned Action (TRA) [95], the Motivation Model (MM)[93], the Theory of Planned Behaviour (TPB)[96]; the Combined TAM and TPB [97]; the Model of PC Utilization (MPCU) [98,99]; and Social Cognitive Theory [8993,94,95,93,96,97.98,99,100], [101,102]. Subsequent validation of UTAUT in a longitudinal study found it to account for 70% of the variance in usage intention[103]. Thus making the UTAUT model a broad, robust and powerful model in information System (IS) adoption. Effort expectancy Actual System use Effort expectancy is defined as the degree of ease associated with the use of e-commerce.

This factor refers to the perceived amount of effort that the user needs to put to learn and operate e-commerce. Effort expectancy has been adopted from the UTAUT model[103,89,101,104,105,106,107,109]. Social influence Factors of Unified Theory of Acceptance and use of Technology (UTAUT) Performance expectancy Performance expectancy is defined as the "degree to which an individual believes that using e-commerce will help him or her attain gains in job performance"[103]. Many users of electronic think that the new system is troublesome and is not helping individuals to improve their performance. Performance expectancy is adapted from the UTAUT model [103,89,101,104, 105,106, 108, 109, 110]. This factor is defined as the degree to which an individual perceives that important others (such as bosses, peers, subordinate, etc.) believe that he or she should use e commerce. Social influence construct has been used in UTAUT model[103,111, 96,112, 113, 114, 115, 116,117,118, 109, 110,] and model of PC utilization. Facilitating conditions This is a provision of support for users in terms of computer hardware and software necessary to work on e commerce, e-commerce compatibility with the other systems and the users who are using e-commerce is also covered. The "facilitating condition" variable has been used in UTAUT model [91] and model of PC utilization[98,106,119,120, 121, 109, 110].

Nigerian Factors Used to Modify UTAUT Model Cultural/Language Factor, as there are currently more than 250 ethnic tribes in present-day Nigeria. The three largest and most dominant ethnic groups are the Hausa, Yoruba, and Igbo. English is the official language of Nigeria used in all government interactions and in state-run schools. English is the only language common to most people[122]. The dominant indigenous languages of Nigeria are Hausa, Yoruba and Igbo. Pidgin, a mix of African languages and English, also is common throughout southern Nigeria[122]. Control Factors of the UTAUT Model Four

moderating or control factors—gender, age, experience, and voluntariness of use were discussed in UTAUT [91]. Going by gender generally, previous studies confirmed that women are more driven by ease of use and subjective norms while men are more driven by usefulness. Age Basically, old users refer to subjective norms more than young users, and are more likely to be driven by ease of use. Young users, however, are more "realistic." Actually, age is considered to moderate almost all the relationships within UTAUT [91].

The constructs of user acceptance models are different between young and old users considering the influence of age. Experience Effort is expected to be more important in the early stages of new behaviour. Generally, research has shown that experienced users are driven by usefulness and inexperience users are more likely to pay attention to ease of use. Moreover, after obtaining some experience with the technology, users will turn to explore the benefits of it. Voluntariness of Use Few researchers explore the voluntariness of use. [91]Venkatesh and his colleagues proposed the moderating effect of voluntariness in TAM2 and UTAUT [91]. This factor deals with the degree to which use of the system is perceived as being voluntary and the users are encouraged to use the system in a non-mandatory environment. Originally this construct was used in innovation diffusion theory [123]. Subsequently, this construct was used as a moderating factor for the social influence and behaviour intention[91].

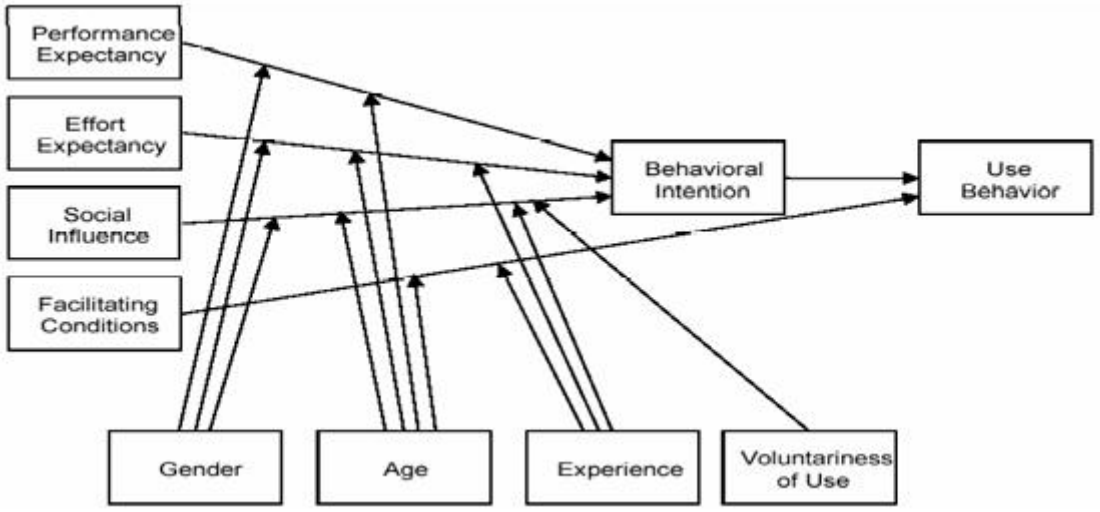


Figure 2.3. Unified Theory of Acceptance and Use of Technology (UTAUT) Model

Relevance of Unified Theory of Acceptance and Use of Technology (UTAUT)

UTAUT theory is a broad, robust and powerful model in information system (IS) adoption, which was developed through a review and consolidation of the constructs of eight models that earlier research had employed to explain information system`s usage behaviour. The eight models are Technology Acceptance Model (TAM), Innovation Diffusion Theory (IDT), the Theory of Reasoned Action (TRA), the Motivation Model (MM), the Theory of Planned Behaviour (TBP), the Combined TAM and TPB, the Model of PC Utilization (MPCU), and Social Cognitive Theory. UTAUT is underpinned by Effort expectancy which is defined as the degree of ease associated with the usage of the library technological devices. This factor refers to the amount of effort that the physically challenged student's user needs to put to learn and operate library adapted technologies. Performance expectancy is defined as the degree to which the physically challenged students believe that using the library technological devices will help him/ her attain

gains in job performance. Many users of library new technology devices is troublesome and is not helping individuals to improve their performance.

As regards the Social Influence construct, the theory also theorises that the level that the physically challenged student senses that the person who is important to him/her thinks that he/she should use the new system, this could be considered as the societies expectation from the physically challenged to be able to manipulate the new library adapted technological devices. The relevance of the theory is also evident in its ability to address Facilitating Conditions which is the level of support that the physically challenged students received from the organizational and technical relevant equipment towards system use, such as training, manual, hands-on and others. It has to do with promoting condition, and compatibility, this unarguably places more responsibilities on libraries and library personnel to ensure efforts are geared towards continuous provision of relevant technologies, trainings and awareness creation.

2.2.4 Digital Competence Framework for Citizens. (DigCom 2.2)[125]

Digital competence is one of the Key Competences for Lifelong Learning. It was first defined in 2006, and after an update of the Council Recommendation in 2018, it reads as follows: "Digital competence involves the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), safety (including digital well-being and competences related to cybersecurity), intellectual property related questions, problem solving and critical thinking." [124]

Digital skills for work and for life are at the top of the European Policy Agenda. The EU digital skills strategy and related policy initiatives have the objective of enhancing digital skills and competences for the digital transformation. The European Skills Agenda, of 1 July 2020, supports digital skills for all, including by supporting the objectives of the Digital Education Action Plan, which has the objectives of i) enhancing digital skills and competences for the digital transformation while ii) fostering the development of a high-performing digital education system. The Digital Compass and the European Pillar of Social Rights Action Plan set the ambitious policy targets of reaching a minimum of 80% of the population with basic digital skills and having 20 million ICT specialists by 2030

The Digital Competence Framework for Citizens, also known as DigComp, provides a common language to identify and describe the key areas of digital competence. It is an EU-wide tool to improve citizens' digital competence, help policy-makers formulate policies that support digital competence building, and plan education and training initiatives to improve the digital competence of specific target groups. This report presents version 2.2 of the Digital Competence Framework for Citizens. It consists of an update of the examples of knowledge, skills and attitudes. Additional ly, the publication also brings together the key reference documents on DigComp to support its implementation.

The competences are a combination of knowledge, skills and attitudes, in other words, they are composed of concepts and facts (i.e. knowledge), descriptions of skills (e.g. the ability to carry out processes) and attitudes (e.g. a disposition, a mindset to act). Key competences are developed throughout life. The work on operationalising digital

competence following the 2006 Council Recommendation, started in 2010. In 2013, the first DigComp reference framework came out defining digital competence as a combination of 21 competences grouped in five main areas. Since 2016, the five areas are Information and data literacy; Communication and collaboration; Digital content creation; Safety; and Problem solving. Reference frameworks such as the DigComp frame work create an agreed vision of what is needed in terms of competences to overcome the challenges that arise from digitisation in almost all aspects of modern lives. Their aim is to create a common understanding using an agreed vocabulary which can then be consistently applied in all tasks from policy formulation and target setting to instructional planning, assessment and monitoring. Ultimately, it is up to the users, institutions, intermediaries or initiative developers to adapt the reference framework to their needs when tailoring interventions (e.g. curriculum development) to fit the specific needs of target groups.

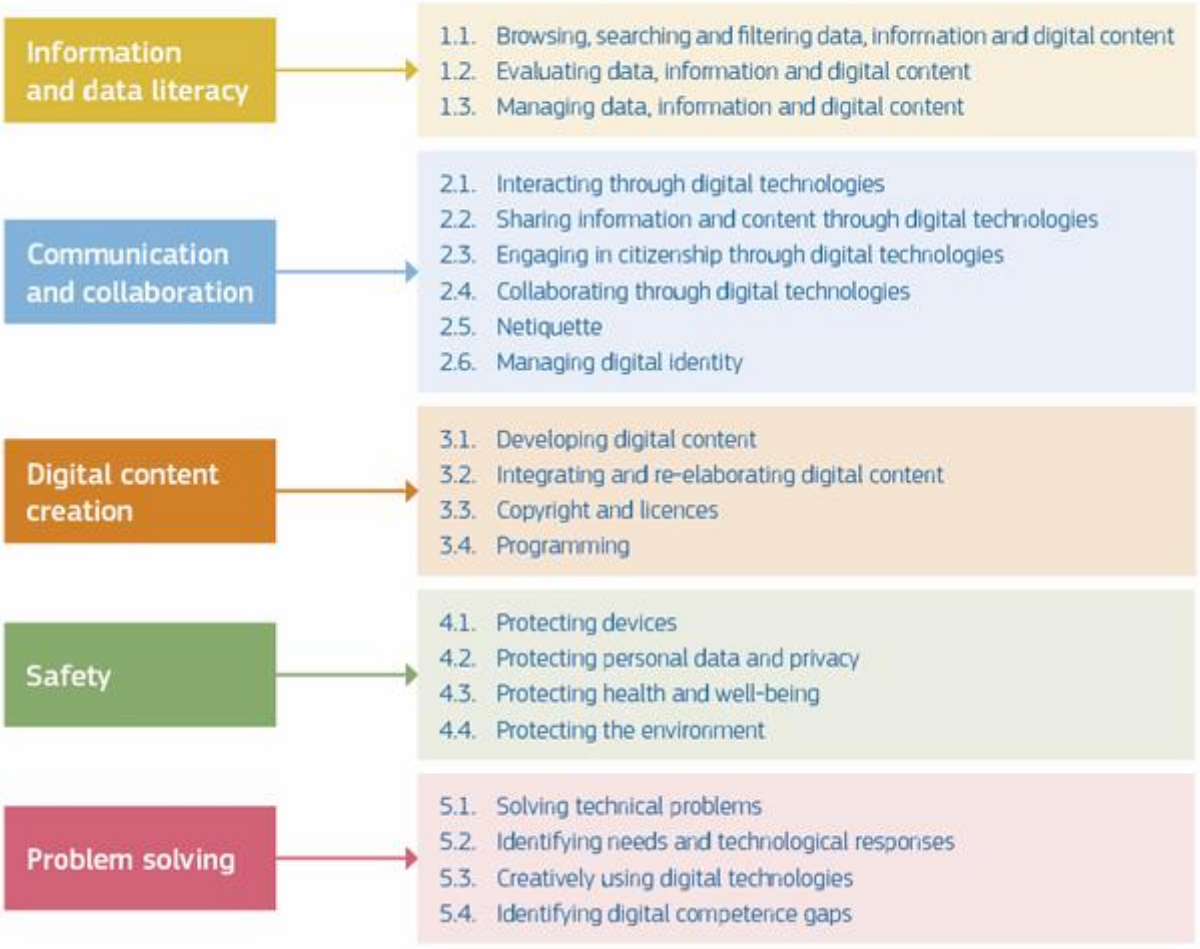


Fig. 2.4 The DigComp Conceptual Reference Model

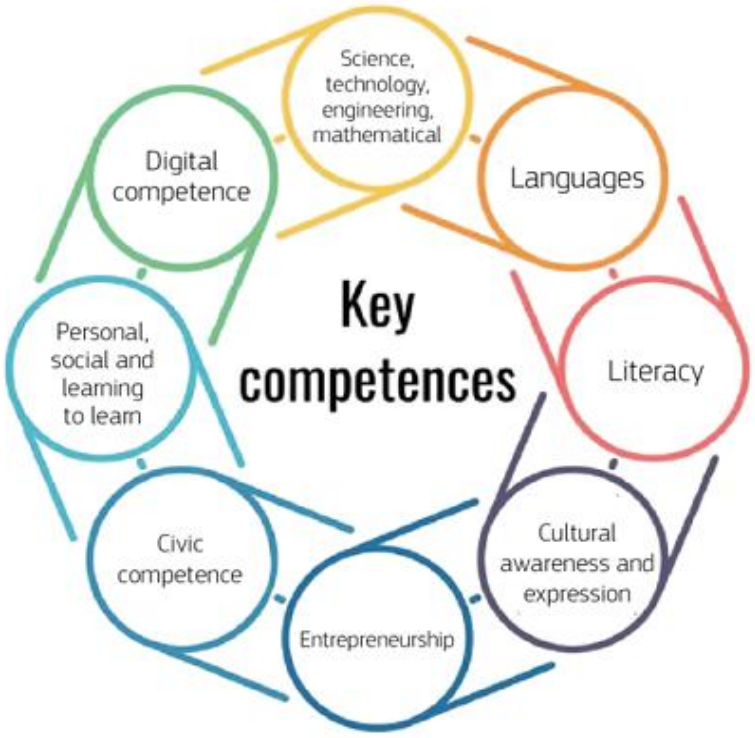


Fig. 2.5. Key Competencies (Digcomp Reference Model) [125]

Therefore, In DigComp, 5 competence areas outline what the digital competence entails. They are the following: Information and data literacy; Communication and collaboration; Digital content creation; Safety; and Problem solving. The first 3 areas deal with competences that can be traced back to specific activities and uses. On the other hand, areas 4 and 5 (Safety and Problem solving) are "transversal" as they apply to any type of activity carried out through digital means. Elements of Problem solving, in particular, are present in all competences, but a specific area was defined to highlight the importance of this aspect for the appropriation of technology and digital practices

Information and Data Literacy: to articulate information needs, to locate and retrieve digital data, information and content. To judge the relevance of its source and its content, to store, manage and organize digital data, information and content

Communication and collaboration: to interact, communicate and collaborate through digital technology while being aware of cultural and generational diversity to participate in society through public and private digital services and participatory citizenship. To manage ones digital presence, identity and reputation

Digital Content Creation: To create and edit digital content, to improve and integrate information and content into an existing body of knowledge why understanding how copyright and licenses are to be applied, and to know how to give understanding instruction for a computer system

Safety: to protect devices, content, personal data and privacy in digital environments, to protect physical and psychological health and to be aware to be aware of digital technologies for social well-being and social inclusion. Also to be aware of environmental impacts of digital technologies and their use

Problem Solving: To identify needs and problems and to resolve conceptual problems and problem situations in digital environments, to use digital tools to innovate processes and products and to keep up-to-date with digital evolution.

Fig. 2.6. Digital Competence Framework for Citizen (DigComp 2.2). [125]

Relevance of Digital Framework for Citizen (DigComp 2.2)

DigComp 2.2 theorises that digital competence is one of the key competences for lifelong learning which involves the confident, critical and responsible use of, and engagement with, digital technology for learning, at work, and for participation in society. It includes information and data literacy, digital content creation (including programming), safety (including well-being and competences related to cybersecurity), intellectual property related questions, problem solving and critical thinking. DigComp places more

expectation on librarians who are involved in the processes of information provision to the physically challenged students to be digital literate and ensure a level of competencies such that they will be able to provide effective service delivery to the physically challenged students. The expected digital competences are a combination of knowledge, skills and attitudes; they are composed of concepts and facts, description of skills, and attitudes, i.e the combination of meaningful disposition or mind set to act, of which the key competences are developed throughout life. It is a combination of 21 key competences groped in five main areas which are information and data literacy, communication and collaboration, Digital content creation, safety, and Problem solving. DigCompcenters on the ability of librarians to effectively use digital technologies to access, evaluate and create information. It involves having the skills and knowledge to navigate and utilize digital tools, platforms, and resources to achieve personal and professional goals.

2.3 Review of Empirical Studies

2.3.1 Inclusive Library and User Satisfaction

Customer Satisfaction is a feeling of pleasure or disappointment of someone who appears after comparing the performance (results) of the product thought against the expected performance results[126]. The dimension or indicator of Customer Satisfaction is if the performance is below the expectations of eating dissatisfied customers, if the performance meets expectations then the customer is satisfied, if the performance exceeds expectations then the customer is very satisfied or happy[84.] Customer Satisfaction is an attitude that is decided based on the experience obtained. Satisfaction is an

assessment of the characteristics or privileges of a product or service, or the product itself that provides a level of consumer pleasure with regard to meeting consumer consumption needs. Dimensions or indicators of Customer Satisfaction can be created through quality, service, and value. The key to generating customer loyalty is to provide high customer value.

Customer Satisfaction is the customer's response to the evaluation of perception of differences in initial expectations prior to purchase (or other performance standards) and the actual performance of the product as perceived after wearing or consuming the product in question. Customer Satisfaction has been researched a lot by previous researchers including Customer Satisfaction affects the Level of Complaints, where the dimensions or indicators of Customer Satisfaction such as ease, price, product quality, service quality affect the dimensions or indicators of complaint level. To assess the Level of Complaints by paying attention to Customer Satisfaction, what must be done by management is to improve the ability of personnel with training or training in the implementation of customer service in the future. Customer Satisfaction affects the Level of Complaints, if Customer Satisfaction is well perceived by customers / consumers then this will be able to reduce the Level of Complaints, also customer Satisfaction affects the Level of Complaints

The scholar has attempted to review literature on library user satisfaction and measure library service quality with a focus on different areas in India and global level. The scholar investigates various topics related to this work to have complete knowledge on the area and the works of other in the related areas are as follows:It was shown by a study

in Punjab university library and found that library users are contented with library resources and services but they want more training in the use of online resources[127]. When factors influencing user satisfaction in information retrieval were studied and investigated [86]; it is evident from this study that user satisfaction is a subjective variable, which can be influenced by several factors such as system effectiveness, user effectiveness, user effort and user characteristics and expectations. Therefore, information retrieval evaluator should consider all these factors in obtaining user satisfaction and in using it as a criterion of user effectiveness. The relationship between service quality and user's satisfaction was examined at Redeemers University and how user surveys have been employed in a number of previously published literatures was investigated[128]. A questionnaire was used as a data collection instrument for the study. The study revealed that the academic staff and students who formed the population for the study, students were found most frequently used the library. The college of management sciences had the highest frequency of use and it also showed that users were satisfied with the resources and services of the library.

Identification was made of how task effectiveness, completion, efficiency and task time effect the general user satisfaction with a specific software product and which factors, mentioned above, have the biggest effect on user satisfaction[129]. Explanation was made on how to put strategies for archival institutions in order to provide user satisfaction in archival organization by conducting the interview with by 60 users of the ottoman archives in order to determine the satisfaction norms of the archives users.[130]. The satisfaction of users with the services of Punjab Institute of Cardiology Library was evaluated [130], a purposive sample of 15 health care professionals was selected for

collection of data. The data were qualitatively analyzed using a thematic approach and revealed that users of PIC library were satisfied with the library collection, organization, and reference and circulation services. They were concerned about library space, hours, furniture and environment and suggested more availability of electronics library services, newer collections, better internet access and comfortable furniture.

The relationship between library customer loyalty and other areas namely service quality and customer satisfaction in a university library service in Indonesia was investigated, and revealed that service quality has a direct effect on customer satisfaction and it directly influences library customer loyalty[131].[131]investigated user's satisfaction on library resources and services and information seeking behaviors of the students and research scholars of Tezpur University and resolved that 82.39% users borrowed text books, 79.87% (127) consulted journals and 75.47% (120) read newspaper to meets their information needs and they also concluded that user's guidance is necessary to help library users to meets their information needs.[130]measured the satisfaction level of researchers regarding to the usage of electronics resources and to assess the frequency and purpose in the use of the different types of electronics resources and also to identify the problems faced by research scholar while using e-resources and concluded that main problem faced by researchers are lack of internet connection, difficult interface design, discomfort with e- reading and lack of guidance from teacher etc.

A survey regarding satisfaction with library services by PG students of school of physical sciences and study was conducted and resolved that users are quite satisfied with library collection and services[131]. User satisfaction with library resources and services in Higher

and Technical Institute, Mizoram (HATIM) was evaluated and resolved that majority of respondents are satisfied with library collection and services of library[132]. In addition, user satisfaction and service quality are both unique variables that need ultimate attention; however, they can be connected significantly, the developers of the SERVQUAL model for measuring service quality are of the view that customer satisfaction is the precursor to service quality. When the quality of service and satisfaction was studied in Malaysian university libraries and they established that the five dimensions of service quality proposed have a significant effect on users' satisfaction[132]. User satisfaction can therefore be summed up briefly as the satisfaction users obtain from utilizing the library's range of information resources and services to accomplish their everyday needs. This means that rendering quality services to these users will significantly influence their satisfaction with the services rendered to them. This will therefore increase user's library usage frequency and also attract more users[133]. It is therefore important to evaluate user satisfaction with academic library services from the student's viewpoint to determine if their needs are being met and also if the library services need improvements.

Accordingly,when an evaluation study was conducted on user satisfaction with library services and resources at the Medunsa campus of the University of Limpopo[134,] the study used a questionnaire to solicit data from students, academic staff, and administrative staff in the university. Their study discovered that users do make significant use of the library, its services and resources. Specifically, more users are satisfied with the information supplied by the library staff, the majority also indicated their satisfaction with the availability of staff, and the majority of the respondents indicated that they are satisfied with the help they receive from the library staff. However, the user gave

recommendations on improving some services to meet the current information age even though they are satisfied. Some of these services included journal collection, photocopy machines, improvement of the internet service, an increase of library hours, and improvement of the services from library staff. Therefore, regular surveys and orientations should be conducted to ensure that users are always satisfied with academic library services and resources. The study tries to solicit data to determine satisfaction levels of the international students, the heterogeneous group of library users. This is because this particular group also uses academic libraries hugely and is among the majority users of the academic library services.

Furthermore, users of the College of Health Sciences Library at the Niger Delta University in Nigeria are satisfied with the library information resources and services rendered to them. Their study adopted the survey research design and a self-designed questionnaire was used to collect data through the random sampling technique.

The outcomes of their study showed that users were satisfied with the book borrowing services of the library, the quick library material renewal process, and better and long hours of online activities in the library. It also found that users were dissatisfied with the limited reference contents discussed in various topics, both national and international journals because they were outdated. They recommended that the library should improve on the bindery services section, computer literacy skill for users, electronic information services and photocopying services, these are avenues which the library can use in generating internal funds to develop its resources and services to users and the need to train library staff to improve on the library services rendered to library users.

Also, a study on user satisfaction with academic libraries services at the Redeemer's University based on academic staff and students' perspectives. She adopted the survey research method for the study and developed a questionnaire to elicit data from academic staff and students. The study concluded that users of Redeemer's University library were satisfied with the library services; however, there is need for improvement in the services provided by the library. She recommended that students should be sensitized to the importance and type of materials in the library during library orientation and how they can use the materials for assignment and research work. Also, the management of Redeemer's University library should endeavour to seek the opinion of users as to how the library services could further be improved and seek an audience with the academic staff on what the library should provide. The study rather considers the opinions, views, and perspectives of the international students who use academic libraries on how satisfied they are and how they rate the quality of the overall library service rendered to them.

Furthermore, in a study on user's satisfaction with India's seven IIT Libraries resources and services, they adopted the survey research method for their study. They found and inferred that most users of different IITs are satisfied with diverse library services such as lending of books, internet service, reference service, journals/periodicals circulations, E-journals, and online database services, and reservation service. However, they suggested that regular feedback from the faculty and students will also go a long way in improving the library services and their satisfaction can be met effectively. The study also tries to find out whether international students who use the academic library are satisfied with diverse academic library services such as how library staffers treat them and how the library supports them in their learning and research works.

Moreover, customer perceptions of service quality, as well as satisfaction and loyalty towards Indian private healthcare were studied. They examined how service quality perceptions and customer satisfaction with services result in their loyalty towards service providers in the healthcare industry. Using a questionnaire survey to collect data from five Indian private hospitals, descriptive statistics, factor analysis, regression, and correlation statistics were employed to analyze customer perceived service quality and how it leads to loyalty towards service providers. The outcomes of their study revealed that there is a positive relationship between the service provider and the customer, quality facilities, and the interaction with supporting staff, and customer satisfaction. They concluded that the findings of the study will assist healthcare managers to formulate effective strategies to ensure a better quality of services to the customers. The study helps healthcare managers to build customer loyalty towards healthcare services, thereby attracting and gaining more customers. The study also employed the survey research method and tried to determine whether international students who use the academic library are satisfied with services rendered to them.

In the same vein, Research about inclusive education is extensive and complex. Inclusive education focuses on students with disabilities and every student; it also focuses on educational policies and organisations. Researchers have used different theoretical approaches and methods to explore and act. Because of the size of the field and the complexity of the concept, the research branches out in several directions. However, articles published in the field often present the political ideas contained in the Salamanca statement.

Researching inclusive education is important since it focuses on social justice and democracy [94]. The Salamanca statement, which was signed by 92 member nations and 25 international organisations, places the responsibility for inclusive education onto governments and their educational organisations. The main goal of related policies is to counteract discrimination and exclusion that target diversity[135]. However, the idea of inclusion refers not only to diversity in the form of ability: it also refers to other differences such as gender and cultural background or the ways that schools structure and addresses these differences[136]. Because the concept has political implications, theoretical frameworks that deal with understanding the concept of inclusive education often refer to UNESCO or local policies.

Since the concept of inclusion is outlined according to a normative, political idea of democracy and justice, it is not surprising that the idea of inclusive education in research is hard to grasp. The concept is complex, broad, and ambiguous [136,] therefore, it is challenging to study and to construct. Researchers' understandings of the key concepts and definitions that relate to inclusive education differ between scholars and countries[137]. Different definitions and complex perspectives affect the research on the topic, as well as the possibility of achieving inclusive education in practice[138]. A vast array of interests is attached to the idea of inclusive education, and definitions of the concept differ around the world. Therefore, inclusive education is subjected to multiple definitions that problematise at least cross-national research on it [135]. However, several reviews of the field have contributed to the overview of the different approaches.

When studying inclusive education, scholars have differed on the study objective. Some researchers have incorporated all forms of student diversity in their definitions of inclusive education and others have referred to curricula, teaching and learning in their definitions[139]. Other researchers have defined inclusion as relating to educational leadership[140]. The concept varies from framing inclusion as relating to disabilities and special educational needs, to framing inclusion as a normative principle in society [141]. Differences in implementing inclusive education involve ideas about how education should be organised. Therefore, politicians, researchers and practitioners perceive inclusive education differently concerning what schools can and should do to help inclusive education succeed[142]

Basically, Inclusion is associated with diversity[143], equity[144] equality[145], [146]citizenship and the universal right to sufficient and adapted education[147]. In pedagogy and special pedagogy, the concept has been defined as a student's belonging to a professional, social and cultural community, and inclusion also concerns participation quality, democratisation, and dividends in education.[147]

The degree of inclusion has also been discussed, four elements were identified and described as the degrees of inclusion: increasing the community, increasing participation, increasing democratisation, and increasing dividends. Inclusion has also been described as a program that helps schools adapt to the diversity of children. Children should be placed, received, or allowed to participate in a regular school setting, and the school, as much as possible, should realise the whole set of its objectives for all groups of students. One could hardly talk about inclusion if this is not the claim[148,149].

In their mapping of research on inclusive education after 1994, four schools of research were defined [135]: systems and structures, special education, accessibility and participation, and critical research. In their review, they found a progressive and steady increase in publications on inclusive education that began in 2004 and continues today. Their analysis defined various themes, including higher education settings and issues related to accessibility, teachers' education and attitudes about inclusive education, inclusion in teaching, collaboration and professional development, and practices and principles for inclusive schools and classrooms. In a thematic analysis of 26 reviews, five main themes were discovered [135]: attitudes towards inclusive education, teachers' professional development regarding the issue, inclusive educational practices, student participation and critical reflections on inclusive educational research

The main goal of the educational system is to function as an integrational institution in society, and inclusive education is often seen as the way to reach this goal. In some cases, inclusion and integration are difficult to separate. Based on what has been written about inclusion and integration in Europe, it was suggested that the two concepts could and should be separated because they have different focuses[150]. When the concept of integration first came up in the 1960s and 1970s, researchers linked it to processes at the systemic level and reforms concerning all students' right to education, including education in local schools for children with disabilities[151,] and the integration between special education and the regular school system[152]. In comparison to integration, [it] was argued that the concept of inclusion is considerably broader[152]. The alternative term 'inclusion' was introduced to describe the quality of teaching offered to students with special needs in integrated contexts and to describe what teaching that includes all

students with diverse needs should look like. The term ‘inclusion’ was further developed to include good praxis that includes every student.

The content of the term ‘inclusion’ must capture a wide range of school objectives [153]. However, practical research on inclusion is as much about counteracting exclusion as it is about creating the right conditions for inclusion and equal learning opportunities[153]. Working with inclusion is not about creating inclusion for special groups: the goal is to transform the school into a long-term democratisation project that provides all children with good educations and reduces all forms of exclusion [153]. Moreover, there is a gap between inclusion as rhetoric and praxis: ‘Uncertainty in the content of meaning is reflected in the relationship between ideal and practice. Diversity and inclusion are celebrated in the political rhetoric, but there are few concrete instructions on what it should mean in practice

Inclusion primarily respects the human rights, and that every school has to enrol every child with disabilities in inclusive classrooms. Education institutions are mandated to provide education in accordance with the 2007 Constitution of the Kingdom of Thailand, by which persons with disabilities are entitled to and supported by the government to receive education equally to others. Education provision thus now provides children with special need with opportunities to learn with their normal peers, upon their rights and equity in inclusive education. Education for all needs an entire change of school system in which school leaders are major contributors with their leadership role to create supportive atmosphere for children with special need to learn in inclusive setting. Successful inclusion requires active cooperation among all concerns including teachers,

students, parents, and the community. It is thus a hard and challenging work for education leaders and staff[133]

Inclusion has now been accepted by countries worldwide in line with the Universal declaration of the Rights of Child. The UNESCO emphasized that schools are to provide inclusive education for all children including both the disabled and the normal without discrimination. Inclusion has increasingly gained attention internationally, and a number of schools and classrooms are under instructional transformation to become inclusive regardless of differences in learning, ability, and level of impairment "…Since disability is only one among diverse characteristics of human occurred in every society…" , supporting education rights for all children is thus the basic rights and it is the right of every single child to be treated in respect of human dignity [133].

The current definition of inclusion has been adopted from collective meetings with mutual agreement so called the World Declaration on Education for All Children. Every child is entitled to education without distinction and that education is provided to children in absence of discrimination. Children are legally protected to access education irrespective to impairment, religion, language, gender, ability, and other reasons. Inclusion was referred to as the provision of education on the basis of human rights underlying education management. It was initiated in the international conference on human rights following the Universal Declaration of Human Rights in 1948 with a significant statement "…Every single child shall have the rights to equal education and shall acquire school education for as high as possible based on their potential and capacity[143].

Education should enable children to use and improve their capability and potential. Children should be taught to live their life peacefully, preserve environment, and respect the rights of others…" Apart from being provided by taking into account the human rights and legal provision, inclusion is also defined in terms of practical guides for schools. [57] defined inclusion as education provided by schools for all children regardless of their impairment, economic, social and cultural backgrounds. Schools seek means to facilitate children learning together and sharing learning benefits. Similarly, It was stated that inclusion in school setting is to provide education for all as it is a place participated by everyone, accepted and supported by peers and staff as well as the community, in response to the need for student development. Hence, inclusive management takes into account education that allows every child to learn together, to be recognized and provided with equal education opportunities[154]

In the past, education management system originally lied on one form - regular education, excluding children with disabilities and special need from normal schools. Disability-specific schools were later established under special education program. After a period of time, a group of special children had demonstrated substantial development, it is thus considered to relocate this group in normal schools under the mainstreaming education management. It is convinced that this type of service at least offers them with opportunities to interact with their normal peers in normal system. Inclusion was then introduced to promote social recognition of and familiarity with children with special need and eventually increasingly accepting them.

Transformation toward inclusion focuses on the change of major school system to allow education management for all children. This idea holds that recognizing individual differences should permit better values, consistent with the Whole-school Approaches introduced, noting that there should be school restructuring so that they are capable of educating all children[154]. At a later period there are educators advocating the right to education of all children as a basic right and a human right that every single child is entitled to being treated equally with human dignity, the new trend of education thus emerged called inclusive education.

The important goal of inclusion is that school is a setting where everyone participates and enjoys equal importance. In 2001, the UNESCO defined the following means of implementing inclusive education. 1. Policy Development Some aspect of policy formulation are still up to certain group of authorities bearing no direct responsibilities for children, resulting in poor coverage of education to some groups of children, whereas for most countries, education policy makers are actually their respective Ministry of Education. The planning process for universal education opens for countries to manage education system and reflect on their policies to ensure that all obstacles are overcome and children can enjoy equal rights to education.

Correspondingly, each country had enacted a law to entitle every child to have the rights to education including those with disabilities. Defining policy framework on inclusive education is thus important for moving the inclusion forward, however, might not reach the goal if children are discriminated and inaccessible to equality. Therefore, schools need to assure the quality of inclusive process through the whole-school approach, to

educate all children. Then, Curriculum Development in education system is thought to be a key factor of inclusion. Some countries provide core curriculum without flexibility. Rather, developing curriculum for inclusive schooling is meant to be adjustable by teachers according to particular local context and need of individual child. Also, Teacher training Existing problem is that teachers attach to traditional instructional approach such as directing students to read and transcribe from books though still applicable to the management of education for all.

However, they need to be trained to become mastery in teaching while schools arrange stimulating environment that allows sufficient time for teachers to learn new things as well. This entire school improvement is thus serving as an effective means to facilitate changes for the betterment and in turn enable teachers' self-development to teach students with disabilities. Community Involvement is another important task is that schools need to promote family and community involvement as they are regarded external supportive sources. In some localities, schools may receive support from community members to seek and supply information for child development. To bring about quality in education management for all, it is recommended as practical guidelines that schools establish implementation. The following ways of Schools identify policies and strategies for education management that serve diverse needs of children. The government reinforces in terms of policy, management system, and publicizing the concept. Schools need entire changes most importantly the attitude of leaders and teachers, teaching and learning process, and allowing parents and community involvement.

The Whole-school Approaches that differences acknowledges individual and offers inclusive schooling opportunities for ordinary and special children had been introduced It demands a radical restructuring of schools so that they are inherently capable of educating all students. Guidelines for transforming school toward whole school approach lie on the inclusion assumption that all children learn together at maximum extent regardless of obstacles and difficulties or individual differences. Schools must acknowledge and respond the diverse needs of students including different types and levels of their learning. Quality assurance is in place by means of suitable curriculum, administrative organization, and pedagogical strategies. Community is encouraged to involve in education management. Consistent supports and services are provided corresponding to special needs of inclusive learners. Every child is regarded as a school member and entitled to equality and equitable educational access.

A successful library website is the one that not only provides online information services but also serves as a tool for creating awareness of all available library services, facilities, as well as community resources and programmes for all persons including those with disabilities. With this regard, it is imperative to understand what promotional services/information is provided by libraries on their websites in order to make the libraries inclusive to persons with disabilities. A number of studies conducted in Kenya investigated different aspects of information provision to persons with disabilities in university libraries. The role of librarians in meeting the information needs of students with visual and hearing impairments at the University of Nairobi was examined [129]. Efforts were also made to examine the challenges faced by persons with disabilities while accessing information services in university libraries [83,] in the same vein, the challenges

experienced in accessing electronic information resources by students with visual impairments at Kenyatta University with particular focus on training were equally examined which includes: adaptive technology, and factors affecting information behaviour[128],.

Thestatuses of academic libraries in Kenya with regard to accessibility by persons with disabilities were equally assessed [64]. How Kenyatta University Library met the educational and informational needs of students with visual impairments was investigated[77].Thechallenges that students with disabilities faced while seeking services at Jomo Kenyatta Memorial Library at the University of Nairobi was examined with particular focus on facilities, policy environment, and staff attitude[77]. However, no previous study has investigated how inclusive the library websites are to persons with disabilities. The purpose of this study is to examine the kind of information provided to persons with disabilities

Web accessibility is important to people with disabilities because it allows this group of users to perceive, understand, navigate, and interact with online materials. Improving web accessibility benefits not only people with disabilities but also other groups of people, including elderly users and users who access information on mobile devices[155]. Rules and guidelines have been developed for improving web page accessibility, but these rules might not be directly transferable to other forms of electronic media such as digital textbooks that are in formats such as electronic publication (EPUB) or portable document format (PDF).

There are currently some web accessibility tools available in the market to help people to determine whether a website meets accessibility standards or guidelines. These tools can be helpful in terms of reducing time and effort required to evaluate the websites, but these automated tools can only partially check accessibility. Web accessibility evaluation tools identify possible accessibility errors by evaluating web pages against a set of accessibility standards but expert evaluators must then make the final judgment and determine whether the content can be considered accessible. [155]

For example, current automated web accessibility tools were used to evaluate the accessibility of 50 websites[52]. They used multiple tools to evaluate website designs for compliance to Section 508 standards. Three commercially available tools—Watchfire Bobby, LiftNN for Dreamweaver, and Ramp—were selected because the primary function of these tools was to assist web developers to achieve compliance with web accessibility standards. The results showed that the automated evaluation tools were not reliable. Five of the 50 websites were analyzed twice to examine the intrareliability and all three tools produced different results from the first to second analysis. The discrepancies between the analyses with the same tools were large. This suggests that intrareliability was low for these tools. Also, when different tools were used to 2 evaluate the same website, the number of errors generated from each tool was different. The discrepancies in the results provided by different tools and the low intrareliability showed that the automated tools were not reliable. Molinero and Kohun suggested that skill building for developers rather than automated tools might be more effective in ensuring accessibility for people with disabilities.

Attempts were made to formulate a framework to highlight how well accessibility metrics work and for what purposes they are appropriate[139]. A total of seven metrics were examined for assessment of validity and adequacy for precision and distribution of metric. They found that the Web Accessibility Quantitative Metric, Page Measure, and Web Accessibility Barrier achieved the highest levels of quality. However, since they did not analyze reliability, sensitivity, and validity-in-use, further research is suggested.

Web accessibility on the other hand is the practice of ensuring that websites are barrier-free and accessible to all especially individuals with disabilities. According to the World Wide Web Consortium[155] (W3C), web accessibility "means that websites, tools, and technologies are designed and developed so that persons with disabilities can use them. More specifically they can perceive, understand, navigate, and interact with the web.[156]". The W3C has laid down a set of guidelines to increase accessibility of web content for persons with various types of disabilities in an effort to ensure they can actively participate in society. Moreover, accessible websites improve their life experience.

However, it was pointed out that even though web developers have tried to ensure accessibility of websites as well as developed advanced tools and features for web applications, websites still pose accessibility restrictions to persons with disabilities particularly when accessing online content and web-based resources[147]. Similarly, it was noted that in theory, web is believed to eliminate barriers of communication and understanding but as a matter of fact many websites and tools present many obstacles that hinder many potential users particularly those with disabilities from accessing web

content[157]. This is largely due to the failure of web developers to fully conform to the web standards provided by W3C.

Assertions were made that websites are universally accessible only if they adhere to the guidelines laid down by W3C but if they have some aspects that do not conform to the web standards, then barriers that inhibit access to web content will always present[153]. The most common barriers highlighted include empty links; linked images, missing alternative text; unordered links; absence of cues for reading and navigation sequence; inaccessible document files such as PDFs, Word, and Excel files and more[157]. Persons with disabilities particularly those with visual disabilities use screen readers to access web content. However, research has revealed that they are always restricted by poor web design[82]. This is because many university websites do not comply with W3C guidelines. A study conducted in US tested the website usability by persons with disabilities at the Kraemer Family Library at the University of Colorado Springs[157]. The findings revealed that side bars on each web page were ineffective due to insufficient colour contrast between the text and the background and some links had confusing terminology that required better labelling.

Furthermore, the placement of certain links was inadequate rendering it difficult for the respondents to locate some information. The findings also revealed that navigation bars were not noticeable to some respondents hence they did not use them. It was also revealed that the structure of website had been set on tables which was a big obstacle for the blind respondents as the JAWS screen reader read it in a linear fashion instead of reading it in a vertical fashion thus, rendering the output illogical and difficult to follow.

A study was also conducted in US which examined the experience of eighteen blind library users while using library websites and search tools. The study revealed that many users took long to navigate the library webpage while using the screen reader due to the design of the web page[157].

A study also, in US revealed that websites had inaccessible features. Some of the issues that were highlighted include images that had no alternative text, inaccessible PDFs, CAPTCHA without audio alternative, text embedded on images, text in tables and more[132]. These inaccessible web features rendered the website unusable by people with visual disabilities. Similarly, in another study conducted in South Africa which assessed the accessibility of South African websites to users with visual disabilities revealed that all the websites were of poor quality hence inaccessible[158]. In particular, the web design made excessive use of graphics, animations as well as use of other multimedia without accessible alternatives rendering them unreadable to the screen readers.

With recent developments in technology, libraries have witnessed new types of information and information sources as well as innovative techniques of providing information. This has necessitated libraries to consider marketing as a tool to improve customers' satisfaction. The IFLA Checklist asserts that libraries should provide information about access, services, materials and programs for people with disabilities in alternative formats such as audio tapes and websites among others. Furthermore, it was noted that the library web page should include information on facilities, services, and access as well as emergency plans for persons with disabilities[55].In a study conducted in the US revealed that only five out of the 33 libraries examined mentioned database

availability on the website[138]. They also provided inadequate information that was not supportive to persons with disabilities. A study conducted in Nigeria found that majority of libraries websites did not have a webpage on disability services though a number of them provided access to databases, Wi-Fi, Online Public Access Catalog (OPAC), online reference service as well as online selective dissemination of information (SDI)[159]. However, the study found that the libraries did not have most of the essential assistive technology and devices required to access these resources by persons with disabilities.

A study conducted in Ghana by [127]found that academic libraries did not have assistive technologies. Similarly,[29]in their study conducted in India revealed that the libraries did not provide assistive and adaptive technology such as JAWS software, Braille conversion software, Braille printers, and large monitors for people with low vision.[55]in a study carried out in Zimbabwe revealed that most libraries had no assistive technology to facilitate access of information by persons with visual disabilities. In the context of Kenya, [55]in their studies found that the libraries did not have assistive technology and devices. Information provided on the Library Website for persons with Disabilities. The study sought to know from the students with disabilities and the library personnel the kind of information that was provided on the website for persons with visual and physical disabilities. The students with physical disabilities indicated that the library website contained information on library personnel serving the people with disabilities (50, 54.95%), specialized library materials (48, 52.75%), online instructions for assistive technology (47, 51.65%), links to outside resources (45, 49.45%), and disability services page (43, 47.25%) as presented in Table 1 which highlighted Availability of specialised information on library website – students with physical disabilities

The library personnel on the other hand indicated that the library website contained bibliography of library materials of interest to persons with visual disabilities (95, 71.65%), service instructions for the employees and the policy related to service provision for the people with disabilities (96, 72.18%) each as presented in Table 2 which submitted that The library personnel on the other hand indicated that the library website contained bibliography of library materials of interest to persons with visual disabilities (95, 71.65%), service instructions for the employees and the policy related to service provision for the people with disabilities (96, 72.18%) each as presented in relation to issues of availability of specialised information on library website – Library Personnel

Research also revealed that the interview with University Librarians and the Systems Librarians and the focus ground discussion indicated that the library websites did not have a disability services page. Moreover, the websites did not provide any information designed for persons with disabilities as claimed by the students with physical disabilities and the library personnel. Instead, they pointed out that the websites provided information meant for the general user including mission statement and objectives of the library, electronic resources, institutional repository, news, library rules and regulations, OPAC and more. A scrutiny of the library websites by the researcher confirmed that all the libraries had library websites but the websites did not have disability services page or any information meant for persons with disabilities. A possible explanation of these conflicting findings could be that the library personnel and the students with physical disabilities had no awareness of the exact contents of the library websites.

[45] emphasize the need for libraries to ensure the disability services page, provides information on facilities, services, campus accessibility maps as well as emergency exit plans for persons with disabilities. If the libraries are committed to supporting the universities in achieving their goal of providing quality education to students in order to prepare them to be informed and responsible citizens who can participate and make valuable contribution to the society, then the libraries need to ensure that they have the capacity to serve all their patrons irrespective of their abilities and disabilities. Creating a disability services page within their websites and providing information regarding their disability policy, services, facilities, resources available for people with various types of disabilities and more would go a long way in improving the experience of the people with disabilities using the libraries.

The results from the focus groups discussions also revealed that respondents in two of the libraries in the study were not aware of the existence of the library websites. This can be attributed to poor marketing strategies by the libraries and failure to educate persons with disabilities on the existence of websites as well as the information available on the websites. The implication of this is that some respondents were not able to access and use valuable e-resources and other services that were available through the websites. This also means that the websites were of no use to them. It wasstressed that failure by the libraries to inform individuals with disabilities about the services available to them renders those services meaningless[47]. Moreover, their academic performance would be negatively impacted by lack of access to the services. The IFLA checklist recommends that libraries consult the W3C guidelines on how to make library websites accessible to persons with disabilities[53] point out that persons with visual disabilities in universities

could experience difficulties in their academic endeavour if they were not enabled to access information resources. A third of respondents with visual disabilities who were aware of the websites found them inaccessible and unusable because they were not designed with the interests of persons with disabilities in mind as one of the focus group remarked" "

The website is not accessible to people who cannot see or who have problem with sight. So they do not use it because the website is not yet modified for persons with visual disabilities". Moreover, the websites were considered inadequate because they could only be accessed with assistance from friends who were sometimes not available because they were busy studying and doing assignments as one focus group noted: "

It can be called substandard. It can only be accessed when being assisted by friend, one cannot get information when alone. They are supposed to have someone having sight and the greatest motive of having sight is that somebody can to a greater extent be independent. So there should be a way such that when you access it, at least you can manage it alone without any assistance. Most of the times you approach someone to help they are busy with their work and the disabled have to understand.

[69] in a study at the University of KwaZulu-Natal South Africa found that students with visual disabilities sought help from their friends or classmates to access the OPAC. Such dependence on others to access information could cause people with visual disabilities to lack self-confidence and suffer low academic achievement. The respondents who could access the library websites observed that they faced challenges while navigating around many web pages and some features of the websites were inaccessible using the screen

readers [47]study in India revealed that users with visual disabilities faced challenges related to incompatibility of the web and the screen readers as the latter could not read some information. This was attributed to poor quality of web site design where designers elaborately use graphics, animation and other multimedia without providing accessible alternatives. 45note that most screen readers do not indicate efficiently when new content appears on the website thus hindering people with visual disabilities from fully experiencing the benefits of the dynamic websites. In this regard, [46]recommends a change in the overview and web design so that the websites can be fully accessible by use of assistive technology.

With regard to the level of use and usability of the library websites, respondents with visual disabilities in three libraries said that the use of the library websites was moderate while in two libraries the websites were heavily used. However, respondents in one of the universities when asked if they used the library website claimed that there was no library website apart from the general university website "..no we don't. The school has no website (laugh)…the library itself within the university has no Website. The only Website is the university Website" Moreover, most respondents with visual disabilities felt that the library websites were somehow not usable to them because they did not provide information designed purposely for them but instead, they were designed to provide information to the general reader without disabilities. This coupled with lack of assistive technology and devices to access the available information made them feel excluded from the rest of the student community and as a result, some students opted not to visit the library. The findings of this study suggest that the university libraries had not done well enough to eliminate barriers that hinder persons with disabilities from

accessing information services. This also implies that persons with disabilities are excluded from accessing the most pertinent information that would help them overcome their disabilities.

The Social Model of disability requires institutions to remove all disabling barriers that hinder persons with disabilities from accessing services for it is these barriers that cause marginalization, discrimination and disadvantage for persons with disabilities. What would make the library websites usable for persons with disabilities, is to provide the necessary information tailored to the specific information needs. The IFLA checklist provides that information about access, services, materials including information resources, assistive technology and devices, and programs should be made available through the library's accessible website [46].

One of the challenges encountered by students with disabilities especially those with visual disabilities was lack of awareness. Whereas most of the respondents knew that the library websites existed, a few of them were not aware. Almost half of those who were aware of the existence of the websites did not know that the information resources they required for their academic survival were available through the websites. Confirming this, one of the Systems Librarians notes: "...one of the challenges they might have is that they are not aware that the information they need exists in the library information portal and I have this fear of calling it library website. So it is possible that a student looking for information and he doesn't know that it is available in the library until he gets into contact with the librarian who actually can request on behalf of the student or if the student has enough motivation to ask the member of staff …that do you have the

information?...but usually they ask and sometimes the Library staff search for information and they email to them (students) and they down load the email. But basically, you see most of the information that is posted is supposed to be seen or explored and if somebody is not able to explore then of course you know there is a problem there"

Lack of awareness of what the libraries could offer through the websites affected the level of use of information services by students with visual and physical disabilities as they felt the library could not cater for their information needs and therefore some of them kept off the library. The respondents suggested that the libraries ensure that every student with disabilities is facilitated to attend library orientation immediately they are registered in the university. Many respondents said they missed library orientation because they did not have anyone to take them to the orientation venue. The respondents also recommended thorough marketing of information services as one of the systems librarians suggests:

"..there is need to market the library services so that people with disabilities can gain confidence to visit and use the library because most of them believe the library has nothing to offer" Overall, these results indicate that there may be inadequate marketing of information services by the library to persons with disabilities Marketing of information services helps in promoting the use of available resources as well as improving the image of the library[50]

Another challenge was to do with website design. The respondents stated that some information on the websites could not be accessed due to the design of the websites.

Student with visual disabilities found it very difficult navigating around many pages on the library website. Additionally, information in some formats such as PDFs could not be read using the screen reading technology. It was stressed that a website is considered unusable if it has inaccessible element and therefore websites should be designed in manner that they can be interpreted by the screen reader[52]. The Web Content Accessibility Guidelines 2.1 (WCAG 2.1) provides guidelines to make web content perceivable, operable, and understandable such as providing text alternative where content is of non-text in nature such as images, graphics, objects etcetera; creating content that can be presented in various methods such as providing captions and alternatives for non-text content; providing simple layouts without losing information; using appropriate contrast to enable persons with disabilities to see and hear content and more [44]. University libraries should ensure that their websites are usable to persons with disabilities. Usability has become fundamental factor as far as satisfaction of website users' needs and expectations are concerned [13].

Other challenges included total lack or inadequacy of assistive technology to access the library websites in most of the libraries; internet downtimes; power cuts; and inadequacy of library computers and lack of laptops by many students with disabilities hindered access to the library websites. Moreover, access to e-resources while off campus was impossible to some students with visual and physical disabilities due to credentials and configuration issues as expressed by one of the systems librarians. "One of them (challenges) is to log in especially if one is not within the campus, you need log in credentials which we provide. In the event that one does not have, ..uum..of course they will not be able to access. The reason being almost all the publishers want to be accessed

within the institutions which have subscribed the resources. So we have provided uum…. a software to help students to log in the main campus... the EZ-proxy to help them to access...but again most of them might not know that the facility is there and especially if they do not attend the orientation programmes if there is nobody to bring them to the library. Most of the students have laptops which are not customized and they make use of the Library staff in the ICT to customize the laptops for them or to even trouble shoot when they are not working. That also includes the smart phones. In the event that they are malfunctioning they are not able to access the information, and so they will require intervention of someone from the library that includes network configuration"

The respondents suggested that the libraries should increase internet bandwidth for stable internet connectivity, increase the number of computers designated for persons with disabilities in the library, install power backup, and acquire the needed assistive technology as well assistive devices. The libraries should also ensure that orientation programmes are done in a manner that allows all persons with disabilities to attend. Special orientation sessions for all persons with disabilities was suggested as a way of ensuring that their needs are catered for. According to [19], library orientation improves the efficiency and skills of library patrons with disabilities in locating, accessing and using resources as well as other services in the library.

Accessibility standards are used to help designers and developers to identify and address accessibility issues. The Web Content Accessibility Guidelines (WCAG) 2.0 from the World Wide Web Consortium (W3C) developed standards and guidelines for web accessibility[156]. National standards are also developed based on WCAG, Section 508 of

the U.S. Rehabilitation Act, based on WCAG 1.0 Priority One checkpoints. These standards are also used in Australia, Canada, and many other countries [56].

The WCAG guidelines are helpful for developers as they set standards for web accessibility. However, these guidelines lack an evaluation component and there is no validated evaluation tool to help users and designers to understand why a particular website is or is not accessible. In fact, the W3C recognized the lack of validation on these accessibility guidelines and committed to further research on the topic [61]. eBooks can be beneficial for students because they cost less and are easier to access from various locations compared with printed textbooks. To promote the use of eBooks, legislation was enacted in California that directed the California higher education system (California State University, University of California, and California Community Colleges) to collaborate to achieve "the goal of making higher education in California more affordable by providing faculty and students' access to free and lower-cost instructional materials". This legislation supports students' access to e-textbooks for free and should increase the use of eBooks in the classroom. However, in a review of accessibility evaluation tools, conclutions were made that there were no accessibility tools or guidelines for evaluating the accessibility of eBooks in these formats[69].

Several accessibility evaluation tools are available on the market for people to use for conducting web evaluations, but there has been no real test of the effectiveness of each of these tools (Web Accessibility Initiative[160]. This issue extends to eBooks produced in EPUB and PDF formats. Accessibility evaluations need human expertise to determine whether a book is actually accessible, even with the use of accessibility tools. However,

no guidelines have been developed on how evaluators should evaluate the accessibility of eBooks in various formats [69] also developed a methodology for evaluators to use to determine accessibility of various formats of electronic textbooks.

Checkpoint-by-checkpoint guides are currently not available for all e-textbook formats. A checklist was developed by WAI but it can be applied only to hypertext mark-up language (HTML) formats and it does not have a step-by-step guide on how to use these checkpoints. 4 Some private usability companies such as TECED have their own methodology for evaluating the accessibility of websites and software products, but these methodologies are not available to the general public and cannot be directly applied to e-textbooks [69]

Web accessibility and usability are closely related in their goals, approaches, and guide lines. Although a methodology for evaluating accessibility has not been fully developed or validated, progress has been made for usability evaluations. Checking materials and finding issues against checkpoints are similar to the idea of heuristic evaluations in usability testing [69]. Usability evaluations usually consist of two parts: heuristics evaluations and user testing. Nielsen's heuristics list is one of the most frequently implemented heuristic guidelines for evaluating usability. It is a list of 10 guidelines that experts use to determine whether there are potential issues with a product. The current study used a similar approach by checking accessibility against a list of checkpoints and conducted user testing to collect actual data from user experience.[69]

In 2001, Neilson evaluated accessibility and usability of websites, focusing on users with disabilities. He tested 19 websites in the United States and Japan with 84 users who had

visual or motor impairments. Assistive technologies such as screen magnifiers and screen readers were used, and the results were compared to results for a control group that did not use any assistive technologies. The results showed that the website's current usability was 3 times better for users without disabilities than for users with disabilities. Nielsen stressed the importance of usability and accessibility of content for all groups of users. He also pointed out that, even though HTML is the most accessible format among, it does not provide full access to the content by users with disabilities. The current study took a similar approach by including a control group of users who 5 did not use any assistive technology and a group of users with visual impairment who used screen readers to assist in reading eBook content. Automated accessibility evaluation tools have been shown to be an ineffective way to evaluate the accessibility of web pages. As previous research has suggested, evaluations by experts are still needed to determine the level of accessibility of documents. Evaluations used in usability studies were proposed to be used in accessibility evaluations and the methods showed that it could be transferred from usability to accessibility successfully [61].

In one of the few live tests of users with disabilities, accessibility testing was conducted using usability evaluation and testing techniques[69]. They used the Section 508 standards as the heuristics for testing accessibility and conducted walk-through and user testing. They recruited five participants who fit the following criteria: blind, windows users, intermediate or expert users of Job Access With Speech (JAWS), and experience with business-related software such as Microsoft® Word®. Participants were asked to complete four tasks using JAWS and Microsoft Word, focusing on navigation to the needed data. The researchers found that almost all problems identified from the tests were

either navigation or screen reading problems. However, in previous accessibility tests, they had found that sighted testers had little trouble in finding navigation problems but were less successful in identifying screen reading problems. Both of the problematic areas, navigation and screen reading, were part of the criteria evaluated by the [61]

The tools that were available for evaluating various aspects of eBooks were reviewed by using a SkillsCommons checklist as a guide for the major checkpoints[69]. The 15 SkillsCommons accessibility checkpoints were developed by the California State University and Multimedia Educational Resource for Learning and Online Teaching (MERLOT) program and have been used to evaluate accessibility of electronic text content and media on the web. These checkpoints are based on guidelines for web accessibility and experience from subject matter experts and developers. eBooks were ranked on how accessible they were based on SkillsCommons checkpoints complying with WCAG 2.0. Evaluation methodologies and scoring criteria was developed based on these checkpoints[161]. Methods and metrics used to evaluate and assign accessibility rankings of these books are described in detail below. Two phases were involved in this method: an accessibility tool review and manual development. Phase 1 began with a review of existing tools and methods. Ten students were divided into four groups to evaluate all 15 SkillsCommons checkpoints and tools and methods that could be used for evaluating each checkpoint. All students involved in the project had a human factors background from working in a human factors laboratory. Each group of students evaluated tools on three to four checkpoints and suggested the best tools that could be used for accessibility evaluations.

An environment may be technically accessible, in that it complies with accessibility legislation or makes space for those with disabilities, but that does not guarantee equality. A space or experience can be technically accessible according to a standard and still be unusable, difficult to use or not perceived to be inclusive of those with disabilities. This research takes this understanding of 'technically accessible' in order to examine a set of medium-sized Ontario public library websites. Overall, findings are promising as the websites use person-first language and provide a variety of information of value for those with disabilities. At the same time, there are opportunities for improvement. Keywords public libraries, accessibility, disability, websites Introduction In my work to try to be an ally for those with disabilities, I follow a variety of activists and people with disabilities on Twitter. They have shared many posts showing how inaccessible the world is to them. Accessibility legislation is meant to address this inequity, but it does not guarantee an accessible environment. Legislation does not— and cannot—cover everything. An environment may be technically accessible, in that it complies with accessibility legislation or makes space for those with disabilities, but that does not guarantee equality. A space or experience can be technically accessible according to a standard and still be unusable, difficult to use, or not perceived to be inclusive of those with disabilities[39].

This technical accessibility can come into play in every arena, such as building entrances. This technical accessibility does not make those with disabilities feel welcome[22]. This article takes this understanding of "technically accessible" in order to examine a set of Ontario public library websites. Public library websites are a significant point of contact for the community. As a specific example, my city's library system had just over 2.4 million visits to its physical branches in 2017, while the library's website had over 4

million visits. The library website is an instance of institutional discourse where it acts as an official representative of the library organization. The website acts as a voice for the library in speaking to the community.

2.3.2 Assistive Technology and User Satisfaction

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 fulfil 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[46].

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. Clarifications were made that physically challenged users are the handicapped people who are in one form or the other unable to make effective use of the

library resources[47]. 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. 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 [39]. Some of these disabilities as stated by 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[61].

Academic libraries in carrying out their responsibility of making library collections and services completely accessible to clientele irrespective of race, colour, 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. 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[62].

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; as a "system or support that allows a person with a disability to work around his/her area of challenge"[55]. Similarly, as defined by some authors,it is "a device or a computerbased accommodation that helps an individual with special needs to work around or compensate for a disability and enhancing individual ability"[46],[55].

Lastly, Assistive Technology was defined 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[54]. 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. 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 setting. 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.

Assertions were made 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[42]. It isbelieved that "Assistive technology can supplement compliance to "level the playing field" and bridge the digital divide for students with disabilities"[53].

These technologies can be in several forms; no-technology, low technology, and high-technology. 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 5 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. 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[39]. Libraries have always played a significant role, enabling people to engage with all kinds of information and knowledge resources. Information can be provided to people with disabilities if libraries make necessary arrangements to provide a conducive environment, for maximum utilization.

IFLA, 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[162]. 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. While categorizing ways of improving access and services by libraries for the physically challenged into four main areas, it was itemised that: 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[52]. It was elaborated 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[48].

Observations were made 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[55]. In a related study, 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[41]. 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 it was asserted that the basic technology resources & assistive technologies for any library for users with impairment must include the following[42]: 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, the assistive technologies for impaired users was classified as; Computer technologies, tactile tools, and auditory tools[54]. The importance of assistive

technology to visually impaired students was highlighted by [41] 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 [56].

Recommendations were made for libraries to install different software to meet the varying information needs of visually impaired students[61]. 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). [61]It was insisted upon that voice recognition software irrespective of the brand allows visually impaired students to input data into the computer by voice[61]. Similarly, it was equally found out that Optical Character Recognition (OCR) can scan and read printed texts thereby helping the visually impaired users to read on their own[55].

Research that aimed at developing the English for Disability (EFORD) application on Android-based learning English media for visually impaired users was conducted and it was found out that EFORD is very needful for grammar and speaking English contents[46]. 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. [48] 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,It has been established 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[48].

Ways of improving library services for the impaired users in Nigeria have been pointed out [84]. 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 [84].

2.3.3 Digital Competency and User satisfaction

The ubiquitous role of digital technology in everyday life has seen an increasing interest in the impact of technology on health and wellbeing. Evidence from surveys and systematic reviews strongly suggests that using technology is beneficial for mental and social wellbeing (It has been proposed that these benefits may be obtained via different mechanisms. These include: enabling access to online health resourcesimproving health literacy, i.e. ability to find, understand and use health information; facilitating social interactions (online and offline), providing opportunities for professional development,

and enabling the development of new skills[39]. The majority of studies to date have focused on technology use (i.e. frequency and duration) rather than the wider phenomenon of digital competence. Digital competence is distinct from use of digital technologies and includes skills, knowledge, awareness, attitudes and cognition; when combined, these lead to self-efficacy, Self-efficacy is an individual's belief in their capacity to perform a behaviour (i.e. use technology) to successfully accomplish a task.

Studies of digital competence and psychological wellbeing have been limited with a narrow focus on specific populations. A small number of recent studies have explored the associations between digital competence and wellbeing in educational settings or with older adults. Wang and colleagues found that (survey-assessed) digital competence was associated with reduced burnout in university students; this was due to the indirect effect of digital competence on reducing cognitive load. A study of university students in Poland, Lithuania, Turkey and India also found that digital competence (specifically the social and informational domains) was associated with reduced stress and burnout, in addition to higher psychological wellbeing. A survey of older adults in Korea reported that smartphone use for communication (messaging and social networking) directly and indirectly impacted on life satisfaction, with digital literacy acting as a partial mediator. These findings confirm the importance of differentiating between technology use and digital literacy.

Seasonal variation in physical health outcomes is well established, with excess winter deaths reported in medical journals for the last 150 years. Regarding mental health, a large clinical literature exists on seasonal variations in mood, with a higher incidence of mood and affective disorders in autumn and winter. There is some evidence from the

1970s that self-reported happiness is higher in spring and summer, and more recently experimental wellbeing statistics for the UK have found quarterly variation in reported personal wellbeing. However, the literature on the seasonality of wellbeing is more limited, and little is known about potential modifying and protective factors. If there is an association between digital competence and psychological wellbeing, it is plausible that digital competence may have a protective influence on seasonal related reductions in psychological wellbeing - for example, by enabling social contacts to be maintained during the shorter days of autumn and winter. To date, there is no published literature on the potential protective effects of digital competence on seasonal changes in wellbeing.

Psychological wellbeing is a complex phenomenon influenced by a range of individual (e.g. physical health, financial difficulties), community and place-based factors (e.g. social connections and neighbourhood cohesion). The mental wellbeing of those living in socio-economically disadvantaged and rural areas has been identified as a public health priority. These underserved communities are more likely to face hardship, which may be more pronounced in autumn and winter by increased financial burdens on households. Fuel poverty has a significant negative impact on mental health and is inextricably linked with emotional wellbeing. In addition, physical activity levels tend to be lower in the colder and wetter months, people spend less time outdoors and less time socialising potentially leading to isolation. As people living in socio-economically disadvantaged areas also experience greater challenges in engaging in health- and wellbeing-promoting behaviours, seasonal impacts on wellbeing may be greater for this group. It is therefore important to understand whether seasonal variation in wellbeing exists in these communities, and to explore potential mechanisms to overcome this variation.

Social housing providers are private not-for-profit organisations that provide rental accommodation at around 50–60% of market rates for those who may be excluded from the private market due to health or economic circumstances. The role of social housing providers in the UK has evolved over recent years, extending beyond simply providing accommodation to include supporting social engagement and promoting wellbeing of their residents and communities. Often residing in socio-economically disadvantaged areas and reporting lower quality of life, social housing residents are also a group identified at high risk of digital exclusion. The 2021 to 2022 English Housing Survey reported that the social rented sector accounts for four million households, and that social renters are the least likely tenure to have internet access at home.

Smartline is a collaborative programme of research that explores the opportunities for technology to support social housing residents to live healthier and happier lives in their homes and communities. The Smartline study population resides in a poor, geographically isolated rural and coastal region in Cornwall, Southwest England. Individuals in this social housing community were found to experience both social and digital exclusion; approximately 10% of residents reported feeling lonely and 21% did not have internet access. Identifying modifiable factors that could improve health and wellbeing and combat social and digital exclusion in this population is therefore key. Seeking to understand the role of digital competence (i.e. digital self-efficacy) in maintaining wellbeing in social housing residents throughout the year

2.3.4 Inclusive Library, Assistive Technology, Digital Competency and User Satisfaction

The number of high school graduates as well as admissions in universities is increasing steadily. Also, there is an increase in the number of students with disabilities. Given the urgent need for students with disabilities for the availability of information services, one of the most important sources of knowledge, it is necessary to recognize the extent of the beneficiaries‟ satisfaction of university students with disabilities with the services and office facilities provided therein. Also, it is of importance to know the reality of the central library in terms of the quality of services provided for this category and its suitability to the requirements of students with disabilities. The central library is concerned with providing knowledge to the beneficiaries at the right time, in the right form, and through the right person. It should be taken into account that the role of libraries in the recent period is focused on spreading knowledge through the Internet, and library services are being provided in digital form [66].

With the development of legislation related to the disabled and their application in reality, the number of students with disabilities in universities has increased, in order to achieve their ambition to complete their studies like their non-disabled peers. There are distinguished efforts to improve the quality of services provided to students enrolled in university. The availability of appropriate services provided great opportunities for students to be able to achieve success and academic excellence, which is one of their most important goals [73]. Statistics indicate that the number of university students with disabilities who complete their studies for the academic year 2021/2022 has reached 160 male and female students with physical, health, visual, and hearing disabilities, who are registered in the Special Needs Services Center.

The special requirements of students with disabilities call for the availability of services and facilities without which they may not be able to achieve success at university. University libraries are a cultural and educational means that can contribute to serving students with disabilities by offering library and information services in a special way and capabilities that meet their desired needs according to the students‟ type of disability[3]. The interest in information services and environmental facilities for people with disabilities began in the 1960s by Robert S. Bray. He published a paper in the annual Bulletin of the American Association of Visually Impaired Workers entitled „Library Services for the Blind‟. On the Arab level, Hussein Abdul-Shafi presented a paper entitled „Library Service for the Visually Impaired‟ in 1971. After that, scientific publishing increased in the nineties in the field of library services with new trends with the availability of the Internet and electronic texts for people with disabilities. It is necessary to work on facilitating the flow of office services for people with disabilities in all possible channels and to go beyond their traditional nature and allow the organization of information containers to include all means, software, equipment, and various devices through which it is easy to access the minds of those people.

The first success of the library lies in the continued frequency of beneficiaries. Achieving this requires providing a library specialist and rehabilitating him professionally, socially, culturally, and psychologically in order to benefit students and leave a firm imprint in their souls that pushes them to enter the library frequently again and again . Providing information services for people with disabilities is an assistant and complementary part of their scientific, educational, cultural, and human formation. Hence, it is one of the ways and methods that work to bridge the disability gap and overcome the difficulties and

challenges they face. Therefore, some justifications make the provision of information services and environmental facilities in the university library for people with disabilities an urgent necessity. First, individuals with disabilities have the right to be treated to the same degree and status as other beneficiaries. Second, the principle of equal opportunities is achieved by providing equal access for individuals with disabilities to all information sources and services that benefit others. Third, human resources for individuals with disabilities are developed by upgrading their cultural, educational, and mental capabilities, and then alleviating the impact of disability. Fourth, individuals with disabilities have informational and educational needs, just like those without disabilities. Finally, the principle of total integration of individuals with disabilities is achieved in the university community [30]

The stage of education at the university level for students with disabilities is an important educational stage, especially if the qualifications and capabilities are available to enable them to join this important stage of study. Universities provide services, supports, and facilities per the type and degree of the student`s disability[67]. According to the theoretical literature, the common disabilities in universities are those students with disabilities who can adapt to the university situation, the academic requirements, and their willingness to adapt to the university teaching system including lectures, projects, experiments, and activities. Among the most prominent categories that can be integrated into universities: visual impairment, hearing disability, physical and health disabilities, learning difficulties, hyperactivity and attention deficit, behavioural and emotional disorders, and brain injuries[40].

The visually impaired category is considered one of the most groups that have obtained academic studies and published research concerning information services and environmental facilities in both university and public libraries. The educational literature lacks a comprehensive and inclusive study of all the categories of disability due to the nature of the information needs that is unique to this research. The International Federation of Libraries Archives and Information has explicitly stated the idea of a universal library and access to university library services that include different groups of people with disabilities[163]. It is necessary to provide an appropriate environment and work on removing obstacles that limit the movement of students with disabilities naturally within the library, and not only ramps and elevators as manifestations of environmental facilities for students with disabilities. Also, there should be work on making available specialized units. They provide services and information and training and guidance resources for the optimal use of assistive technology tools and various information containers.

They can be printed materials in Braille, audiobooks, and sources provided with sign language translation and others. This claim is supported by some findings, which emphasized the importance of providing and developing informational services and resources for library visitors with disabilities, each according to the disability to which he belongs in line with their needs from those sources. Especially, services for students with disabilities are not among the priorities of the plans prepared in academic libraries[25]. Given that their low numbers make the administrations in these libraries not pay attention to them and not play the role required to meet their needs for services and information resources.

The problem of the physical location, the building, or the place from which information services originate is what has been known through the ages as the library. It is the place where every educated or formally educated person imagines that he will find a haven, useful information, and specialized books to find various solutions to the problems he may encounter. The problem of the site or the library in its physical sense lies in the material cost needed to design and build a library, no matter how the area or building is small. The material cost exhausts material resources and does not maintain the budget that allows the provision of specialized information services and specialized information according to the needs of the beneficiary [25]

The physical equipment of libraries contributes to social interaction, developing self-confidence, breaking the psychological barrier, and increasing the educational process for ordinary students and people with disabilities. So, the individual can use the library`s automated system without the help of others [25] From this point of view, it is possible to explore the depths of the technological development currently taking place in open information networks and adapt it to serve people with disabilities, especially application software, known as Apps, which is an abbreviation of the word applications [25]. Global attention is currently directed to the use of modern technology including tools and programs in libraries, to increase, enhance, or improve the functional capabilities of individuals [46].

When you look at the technologies, tools, and modern devices that university student with disabilities need and the necessity of providing them on the electronic library website, this facilitates the provision of information services for people with disabilities to

increase learning opportunities and gain independence. Also, there will be an increase in their ability to move, control the environment around them, invest in its capabilities and communicate technology with information technology [46]. The following are the most prominent technologies, tools, devices, and modern programs that suit every disability. Visual Impairment (low vision, partial sightedness and legally blind); General Maps, clear and colored, on bases and stands, with screen, sensors, and speakers showing the features of the library.

Software and Applications: One of the latest technologies in the field of library services for the visually impaired is the digital audiobook, Digital Accessible Information System DAISY. It is in the form of a talking digital book or a written audiobook. It serves people with visual or physical disabilities or learning difficulties[164]. As for the screen reader, it converts electronic files into audio files that the student can hear whenever he wants. Some of the screen readers are the Job Access with Speech (JAWS) program, the HALL program, the Virgo program, and the Ibsar program[165,166167]

Writing processing programs convert written texts into spoken texts with natural human voices, including Natural Rader, Nuance TALKS, and mobile use with ease. The text on the computer screen can be enlarged 16 times the normal size, such as the ZOOM text program, the SUPERNOVA program, and the RUBY program. The Braille display technology displays what is on the screen into characters in Braille, which can be linked with a screen reader. It also acts as a data output unit by translating and outputting the data in the form of matrix dots in Braille. A portable notebook with an electronic line, a Braillenote-M Power device, a laptop computer with an electronic line for the visually

impaired, processes texts written and stored, surfs the Internet and browses e-mail through Braille or listens to it through a loudspeaker, in addition to some other missions.[54]

Braille Printing: it prints any text written and saved in txt or doc. format through special printers that convert text from normal language to Braille. Braille Wave is linked to a computer and displays everything that appears on the screen to convert it into Braille. Also, Braille Sense U2 Mini creates and reads files in different languages. In addition, there are the Arabic and English pronunciation machine and the Pac Mate BX Series device for reading electronic books and using the Internet [48]. Hearing Impairment (Deaf and Hard of Hearing). One of the most important ways to attract the attention of deaf students and their interest in learning to read is the use of multimedia in displaying educational content. For example, Cued Speech Converts written texts from a computer in txt format or doc. E-books to hand with the face drawings to form audio clips, words, and sentences. There are also special instructions for people with hearing disabilities in the form of video clips in sign language and writing the audio explanation in the user's language below the video clip, as well as activating audio files with an auxiliary text that includes the content of the audio file[168].

Hearing Aids-Modulated Vibration Transmitters: They provide the acoustic environment necessary to understand and perceive speech well. For example, the magnetic field tape translates sound into electrical signals, amplifies those signals, passes them by a tape, and sends them to the vicinity of it in the form of electromagnetic energy. Also, the FM device helps to hear sounds clearly and make more use of the hearing aids they use. In

addition, Ultraviolet light is a device that translates sound into electrical signals and transmits them to the receiver in the earpiece worn by the individual through invisible ultraviolet light waves. Physical and Health Disabilities: there are alternative input devices, including Trackball. It is an inverted mouse that the learner rotates the ball directly with the fingers. The joystick is a direct alternative to the mouse and can be held by the mouth.

A Touch screen is a transparent screen that is sensitive to touch, and the student can use the computer and deal with files and lists easily. The Pictured replacement keyboard is designed in the form of modified or adjustable capital letters to be large and clear panels, and the keys for that panel are in the form of large letters. The input panel parts can also be separated to suit the users hand and capabilities. Paper page-turning devices benefit individuals who cannot move their hands completely or partially.

In a study aimed to reveal the reality of information services for people with special needs of students with visual disabilities at King Abdulaziz University in terms of the extent of their usefulness, the quality of their performance, and the development of proposals to improve the quality of the performance of the information services provided to them. The study methodology used was case study, observation, field visit, and interview, and the quality of service performance scale, and the perception/expectations scale were also used. The study methodology used a case study, observation, field visit, and interview. The quality of service performance scale and the perception/expectations scale were also used. The study was applied to 23 students with visual impairment. The results indicated the reluctance of female students to visit the university library.

That 56% of the participants considered the location of the library information services center, the location of the building, and the furniture to be inappropriate[45]. Also in a study aimed at assessing the reality of library services provided to persons with visual disabilities in Jordan, the sample consisted of 32 libraries belonging to public and private universities and public libraries. Through the international standards scale for library services provided to people with visual impairment, the scale consisted of six criteria for 56 indicators. The results of the study indicated that the level of library services was low according to the international standards[53]. A study that aimed at unveiling the role of university libraries in providing information services to people with special needs at the University of Gezira, Sudan was equally presented. The sample was composed of 50 students with visual, motor, and hearing disabilities. The descriptive approach and a questionnaire were used. The results indicated that the structural and technical aspects of libraries at the university were not suitable for people with disabilities. Also, there was a lack in equipment, assistive devices, and information containers to obtain information.

In addition, the librarians have less experience. They are not trained to deal with this category, which, in turn, is reflected on the students by not acquiring the skill of obtaining the library service. There were no special divisions for people with special needs at the University of Gezira. Computers were not modified to suit people with disabilities, and the technologies and equipment were lacking in the university libraries[62]. A study in Armenia on digital services for beneficiaries with disabilities in the National Library was carried out through reviewing the literature and interviewing students with disabilities who have visual, hearing, or movement disabilities and visit the library regularly to benefit from the library`s services[73].

Also, the librarians were interviewed. The phone and Google Talk were to interview the participants. The sample was purposive and consisted of 10 individuals. The results indicated the lack of services and facilities for using the Internet for students with disabilities due to the lack of government support, facilities and assistive technology tools, and the absence of qualified employees. All this leads to the reluctance of students with disabilities to visit the library and causes barriers to access information. In a study aimed to examine the extent of the impact of the Internet, e-mail, and social sites on the educational process and information literacy among students with speech and hearing disorders in Nigerian academic libraries. A questionnaire was administered to the study sample consisting of 33 students in four academic institutes in Nigerian universities: Iyo University, Kalaba, Akwa Ibom State, and Cross River State of Sciences. The results of the study concluded the importance of the Internet, e-mail, and social networking sites in literacy in the cognitive domain of students with speech and hearing disorders in academic libraries assessed the appropriateness and accessibility of library services for people with disabilities at the University of Limpopo in South Africa[66].

The domains of the study included knowing the services provided to students with disabilities, assessing the actual access to the library, the study materials available to students with disabilities, and assessing the appropriateness of library services provided to students with disabilities. The study questionnaire was applied electronically to 92 blind and visually impaired students. It is a list issued by the International Federation of Library Associations and Institutions. In this study, open questions were used as a primary tool for collecting information, and an interview with the person in charge of the

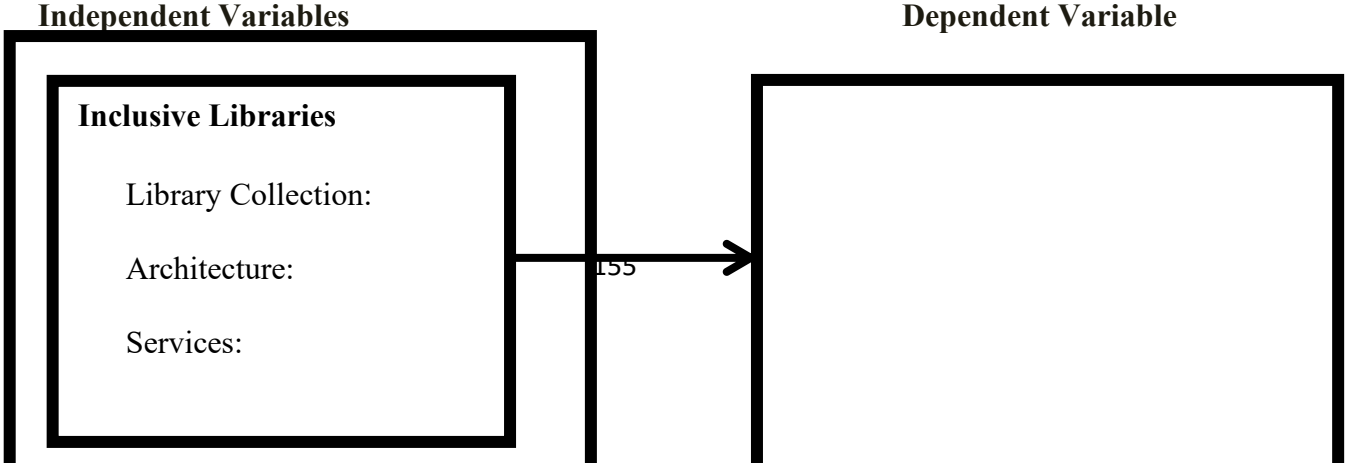
library dealt with the extent to which the buildings, materials and available programs are utilized[66].

It targeted everything related to this regard, whether internally or externally (such as doors that open automatically, stairs and illustrations, and elevator buttons prepared for access by wheelchair users, and rack access). The results of the study showed the ease of use of library services by students with disabilities. 49% of the study sample stated that they had easy access to materials in the library. 16% of the participants indicated their ability to use the library facilities without asking for help from the person in charge in the library compared with 76% who mentioned their need for the help of the administrator in the library. Only 7% indicated that they did not always need the assistance of the person in charge of the library.[27] explored the reality of environmental facilities for students with disabilities for the services of the Hashemite University library, using a questionnaire and interviews. The results showed a high level of access for students with disabilities to library services in terms of human resources, public safety measures, information resources, library building, interior design, and finally, support technology. It also showed that the most categories of disability that the university library targets to provide services to were the visually impaired students, while the least categories of disability targeted by the library services belonged to students with visual disabilities.

The university that has students with disabilities works to provide education and training opportunities for them within the university`s general program. This provides them with education and training in a manner that takes into account their needs and thus creates in themselves the motivation to learn. Therefore, every student, regardless of the degree and

type of his disability, enjoys the support, assistance, and acceptance of the university community[169, 170]. The field of education for people with disabilities has witnessed clear interest and great support, especially in the university education stage. The university student needs educational, medical, social, economic, and service facilities during the study years to help him face environmental problems and challenges. This makes the student with disabilities feel psychologically and financially comfortable, increases his self-confidence, and becomes self-reliant to obtain services that meet his needs related to library and information services. Libraries must facilitate the access of students with disabilities to sources of knowledge that enable them to develop their professional, academic, and cultural capabilities and improve their level of educational performance. They also enable them to integrate into university educational, cultural and social life and become an independent and active member. The educational institution must work to achieve equal opportunities and equality among all students [22]. By looking at the special facilities provided to students with disabilities at Prince Sultan Library at Imam Muhammad bin Saud University, there is a noticeable reluctance by these students to visit the library and make use of its equipment and sources due to the apparent lack of these facilities. To make sure of this, it is necessary to study the reality in order to find out those needs and to inform the decision-makers of the need to provide these facilities, especially which the percentage of disability in any society is close to 10% . The size of disability in the world reaches about 650 million people, according to a finding under the title „Disability Statistics: Facts and Statistics on Disability and Disability Issues" Accordingly, there is an increase in the number of students with disabilities admitted to the university hence the call for commensurate facilities[178]

2.4 Conceptual Model



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Source: Researcher, 2024. Inclusive Libraries, Use of Assistive Technologies, Librarians Digital Competency and User Satisfaction of Physically Challenged Students in Public Higher Institutions, Oyo State, Nigeria

The conceptual framework was adopted from Thomasen's Customer satisfaction model, IFLA Theory of Inclusive Library, Unified Theory of Acceptance and Use of Technology (UTAUT) and Digital Competence Framework for Citizens. (DigCom 2.2) based on the assertion that theories give a strong basis for a study and also serves as a guide or

pathway that guard and guide a researcher from going out of context. Satisfaction plays a crucial role in services delivery. Understanding the factors that influence satisfaction can help the libraries to strategise and adopt policies that can motivate and encourage the library users to keep using the library services and resources for their daily information needs and activities. This research work explores three independent variables; Inclusive library, Use of assistive Technology, librarians digital Competency and their impact on user satisfaction of the physically challenged students.

Inclusive libraries are libraries that are fully structured, planned and positioned with adequate human and material resources to meet the reading needs of people with disabilities. It comprises three dimensions, library collections, architecture and services. Library collection refers to the types of library information resources and usability, that is, availability of relevant accessible collection for the physically challenged students in public higher institutions under consideration. Architecture encompasses physical and social environments that welcome diverse users, regardless of age, ability, culture, or socio-economic status, while Services entails inclusive and accessible programmes, equal access provision, and staff knowledge of equity, diversity and inclusiveness with adaptive technologies for users with disabilities

Assistive Technology enables physically challenged students to live healthy, productive, independent and dignified lives and to participate in education, the labour market and civic life. It comprises five dimensions namely; performance expectancy, effort expectancy, facilitating condition, social influence and behavioural intention. Performance Expectancy has to do with a level that the physically challenged students in

Oyo state believes using the system can improve performance. It is a derivative of perceived usefulness, external motivation, relative advantage, expectancy to the achievement, and, ability to obtain significant rewards after using the system. Effort Expectancy refers to the perceived easiness that the physically challenged thinks of when using the system. It includes consciousness of easy to use, systematic complexity, and operating simplicity, while Facilitating Condition has to do with the level of support that the physically challenged students received from the organizational and technical relevant equipment towards system use, such as training, manual, hands-on and others. It has to with promoting condition, and compatibility. Social influence refers to the level that the physically challenged student senses that the person who is important to him/her thinks that he/she should use the new system, while Behavioural Intention has to do with the degree to which the physically challenged students plan, intend, or expect to use a technology in the future

Digital Competency refers to the ability to effectively use digital technologies to access, evaluate and create information. It involves having the skills and knowledge to navigate and utilize digital tools, platforms, and resources to achieve personal and professional goals. Its dimensions include: Information and data literacy, communication and collaboration, digital content creation, safety, and problem solving. Information and data literacy is the ability to articulate information needs, to locate and retrieve digital data, information and content. To store, manage and organise digital data, information and content needed by the physically challenged students. Communication and Collaboration has to do with the ability to interact, communicate and collaborate through digital technologies while being aware of cultural and generational diversity of the physically

impaired students to participate in society, through public and private digital services and participatory citizenship, to manage ones digital presence, identity and reputation. Digital Content Creation entails the ability to create and edit digital content, to improve and integrate information and contents into an existing body of knowledge while understanding how copyright and licenses are to be applied. To know how to give understandable instruction for a computer system, while Safety is the ability to protect devices, content and personal data and privacy in digital environment, to protect physical and psychological health, and to be aware of digital technologies for social well-being and social inclusion of the physically challenged students, and also, to be aware of the environmental impact of digital technologies and their use, Problem Solving entails the ability to identify needs and problems, and to resolve conceptual problems and problem situations in digital environments, to use digital tools to innovate processes and products and to keep up – to –date with the digital revolution.

User satisfaction can be summed up briefly as the satisfaction the physically challenged students in Oyo state obtain from utilizing the library's range of information resources and services to accomplish their everyday needs. It comprises three dimensions, service quality, brand image, and library support. Service quality encompasses has to do with the level of excellence or superiority of services provided to the physically challenged students. It encompasses various aspects, which include reliability, responsiveness, assurance, empathy and tangibles which has to do with the available physical facilities and equipment in place to impact or enhance user satisfaction. Brand Image is the perception of the physically challenged students about the recognition given to the library, owning to several factors, ranging from word of mouth, that is, the librarians manner of

approach, the way and manner the library attends to issues of information provision for the need of the physically challenged individual and other image enhancing policies or standard, will go a long to either make or mar the image of the library. So also, Library Support encompasses the services rendered by the library to aid users' patronage. Such library support services could be in terms of selective dissemination of information (SDI), current awareness services (CAS) provision or prompt and regular provision of reading list, among others.

2.5 Summary of Gap in Literature Reviewed

The review of literature examined user satisfaction as user satisfaction could as the satisfaction users' derive from the library by using the various types of information resources and services to fulfil their information needs for their various daily activities. User satisfaction was summed up briefly as the satisfaction users obtain from utilizing the

library's range of information resources and services to accomplish their everyday needs. This means that rendering quality services to these users will significantly influence their satisfaction with the services rendered to them. This will therefore increase user's library usage frequency and also attract more users. It is therefore important to evaluate user satisfaction with academic library services from the student's viewpoint to determine if their needs are being met and also if the library services need improvements.

Obviously, any service-providing organization strives to render quality services that will satisfy its customers. Libraries are no exception as they strive always to innovate and deliver better and quality library and information services to their users. Furthermore, academic library services are supposed to satisfy their users' expectations, regardless of their handicapping conditions (students, teachers, faculty workers, librarians, etc.) their learning, teaching, and research needs because without these users utilizing these resources and services, they will be at waste and redundant. Moreover, from the statement above, it is important to note that long-term innovations and improvements of library services will be determined by evaluating users' satisfaction to ascertain the level of satisfaction with library services. Moreover, users' satisfaction should be given its place of priority in the business of information acquisition, processing and dissemination as this is capable of bringing a chain effect of assisting these physically challenged individuals and the entire stakeholders to contribute their quotas towards achieving meaningful development.

The primary and utmost mission of the library is to serve all patrons, regardless of their nature or levels of disabilities. Although, experiences have shown, most especially in the

current generation where there exist some information service providers and their administrators who are of the opinion that their library does not have people with disabilities within their service area, mainly because they do not see special needs category in their library. However, it was revealed in the literature that some of the advanced countries of the world were able to incorporate library services provision for the physically challenged into their core areas of services delivery

The review equally covered inclusive library practices across different divides, as inclusive library was regarded as a library that is fully structured, planned and positioned with adequate human and material resources, including necessary facilities and access provision to meet the reading needs of people with disabilities. This establishes the need for a functional audio-visual unit or sections, not only for the hearing impaired, intellectual disabled, the learning disabled and the host of others with mild or major challenges, and visually impaired but for persons with physical challenge. The literature attested to the fact that Physical disability is a limitation on a person's physical functioning, mobility, dexterity or stamina. Other physical disabilities include impairments which limit other facets of daily living, such as respiratory disorders, blindness, epilepsy and sleep disorders. Physical disabilities include cerebral palsy, stroke, spina bifida, arthritis, spinal cord injury, epilepsy, and muscular dystrophy, including learning disabilities which range from dyslexia, ADHD, dyscalculia, dysgraphia, and dyspraxia. Physical disabilities equally include amputations and loss of limbs, birth defects, cystic fibroses, epilepsy, neural tube defects, maintaining a healthy weight. Therefore, physically handicapped person means a person who is blind, deaf or orthopedically handicapped, a person, who suffers from a permanent and disabling

physical characteristics resulting from disease, injury, functional disorder, or congenital condition.

A physical disability is a condition that substantially limits one or more basic physical activities in life (i.e walking, climbing stairs, reaching, carrying, or lifting). These physical disabilities are highly individualised, the same diagnosis can affect students very differently. The effect of physical/ mobility disabilities can be visible or invisible. They can include the inability to walk and / or use arms, hands, and fingers. Many of this students use wheelchairs, crutches, or canes, these students may also have pain management issues.

The review also examined digital competency as the needed impetus to facilitate service delivery in order to satisfy the library users. Digital competence encompasses a set of attitudes, knowledge, skills, awareness, and values that are of great importance when utilizing disruptive digital technologies and tools in an organization. It involves the confidence and critical use of electronic media for work, leisure, and communication. These competencies are also related to logical and critical thinking, high-level information management skills, and well-developed communication skills. It can also be referred to as the critical usage of digital technologies, having the knowledge, skills awareness, and attitudes needed for the conscious, safe, critical and effective use of digital tools. A wider concept of ICT competence consists of basic ICT skill but also understanding and knowledge of how to use digital device and applications in novel and complex contexts demands in a particular context. It is the ability to use the information

and communication technologies in citizens` daily life from a responsible and critical perspective.

Digital competence could be referred to a set of knowledge, skills and attitudes that allow the safe and efficient use of information and communication technologies (ICT). It is the confident and critical usage of digital technologies for communication, information and basic problem-solving in all aspects of life. A set of knowledge, skills, attitudes and awareness that is required when using ICTs. Also, digital competence could be referred to as the ability to keep abreast with the rapid changes of technology, it includes the related knowledge and skills people need to use ICT in an appropriate way for their own purposes, both personal and professional. Digital competence involves the confident and critical use of electronic media for work, leisure and communication. These competencies are related to logical and critical thinking, high-level information management skills, and well-developed communication skills. It is also known as a set of knowledge, skills and values necessary when utilizing digital technologies. It could as well be referred to a set of capabilities focused on the use of ICTs to obtain, store, organize, present and exchange information together with participation in collaborative networks based on the internet.

Assistive Technology was affirmed as tools with which libraries provide new opportunities for students with disabilities to function more productively in a variety of circumstances as it improves access to information, allowing students with disabilities to independently seek out solutions to meet their own needs. There are thousands of assistive devices available today that can be applied to address a variety of personal needs, for example, users with hearing challenges can make use of various assistive listening

devices, captioning features and text telephone (TTY) or telecommunication devices for the deaf (TDD). Users unable to communicate verbally can make use of portable augmentative and alternative communication (AAC) devices to speak for them. These devices allow customized programming to facilitate communication in multiple environments [171]

The current information age has definitely transformed many library activities and as well brought about an entire new group of greater number of potential patrons in the libraries which are so called people with disabilities. It is becoming obvious that a properly adapted computer workstation can definitely enhance the ability to access information displayed in digital format. In addition, the availability of alternative methods of computer input and output has freed and empowered the disabled population and opened up a new world knowledge and power for them[172]. Computers in libraries are essential tools and assistive technology is the key to use them for the people with disabilities. Assistive technology (AT) involves a device or a computer-based accommodation which helps an individual with special needs to work around or compensate for a disability and enhancing individual ability [173].

Video magnifiers, electronic readers, optical character recognition software, magnification software, speech output systems and electronic Braille devices etc. all provide a solution for a particular individual with disability and these computer related aids and equipment are commonly known as ``assistive `` "adaptive" access" or "enabling" technology. The combination of these technologies can be used by people to enable them to interact and work in the electronic environment. The Assistive

Technology provides various means for a blind or partially sighted person to overcome several barriers such as the need to read print, use of a computer workstation, taking notes and communicating on paper and in electronic settings [174]. In simple words, Assistive Technologies refer to products, devices or equipment that are used to maintain, increase or improve the functional capabilities of people with disabilities [175].

Assistive technologies play vital roles in equalizing opportunities for people with disabilities in several aspects of life as technology enables them to overcome various limitations and obstacles faced in all types of environment.[175]. Therefore, accessible technologies can have a remarkable effect on empowering persons with special needs accompanied with the internet that provides great opportunity for connections to a range of people regardless of their location [176]. Access to information is a major problem for the disabled but today ICT along with assistive technologies have helped to reduce the digital device between sighted and the blind by proving information on their desktop [177]

Gaps in Knowledge

The review of literature shows a number of gaps in knowledge, with a critical overview of some key aspects of digital competency, which include digital literacy which centers on basic computer skills, online navigation, and understanding of digital concepts, it equally involves information literacy. The gaps observed are therefore stated below:

Lack of research on the specific assistive technologies needed by the physically challenged users in libraries

Limited understanding of the digital competency skills required by librarians to effectively support physically challenged users

Insufficient data on user satisfaction levels among physically challenged individuals regarding library services and assistive technologies

Limited exploration of the impacts of inclusive library design on user experience and satisfaction

Need for more studies on the effectiveness of assistive technologies in libraries, such as screen readers, Braille displays and speech-to-text software

Lack of investigation into librarians perceived barriers to acquiring digital competency skills related to assistive technologies

Limited research on the roles of libraries in promoting digital inclusions and social inclusion for physically challenged individuals

Need for more explorations of the intersection of disability, technology, and library services to identify best practices

Therefore, addressing these gaps in knowledge could lead to a better understanding of how libraries can become more inclusive and supportive environments for physically challenged students, leveraging assistive technologies and librarian digital competency to enhance user satisfaction and overall experience.

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Chapter Three

Methodology

Basically, research methodology describes or features the procedures to be followed in realizing the goals and objectives of a research, therefore, this chapter presents the method adopted in carrying out the study under the following sub-headings: research design; method of data collection; the population of the study; sampling procedure; instrument for data collection; validity of research instrument; method of data analysis and presentation.

3.1 Research Design

The study adopted descriptive survey design, using a convergent parallel mixed method approach, most especially a cross-sectional descriptive survey research approach, as this will enable the researcher to collect data at a given point in time across a sample population. This concentrates on how people perceive the current situation, describes and interprets what is relevant to the conditions, practices, or relationships that are present within the views, beliefs, and attitudes that are held, as well as the processes that are taking place and trends that are developing an event or situation, descriptive research of the cross-sectional type is thought to be appropriate. In the same vein, a convergent mixed method (CPMM) is a research design that combines both qualitative and quantitative methods in a single study, simultaneously while the result will be converged or integrated to form a comprehensive understanding. It involves independent collection of data using separate methods and instruments in order to achieve a more complete understanding of the research problem[1]. Thus, by the use of this research design, the researcher was able to identify and establish the relationship between Inclusive libraries, use of assistive technologies, librarians' digital competency and user satisfaction among physically challenged students in public higher institutions in Oyo State, Nigeria.

3.2 Population of the Study

The population of this study consists of the physically challenged students who are made up of the visually impaired, the crippled, and the deaf, dwarfs, or albino, basically a person who suffers from a permanent and disabling physical characteristics resulting from disease, injury, functional disorder or congenital condition. The target populations are mainly the physically challenged students of the institutions under consideration, and

the heads of libraries in Oyo State public higher institutions, namely: Universities, polytechnic, monotechnic and college of education library as they are also involved in the process of producing graduates either independently or in collaboration with University through affiliation arrangements.The table below therefore, shows as itemized on institutional basis:

Table 3.1 Population Table

S/N	INSTITUTION	No Of Physically Challenged Students
1	Federal College of Education (Special), Oyo	330
2	University of Ibadan	46
3.	LadokeAkintola University, Ogbomoso	38
4	Ibadan Polytechnic, Ibadan	42
5	Emmanuel Alayande University of education, Oyo	48
6	Federal School of Surveying, Oyo	01
	Total	505

Source: Researcher's Fieldwork, 2024

3.3 Sample Size and Sampling Techniques

The sample size of this study was five hundred and five (505) physically challenged Students. Sampling is a process that allows a researcher to scientifically choose who or what is included in an investigation. Previous literature is of view that sampling involves selecting units (e.g people, organizations) from a population of interest so that one may fairly generalize the results of a study. Therefore, the sample size involved total enumeration of the physically challenged students drawn from the institutions under consideration, and the heads of Oyo State Public higher institutions. The choice of the chosen institutions becomes necessary based on their size and long years of establishment,

more importantly, as they are being sponsored by either state or federal government, who are the policy makers and main stakeholders in educational provision for national development. However, the choice of Oyo State private institutions was not considered mainly because it was envisaged that some of them may not be able to withstand the financial commitment involved in inclusive library provision for the physically challenged students compared with government owned institutions.

3.4 Instruments for Data Collection

In examining inclusive libraries, use of assistive technologies, librarians' digital competency and user satisfaction of the physically challenged students, a mixed method approach was adopted. This involved the use of primary and secondary data, the primary data were mainly field data, that is, data generated from questionnaire administration, interviews and observations while the secondary data werl be obtained from, records and reports, journals newspaper and books.

The questionnaire is divided into major sections, A and B-E as follows,

Section A- Demographic information: This contains at least four items on personal data of each respondent such as gender, institution, religion, and educational level (as applicable), while the rest from sections B- E contain forty-five items. Specifically, Section B centres on User Satisfaction, while C focuses Inclusive Library Practices, Section D explored the Use of Assistive Technology and Section E extensively covered Librarians Digital Competency. Also, the interview guide which covered all the variables of the research work was structured for the librarians in the institutions under

consideration. Therefore, the research work engaged the use of a four scale type involving Very High (VH), High (H), Low (L), and Very Low (VL).

3.5 Validity of the Research Instrument

In other to ensure face and content validity, the adapted measuring instrument was given to the supervisor and other lecturers in the programme of Library and Information Science of Lead City University who checked to ensure accuracy and precision of the instrument. Based on the criticisms and corrections of the experts, the instrument was modified to achieve the research objectives. Corrections and observations made were incorporated into the final copy which was advanced to the study respondents.

3.6 Reliability of the Research Instrument

Reliability means the ability of a research instrument to be consistent in returning the same results when administered to a population similar in nature. The draft of the questionnaire was pre-tested on 30 respondents from Federal College of Education (Special), Oyo, who were not part of the study sample size but share similar characteristics with the population of the study. To this end, students with learning disabilities were used, as they unarguably share similar characteristics with the target population. This becomes necessary, as it serves a test case to ascertain the reliability of the questionnaire, in an attempt to come up with meaningful research outcomes. To test the reliability of the questionnaire, the Cronbach alpha reliability method was used at 0.05 levels of significance. Table 3.3 presents the reliability results.

Table 3.2 Reliability Results.

Variables	Cronbach Alpha
User Satisfaction Scale	.728
Inclusive Library Practice Scale	.813
Assistive Technology Use Scale	.712
Digital Competence Scale	.934

3.7 Method of Data Collection

A letter of introduction and project attestation was collected from the Head of Department of Information Management, Lead City University, Ibadan, was used to gain permission to conduct the survey on the librarians of the selected institutions. The questionnaires were administered directly to the respondents with the assistance of two research assistants who were trained by the researcher. The research assistants were trained for seven days on the process of data collection. Meanwhile, being a mixed method research, the researcher personally interviewed the university librarians and heads of other libraries in order to balance up a perfect correlation with the responses of the physically challenged student respondents. The data collection exercise therefore covered a period of six weeks.

3.8 Methods of Data Analysis

Thematic content analysis was used to interpret the interview with the librarians in the institutions under consideration, descriptive and inferential statistics was used to analyze data from student respondents. Descriptive statistics tools involving frequency count and percentage which were used to answer research questions 1-4 while linear regression was

used to test hypotheses one, two and three, while multiple regressions was used to test hypothesis 4. All the Hypotheses were tested at 0.5 level of the significance.

Endnotes

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Chapter Four

Data Analysis and Discussion of Findings

The chapter contains the analysis of data gathered as well as the discussion of the findings based on the analyzed data. The study combined both qualitative and quantitative aspects. In the quantitative aspect, the researcher administered five hundred and five (505) copies of the research questionnaire on the respondents. However, four hundred and seventy-three copies were returned. Out of these returned copies, twenty-two (22) copies were found not to be properly filled and were thus excluded from the final count. This left four hundred and fifty-one copies to be used in the analysis. This represents 89% return rate. The decision rule is as follows; 1.00 – 1.49= very low, 1.50 – 2.49= low, 2.50 – 3.49 = high, 3.50-4.00= very high.

Table 4.1: Return Rate

Institutions	Administered	Returned
Colleges	331	301
Polytechnics/Monotechnic	42	35
University	132	115
Total	**505**	**451**

4.2 Demographic Characteristics of the Respondents

Table 4.2: Table of Demographic Distribution

Gender	Frequency	Percent
Male	170	37.7
Female	281	62.3
Total	451	100.0

Institution		
Colleges	301	66.7
Polytechnics/Monotechnic	35	7.8
University	115	25.5
Total	451	100.0
Religion		
Christianity	249	55.2
Islamic	189	41.9
Traditional	13	2.9
Total	451	100.0
Educational Level		
100	64	14.2
200	211	46.8
300	121	26.8
400	20	4.4
Others	35	7.8
Total	**451**	**100**

Researcher's Field Work, 2024

The table 4.1 above provides demographic distribution on a sample of 451 respondents, segmented by gender, institution type, religion, and educational level. Each category is presented with frequency counts and corresponding percentages, offering insight into the distribution of participants across these variables. Base on the table, there are 170 males, which represents 37.7% of the total respondents. Females are more prevalent, with 281 respondents making up 62.3% of the population. More so, from table 4.1, the majority of the participants 301, (66.7%) are from colleges of education. A smaller portion, 35

respondents (7.8%), are from polytechnics or monotechnic institutions. University students make up 115 respondents, (25.5%) of the sample.

In terms of religion, most respondents identify as Christians 249 (55.2%).The second-largest group consists of Muslims, with 189 (41.9%) respondents. A minority, 13(2.9%), of the respondents are traditionalist. Regarding educational level, 64 (14.2%) respondents are in 100L. Majority 211(46.8%) of the respondents are 200-level students. 121(26.8%) students are in their third year. Only 20 participants (4.4%) are in their fourth year. A small group 35(7.8%) falls under others.

4.2 Research Questions

Research Question One: What is the level of physically challenged users` satisfaction in higher institutions in Oyo state, Nigeria?

Table 4.2. Level of Physically Challenged Users` Satisfaction In Higher Institutions in Oyo state, Nigeria.

User Satisfaction	Very High	High	Low	Very Low	Mean
Service Quality					
Library`s programme and events are very effective	212 (47.0%)	203 (45.0%)	23 (5.1%)	13 (2.9%)	3.38
I always appreciate the effectiveness and timeliness of library operation	166 (36.8%)	204 (45.2%)	49 (10.9%)	32 (7.1%)	3.12
I am satisfied with the level of availability and accessibility of library resources	197 (43.7%)	180 (39.9%)	44 (9.8%)	30 (6.7%)	3.21
Library information provision are always accurate and reliable	205 (45.5%)	155 (34.4%)	61 (13.5%)	30 (6.7%)	3.19
I am proud of my library`s quality services delivery	183 (40.6%)	184 (40.8%)	53 (11.8%)	31 (6.9%)	3.15
Weighted Mean					**3.20**
Brand Image					

I can boldly describe our library as friendly, welcoming and innovative	180 (39.9%)	201 (44.6%)	46 (10.2%)	24 (5.3%)	3.19
Our library`s image remain intact on either of website, social media and physical space	183 (40.6%)	176 (39.0%)	63 (14.0%)	29 (6.4%)	3.14
I can recommend my library to others, based on its brand value	155 (34.4%)	201 (44.6%)	60 (13.3%)	35 (7.8%)	3.06
My library holds a good reputation within and outside the community	169 (37.5%)	218 (48.3%)	42 (9.3%)	22 (4.9%)	3.18
Our library is better off, compared with other libraries around	160 (35.5%)	205 (45.5%)	57 (12.6%)	29 (6.4%)	3.10
Weighted Mean					**3.10**
Library Support					
The library is always responsive to my information needs and queries	179 (39.7%)	187 (41.5%)	62 (13.7%)	23 (5.1%)	3.16
I am satisfied with the library`s online support resources e.g FAQs, tutorials, guides	172 (38.1%)	174 (38.6%)	80 (17.7%)	25 (5.5%)	3.09
I am satisfied with the availability and accessibility of library support services. (e.g. phone, email, chat in person)	150 (33.3%)	176 (39.0%)	85 (18.8%)	40 (8.9%)	2.97
I will continue to receive help from library staff in the future	169 (37.5%)	163 (36.1%)	83 (18.4%)	36 (8.0%)	3.03
The quality of support provided by the library staff is superb	161 (35.7%)	180 (39.9%)	62 (13.7%)	48 (10.6%)	3.01
Weighted Mean					**3.10**
Grand Mean					**3.10**

Source: Researcher's Fieldwork, 2024
Decision rule; 1.00 – 1.49= very low, 1.50 – 2.49= low, 2.50 – 3.49 = high, 3.50-4.00= very high.

Table 4.2. presents data on user satisfaction across three key areas of library services namely, Service Quality, Brand Image, and Library Support. Under the dimension of service quality, majority of users (47.0% and 45.0%) rated the service as either Very High (47.0%) or High(45.0%), giving it a mean score of 3.38. Only a small proportion rated it as Low (5.1%) or Very Low (2.9%).

For question on effectiveness and timeliness of library operation: Satisfaction is slightly lower here, with 36.8% rating it as Very High and 45.2% as High, while 10.9% and 7.1% rated it as Low or Very Low respectively, leading to a mean score of 3.12. For question on availability and accessibility of library resources, a large percentage of respondents are satisfied, with 43.7% rating it as Very High and 39.9% as High. 9.8% and 6.7% rated it lower, resulting in a mean score of 3.21. Regards accuracy and reliability of library information: this statement received 45.5%Very High and 34.4% High ratings, with a mean score of 3.19.Pride in the library's quality services: 40.6% rated their satisfaction as Very High and 40.8% as High, while 11.8% rated it as Low and 6.9% as Very Low, giving a mean score of 3.15.

The weighted mean for this section is 3.2, indicating a generally positive view of service quality, with the highest satisfaction concerning the effectiveness of the library's programs and events.

The second dimension is brand image. This section evaluates how users perceive the library's brand, including its friendliness, online presence, and reputation: Friendly, welcoming, and innovative: The majority (44.6%) rated the brand image as High, followed by 39.9% as Very High, resulting in a mean score of 3.19. Regarding library's image across websites, social media, and physical space: This aspect scored 40.6% Very

High and 39.0% High, with a mean score of 3.14.Recommend library based on brand value: While 44.6% rated this as High, and 34.4% as Very High, a notable 13.3% rated it as Low, leading to a mean score of 3.06.Good reputation within and outside the community: This aspect received 48.3% High and 37.5% Very High ratings, with a mean score of 3.18.Comparison with other libraries: Users rated the library as better than others, with 45.5%High and 35.5% Very High ratings, resulting in a mean score of 3.10.The weighted mean for this section is 3.1, reflecting generally positive user perceptions of the library's brand, with the highest rating on its friendly, welcoming, and innovative image.

The category of library support measures satisfaction with the support services offered by the library, including responsiveness, availability of online support, and staff assistance: Responsiveness to information needs: Users gave this a Very High rating of 39.7% and High of 41.5%, resulting in a mean score of 3.16.Satisfaction with online support resources: With 38.6% High and 38.1% Very High, this statement garnered a mean score of 3.09.Availability and accessibility of support services: This aspect had 39.0% rate it as High and 33.3% as Very High, but a significant 18.8% rated it as Low, leading to a lower mean score of 2.97.Help from library staff in the future: Satisfaction was lower here, with 36.1% rating it as High and 37.5% as Very High, but 18.4% rated it as Low, giving a mean score of 3.03.Quality of support provided by library staff: This statement received 39.9% High and 35.7% Very High ratings, but 10.6% rated it as Very Low, leading to a mean score of 3.01.The weighted mean for this section is 3.1, with room for improvement, especially in the availability and accessibility of support services.

The grand mean across all sections is 3.1, indicating high overall satisfaction with the library services. Most users are satisfied, but there are areas, particularly in the support services, where satisfaction levels are slightly lower.

4.1.2. Research Question Two: What is the level of inclusive libraries practices among higher institutions in Oyo state, Nigeria?

Table 4.3. The Level of Inclusive Libraries Practices among Higher Institutions in Oyo State, Nigeria

Inclusive Library Collection	Very High	High	Low	Very Low	Mean
Library Collections					
Library information materials are available in multiple formats, e.g braille, audio books, e-books etc)	192 (42.6%)	184(40.8%)	52(11.5%)	23(5.1%)	3.22
The library e-book and digital resources are always accessible	184 (40.8%)	191(42.4%)	57(12.6%)	19(4.2%)	3.20
There are collections of graphic novels and comics in our library	146 (32.4%)	190(42.1%)	86(19.1%)	29(6.4%)	3.00
Library materials are accessible online and in- person	158 (35.0%)	182(40.4%)	66(14.6%)	45(10.0%)	3.02
The digital resources in our library are accessible and user-friendly	138 (30.6%)	187(41.5%)	93(20.6%)	33(7.3%)	2.95
Weighted Mean					**3.00**
Architecture					
My library entrance, doorways and corridors are accessible and wheel-chair friendly	223 (49.4%)	135(29.9%)	58(12.9%)	35(7.8%)	3.23
Braille and tactile signs are available throughout our library	179 (39.7%)	190(42.1%)	48(10.6%)	34(7.5%)	3.14
My institution`s library has a safe and welcoming environment for all users.	199 (44.1%)	150(33.3%)	78(17.3%)	24(5.4%)	3.18
Accessible restrooms are available in our	158	160(35.5	79(17.5	54(12.0	2.94

library	(35.0%)	%)	%)	%)	
The library's Wi-Fi network is reliable and accessible	66 (14.6%)	251(55.7 %)	76(16.9 %)	58(12.9 %)	2.72
Weighted Mean					**3.00**
Services					
My institution has inclusive and accessible programme for diverse students	169 (37.5%)	190(42.1 %)	77(17.1 %)	15(3.3%)	3.14
The library personnel demonstrate great knowledge of equity, diversity and inclusiveness	204 (45.2%)	169(37.5 %)	54(12.0 %)	24(5.3%)	3.27
There are adaptive technologies for users with disabilities	140 (31.0%)	177(39.2 %)	82(18.2 %)	52(11.8 %)	2.91
Library services and resources are accessible for all individuals with special needs	155 (34.4%)	187(41.5 %)	77(17.1 %)	32(7.1%)	3.03
We enjoy multimedia support and resources in my library	199 (44.1%)	151(33.5 %)	63(14.0 %)	38(8.4%)	3.13
Weighted Mean					**3.00**
Grand Mean					**3.00**

Source: Researcher's Fieldwork, 2024
Decision rule; 1.00 – 1.49= very low, 1.50 – 2.49= low, 2.50 – 3.49 = high, 3.50-4.00= very high.

Table 4.3 provides an analysis of user satisfaction with the inclusiveness of library collections, architecture, and services. The first section measures how inclusive and accessible the library's collections are, particularly for users with different needs, such as those requiring Braille or e-books. Library information materials are available in multiple formats (e.g., Braille, audio books, e-books): The majority of users rated this aspect highly, with 42.6% indicating Very High satisfaction and 40.8% indicating High satisfaction. Only 11.5% rated it as Low, and 5.1% as Very Low, resulting in a strong mean of 3.22.Regarding whether E-books and digital resources are accessible: Similar to the previous item, a large percentage of users found the e-book and digital resources accessible, with 40.8% and 42.4% indicating Very High and High satisfaction, respectively. The mean is 3.20, reflecting a favourable perception. Regarding Collections

of graphic novels and comics in the library: A lower proportion of users expressed satisfaction with this aspect, with 32.4% indicating Very High and 42.1% indicating High satisfaction. Notably, 19.1% rated this as Low, and 6.4%as Very Low, leading to a slightly lower mean of 3.00.Accessibility of library materials (online and in-person): Satisfaction levels are relatively high, with 35.0% rating it as Very High and 40.4% as High, resulting in a mean of 3.02.Accessibility and user-friendliness of digital resources: This area received lower satisfaction, with 30.6% rating it as Very High and 41.5% as High, while 20.6% rated it as Low. The mean here is 2.95, indicating room for improvement.

The weighted mean for this section is 3.0, showing that users generally perceive the library collections to be inclusive, but there are areas (like digital resource accessibility) that could be enhanced.

The dimension of architecture focus facilities for users with disabilities and general accessibility. For question on wheelchair accessibility (entrances, doorways, corridors): The majority of users (49.4%) rated this aspect as Very High and 29.9% as High, giving it a strong mean of 3.23. The responses to the availability of braille and tactile signs show that users were generally satisfied with the availability of tactile signs, with 39.7% rating it as Very High and 42.1% as High. The mean score is 3.14, showing good satisfaction. For safe and welcoming environment 44.1% of the respondents indicated Very High and 33.3% indicate High level of satisfaction, resulting in a mean of 3.18, indicating that the library is perceived as a welcoming and safe space. Accessible restrooms scored lower, with 35.0% indicating Very High and 35.5% High ratings, but 17.5% rated it as Low and 12.0% as Very Low, giving a mean score of 2.94. For Wi-Fi reliability 14.6% Very High

and 55.7% High ratings. A significant portion of the respondents (16.9%), however rated it as Low, and 12.9%as Very Low, giving it a mean of 2.72, the lowest in the table.

The weighted mean for architecture is 3.0, suggesting moderate satisfaction overall. However, Wi-Fi accessibility and restroom accessibility are areas that need improvement.

The third section looks at the inclusiveness and responsiveness of the library's services, particularly in supporting diverse users. Regarding inclusive and accessible programs: The majority of users (42.1%) rated this aspect as High, with 37.5% rating it as Very High. The mean score of 3.14 reflects good satisfaction. Regarding library personnel's knowledge of equity, diversity, and inclusiveness: This aspect scored the highest in this section, with 45.2% rating it as Very High and37.5% as High, giving a mean of 3.27. This indicates strong user confidence in staff knowledge of inclusivity. For adaptive technologies for users with disabilities: Satisfaction is moderate here, with 31.0% Very High and 39.2% High ratings. However, 18.2% rated it as Low and 11.8% as Very Low, resulting in a lower mean of 2.91. For accessibility of library services for individuals with special needs: Satisfaction is relatively high, with 34.4% Very High and 41.5% High ratings. The mean score of 3.03 shows that while users are generally satisfied, there is room for improvement.Multimedia support and resources: This aspect received 44.1% Very High and 33.5% High ratings, but 14.0% rated it as Low and 8.4% as Very Low, giving a mean score of 3.13.

The weighted mean for services is 3.0, indicating moderate satisfaction with the library's inclusiveness and responsiveness. Areas such as adaptive technologiesand accessibility of services for special needs users could be further improved.

The grand mean across all sections (Library Collections, Architecture, Services) is 3.0, indicating moderate overall satisfaction with the library's inclusiveness. Users generally rate the library positively in terms of its collections and personnel knowledge of inclusiveness, while areas like Wi-Fi reliability, restroom accessibility, and adaptive technologies have lower satisfaction levels and may require attention.

The table shows that while the library is performing well in many areas related to inclusiveness (e.g., library collections, physical accessibility, and personnel knowledge of diversity), there are several areas that need improvement, such as Wi-Fi access, adaptive technologies, and support for users with disabilities. The data indicates that users have a generally positive view of the library's inclusiveness, but with room for enhancement, particularly in the accessibility of both digital and physical resources.

4.1.3. Research Question Three: What is the level of use of assistive technologies for the physically challenged in higher institutions in Oyo state, Nigeria?

Table 4.4. Level of Assistive Technologies for the Physically Challenged in Higher Institutions in Oyo state, Nigeria

Use of Assistive Technology	Very High	High	Low	Very Low	Mean
Performance Expectancy					
Library assistive technology devices are very useful in achieving ones goals	233 (51.7%)	123 (27.3%)	73 (16.2%)	22 (4.8%)	3.27
Library assistive technology improves my performance	173 (38.4%)	218 (48.3%)	35 (7.8%)	25 (5.5%)	3.20
Library assistive technology enhances my efficient completion of tasks	168 (37.3%)	192 (42.6%)	63 (14.0%)	28 (6.2%)	3.11
My academic success is dependent on access to AT tools or software	181 (40.1%)	175 (38.8%)	54 (12.0%)	41 (9.1%)	3.10
Am satisfied with the overall	178	171	87	15	3.14

performance of assistive technology in the library	(39.5%)	(37.9%)	(19.3%)	(3.3%)	
Weighted Mean					**3.20**
Effort Expectancy					
The use of library assistive technology is very easy	177 (39.2%)	165 (36.6%)	70 (15.5%)	39 (8.6%)	3.06
I can easily manipulate every library assistive technology device	180 (39.9%)	153 (33.9%)	88 (19.5%)	30 (6.7%)	3.07
It takes a great effort to use library assistive technology devices	152 (33.7%)	188 (41.7%)	70 (15.5%)	41 (9.1%)	3.00
It is very easy to get assistance with assistive technology in the library	169 (37.5%)	186 (41.2%)	61 (13.5%)	35 (7.8%)	3.08
The assistive technologies available in the library are user friendly	148 (32.8%)	235 (52.1%)	43 (9.5%)	25 (5.5%)	3.12
Weighted Mean					**3.10**
Social Influence					
I was influenced greatly by library staff to use assistive technology	147 (32.6%)	171 (37.9%)	108 (23.9%)	25 (5.5%)	3.18
All my special needs friends engage the use of assistive technology	140 (31.0%)	192 (42.6%)	77 (17.1%)	42 (9.3%)	2.95
I will constantly advocate for the use of library assistive technology	195 (43.2%)	147 (32.6%)	64 (14.2%)	45 (10.0%)	3.09
The entire society believe all I need is the use of library assistive technology	130 (28.8%)	187 (41.5%)	82 (18.2%)	52 (11.5%)	2.88
My decision to use library assistive technology was greatly influenced by my peers	169 (37.5%)	157 (34.8%)	87 (19.3%)	38 (8.4%)	3.01
Weighted Mean					**3.00**
Facilitating Condition					

Assistive Technology (AT) is always available when needed in the library	174 (38.6%)	181 40.1	54 (12.0%)	39 (8.6%)	3.09
I have direct access to the assistive technology in our library	153 (33.9%)	182 (40.4%)	82 (18.2%)	34 (7.5%)	2.88
I have been trained by the library on how to use AT	116 (25.7%)	205 (45.5%)	79 (17.5%)	51 (11.3%)	3.01
Technical support is always available when needed in the library	156 (34.6%)	187 (41.5%)	70 (15.5%)	38 (8.4%)	3.09
The physical environment of the library is conducive for the use of AT	152 (33.7%)	187 (41.5%)	76 (16.9%)	36 (8.0%)	3.01
Weighted Mean					**3.00**
Behavioural Intention					
I will constantly advocate for the use library assistive technology	171 (37.9%)	177 (39.2%)	79 (17.5%)	24 (5.3%)	3.10
I will keep using assistive technology on weekly basis	155 (34.4%)	190 (42.1%)	69 (15.3%)	37 (8.2%)	3.03
I have the ability to grasp the mastery of AT usage within a short while	143 (31.7%)	221 (49.0%)	70 (15.5%0	17 (3.8%)	3.09
The use of AT will assist and promote daily academic experience	141 (31.3%)	208 (46.1%)	71 (15.7%)	28 (6.2%)	3.03
The use of library AT would be consistent with my personal values	179 (39.7%)	195 (43.2%)	43 (9.5%)	34 (7.5%)	3.15
Weighted Mean					**3.10**
Grand Mean					**3.10**

Source: Researcher's Fieldwork, 2024
Decision rule; 1.00 – 1.49= very low, 1.50 – 2.49= low, 2.50 – 3.49 = high, 3.50-4.00= very high.

Table 4.3 above presents data on the level of use of Assistive Technology (AT) in a library setting. It is divided into six categories: Performance Expectancy, Effort

Expectancy, Social Influence, Facilitating Conditions, Behavioural Intention. The first category is Performance Expectancy. It measures how users perceive the usefulness and impact of assistive technology in helping them achieve their goals and improve their academic performance. The majority of respondents (51.7%) respondent with "Very High", the usefulness of Library assistive technology devices in achieving library patrons goals while 27.3% rated it as High, leading to a mean of 3.27, indicating strong satisfaction with the perceived usefulness of AT in achieving goals.

On the item, Library assistive technology improves my performance: 38.4% of the respondents indicated Very High while 48.3% rated this as High, with a mean of 3.20, showing that most users find AT enhances their performance. Library assistive technology enhances efficient task completion: Users are generally satisfied, with 42.6% rating this as High and 37.3% as Very High. The mean score of 3.11 suggests that AT contributes to more efficient task completion. Academic success dependent on AT tools: The mean of 3.10 reflects that many users feel their academic success depends on the availability of AT, with 40.1% rating this as Very High. Overall satisfaction with the performance of AT shows that the majority (39.5%) are very satisfied with AT, giving it a mean score of 3.14.The weighted mean for this category is 3.2, reflecting high user satisfaction with the performance and impact of assistive technology in supporting their academic success and task completion.

The category effort expectancy assesses the ease of use and the effort required to use the library's assistive technology. The responses show that 39.2% of the respondents rated the Ease of use of AT as Very High and 36.6% rated it as High resulting in a mean score

of 3.06, indicating that most users find AT easy to use. In the same vein, majority rated the ability to manipulate AT devices as very high resulting in a mean score of 3.07, although 19.5% rated this as Low. Regarding Effort required to use AT, A mean score of 3.00 indicates that while users find AT somewhat easy to use, 15.5% still perceive it as requiring significant effort. As regards ease of getting assistance with AT: The mean of 3.08 reflects satisfaction with the availability of help when needed, with 41.2% rating this as High. With regards to user-friendliness of AT: This scored well, with 52.1% rating it as High and a mean of 3.12, suggesting that the majority of users find AT user-friendly. The weighted mean for this category is 3.1, indicating that most users find AT easy to use, but there is some room for improvement in terms of effort required and support availability.

The third category is social influence and it evaluates the extent to which users are influenced by others (library staff, peers, etc.) in their use of assistive technology. Regarding questions on the Influence of library staff, a large portion of users (37.9%) rated the influence of library staff as High, with a mean score of 3.18, suggesting that staff play a significant role in encouraging the use of AT. Friends' engagement with AT: The mean score of 2.95 is relatively lower, indicating that users' friends may not always be engaging with AT as much, with 31.0% rating it as Very High. Regarding advocacy for the use of AT: Users feel strongly about advocating for AT, with 43.2% rating this as Very High and a mean score of 3.09. Regarding Societal belief in the need for AT: The mean score of 2.88 indicates lower agreement that society believes in the necessity of AT for users, with 11.5% rating it as Very Low. Peer influence on the decision to use AT: With a mean of 3.01, the data suggests that peers do have some influence, but 19.3%

rated it as Low. The weighted mean for this category is 3.0, showing that while library staff have a positive influence, peer and societal influence is less significant.

In the facilitating condition category, the analysis of the data reveals a generally positive perception of the library's support in providing access and assistance A significant portion of respondents agree that assistive technology is available when needed (38.6% Very High and 40.1% High), resulting in a mean score of 3.09. This suggests that most students find the AT resources accessible, although the notable proportion of those who disagree (12.0%) and strongly disagree (8.6%) indicates there is still room for improvement. Regarding direct access, a combined 74.3% of respondents acknowledge having it, yet the mean score of 2.88 suggests that access might not always be as consistent as availability, possibly indicating challenges like limited availability of devices or space constraints.

Training for using AT is recognized by 71.2% of respondents (with a mean score of 3.01), showing that many students feel equipped to use the technology provided. However, the disagreement from about 28.8% of respondents might imply gaps in the coverage or frequency of training sessions. The availability of technical support also has a positive response (76.1% agree or strongly agree), with a mean score of 3.09, reflecting satisfaction with the technical assistance offered by the library. Yet, the feedback from those who disagree (15.5%) suggests that support services might not always be readily available or prompt. Furthermore, the conduciveness of the library's physical environment for AT use is supported by 75.2% of respondents (mean score of 3.01). This suggests that the library space is generally well-suited for accommodating assistive

technologies, which is crucial for effective use. However, with 24.9% expressing some dissatisfaction, libraries may need to consider further adjustments to improve the ergonomics or accessibility of study spaces designed for AT use.

The overall weighted mean of 3.0 indicates an average to above-average level of satisfaction across all aspects of facilitating conditions.

The category of behavioural intention measures users' intentions to continue using and advocating for assistive technology. For question on advocacy for AT: With 39.2% rating this as High and a mean score of 3.10, users are generally willing to advocate for the use of AT. For continued use of AT: Users are likely to keep using AT regularly, with 42.1% rating this as High and a mean score of 3.03. Regarding ability to master AT usage quickly: With 49.0% rating this as High, the mean score of 3.09 indicates that users feel confident in mastering AT quickly. Regarding question on the impact of AT on daily academic experience: The mean score of 3.03 reflects that most users believe AT will assist in promoting their daily academic activities. Consistency of AT use with personal values: This item scored relatively high, with a mean of 3.15, indicating that users feel the use of AT aligns with their personal values. The weighted mean for this category is 3.1, showing strong intentions among users to continue using and advocating for AT in their academic activities.

The overall grand mean across all categories is 3.1, indicating moderate to high satisfaction with the use of assistive technology in the library. Users generally find AT useful, easy to use, and aligned with their academic and personal needs, although there is room for improvement in areas like accessibility, peer influence, and training.

Research Question Four: What is the level of librarians` digital competency for the physically challenged in higher institutions in Oyo state, Nigeria?

Table 4.5. The Level of Librarians` Digital Competency for the Physically Challenged in Higher Institutions in Oyo state, Nigeria

Librarians Digital Competency	**V**ery **H**igh	**H**igh	**L**ow	**V**ery **L**ow	Mean
Information and Data Literacy					
Our librarians are very skilful in handling library software	167 (37.0%)	206 (45.7%)	50 (11.1%)	28 (6.2%)	3.14
Librarians always help in navigating online databases and information resources comfortably	160 (35.5%)	174 (38.6%)	83 (18.4%)	34 (7.5%)	3.05
Librarians are well versed in teaching us how to evaluate online resources	192 (42.6%)	150 (33.3%)	70 (15.5%)	39 (8.6%)	3.13
Our librarians can readily assist users with data related tasks, such as data visualisation or statistical analysis	150 (33.3%)	212 (47.0%)	192 (42.6%)	28 (6.2%)	3.07
Librarians in my institution are familiar with data analysis tools and techniques	175 (38.8%)	168 (37.3%)	88 (19.5%)	20 (4.4%)	3.10
Weighted Mean					**3.10**
Communication and Collaboration	**Very High**	**High**	**Low**	**Very Low**	**Mean**
Our librarians can readily communicate technology related information to library users	160 (35.5%)	195 (43.2%)	67 (14.9%)	29 (6.4%)	3.11
My institution`s librarians can readily design and develop online learning resources, like tutorials or guides	149 (33.0%)	158 (35.0%)	106 (23.5%)	38 (8.1%)	3.07
Librarians are very comfortable using digital tools for virtual meetings or remote collaboration	161 (35.7%)	191 (42.4%)	72 (16.0%)	27 (6.0%)	3.08
Librarians in my institution can easily design and deliver on-line training	167 (37.0%)	193 (42.8%)	70 (15.5%)	21 (4.7%)	3.12
Our librarians are well versed in their knowledge of accessibility guidelines for digital communication and collaboration	163 (36.1%)	184 (40.8%)	72 (16.0%)	32 (7.1%)	3.06
Weighted Mean					**3.10**

Digital Content Creation					
We constantly enjoy librarians' creation of digital contents such as videos, or podcasts	174 (38.6%)	161 (35.7%)	70 (15.5%)	46 (10.2%)	3.03
We are familiar with librarians digital story telling techniques and tools, such as Storify or Wakelet	133 (29.5%)	175 (38.8%)	87 (19.3%)	56 (12.4%)	2.85
Librarians always design and develop online learning resources, such as tutorials or guides	133 (29.5%)	194 (43.0%)	90 (20.0%)	34 (7.5%)	2.94
Librarians constantly create other digital contents, such as infographics or other social media graphics, for library publicity	140 (31.0%)	181 (40.1%)	87 (19.3%)	43 (9.5%)	2.93
We do enjoy librarians creation of accessible digital contents, such as alt-text for images or closed captions for videos	135 (29.9%)	161 (35.7%)	110 (24.4%)	45 (10.0%)	2.86
Weighted Mean					**2.90**

Safety	**V**ery **H**igh	**H**igh	**L**ow	**V**ery **L**ow	Mean
Librarians ensure constant updating of software and operating system to ensure latest security patches are applied	151 (33.5%)	164 (36.4%)	91 (20.2%)	45 (10.0%)	2.93
Librarians have the ability to identify and report online security threats, such as phishing or ransomware attacks	117 (25.9%)	203 (45.0%)	96 (21.3%)	35 (7.8%)	2.90
Librarians in my institution can readily handle password management and two factor authentication	160 (35.5%)	155 (34.4%)	97 (21.5%)	39 (8.6%)	2.97
Librarians always ensure development and implementation of online safety policies and procedures for the library	166 (36.8%)	187 (41.5%)	74 (16.4%)	24 (5.3%)	3.10
Librarians often provide training for users on online safety and digital literacy	160 (35.5%)	168 (37.3%)	89 (19.7%)	34 (7.5%)	3.01
Weighted Mean					**2.90**
Problem Solving					

Librarians can readily troubleshoot technical issues with library software or hardware each time the need arises	175 (38.8%)	176 (39.0%)	82 (18.2%)	18 (4.0%)	3.13
Librarians always resolve complex technical problems in the library	140 (31.0%)	190 (42.1%)	91 (20.2%)	30 (6.7%)	2.98
Librarians are always comfortable when adapting to new technologies and workflows to solve emerging problems	177 (39.2%)	167 (37.0%)	77 (17.1%)	30 (6.7%)	3.09
Our librarians often collaborate with one another to solve technical problems	169 (37.5%)	185 (41.0%)	68 (15.1%)	29 (6.4%)	3.10
Librarians are confident with their ability to design and implement solutions to improve library workflows or processes	167 (37.0%)	190 (42.1%)	60 (13.3%)	34 (7.5%)	3.09
Weighted Mean					**3.10**
Grand Mean					**3.20**

Source: Researcher's Fieldwork, 2024
Decision rule; 1.00 – 1.49= very low, 1.50 – 2.49= low, 2.50 – 3.49 = high, 3.50-4.00= very high.

Table 4.5 provides a detailed analysis of librarians' digital competency across five categories: Information and Data Literacy, Communication and Collaboration, Digital Content Creation, Safety, and Problem Solving. This first section examines Information and Data Literacy among the librarians. This section measures how proficient librarians are in handling data and guiding users in navigating information systems. Handling library software: 45.7% of participants rated this skill as "High", while 37.0% rated it as "Very High", giving it a mean score of 3.14. This reflects strong proficiency in using library software. Helping with online databases and resources:38.6% rated it as "High", and 35.5% as "Very High", indicating that librarians are effective in this role. However, the mean score of 3.05 suggests there's some room for improvement. Teaching how to evaluate online resources: This is one of the librarians' strong points, with 42.6% giving a "Very High" rating and 33.3% a "High" rating. The mean score is 3.13, indicating

significant skill in this area. Assisting with data-related tasks: Although 47% of respondents rated this as "High", 42.6% indicated low competency. The mean score is 3.07, showing that librarians are moderately proficient in tasks like data visualization and statistical analysis. Familiarity with data analysis tools: 38.8% rated this as "Very High" and 37.3% as "High", but 19.5% rated it as "Low", with a mean of 3.10. This shows that librarians generally possess knowledge in data analysis but may not excel across all levels. Overall Weighted Mean Score of 3.1, signifying above-average proficiency in data literacy, but there is room for improvement in certain areas.

The second dimension focused on communication and collaboration. Regarding the use of communicating technology-related information, 43.2% of participants rated this skill as "High", and 35.5% rated it as "Very High". The mean score is 3.11, indicating librarians have strong communication skills in technology-related areas. Designing and developing online learning resources:35.0% of participants rated this as "High", and 33.0% as "Very High". However, a notable 23.5% rated this as "Low". The mean score is 3.07, suggesting some librarians are skilled in creating online tutorials and guides, but there is room for improvement. Using digital tools for virtual meetings/remote collaboration:42.4% of respondents rated this skill as "High", with a mean score of 3.08, showing that librarians are relatively comfortable using digital tools for remote interactions. Designing and delivering online training:42.8% of respondents gave a "High" rating, and 37.0% rated it as "Very High", resulting in a mean score of 3.12. Librarians are competent in delivering online training sessions. Knowledge of accessibility guidelines for digital communication:40.8% rated this as "High", and 36.1% as "Very High", with a mean score of 3.06. This shows moderate competency in adhering

to digital accessibility standards. Weighted Mean Score of 3.1, reflecting above-average proficiency in communication and collaboration, with some room for improvement, especially in developing online resources.

This third section assesses the ability of librarians to create various forms of digital content, including videos, podcasts, online resources, and infographics. Creating digital content (videos/podcasts)38.6% rated this as "Very High", and 35.7% as "High", but 15.5% rated it "Low", resulting in a mean score of 3.03.Using digital storytelling techniques (e.g., Storify/Wakelet):38.8% rated this as "High", but 29.5% rated it "Very High", with a mean score of 2.85. This lower score suggests a need for more training in storytelling tools. Designing and developing online resources (tutorials/guides):43.0% rated this skill as "High", but 29.5% gave it a "Very High" rating, resulting in a mean score of 2.94, indicating room for improvement. Creating infographics/social media graphics:40.1% of participants rated this as "High", and 31.0% as "Very High", with a mean score of 2.93, showing moderate competency in this area. Creating accessible digital content (e.g., alt-text/captions):35.7% rated this skill as "High", but 29.9% rated it "Very High", leading to a mean score of 2.86, indicating that more training in accessibility is needed. Weighted Mean score of 2.9, indicating moderate competency in digital content creation. Skills like digital storytelling and creating accessible content need improvement.

In the dimension of safety, 33.5% of the respondents rated their competence in updating software/security patches as Very High", while 36.4% rated there level of competence as "High", resulting in a mean score of 2.93. This suggests moderate proficiency in maintaining up-to-date security protocols. Identifying/reporting online security

threats:45.0% of participants rated this as "High", but 25.9% rated it "Very High", resulting in a mean score of 2.90, suggesting there is room to improve threat identification skills. Handling password management/two-factor authentication:35.5% rated this skill as "Very High", but 34.4% rated it "High", leading to a mean score of 2.97, indicating proficiency in this area, though not across the board. Developing online safety policies:41.5% rated this as "High", and 36.8% as "Very High", with a mean score of 3.10, reflecting strong skills in policy development.

Providing online safety training:37.3% rated this as "High", with a mean score of 3.01, indicating competency in offering safety training but with room for growth. Weighted Mean Score of 2.9, reflecting adequate proficiency in safety practices, though identifying security threats and password management could be strengthened.

This section of problem solving measures librarians' ability to solve technical problems, adapt to new technologies, and collaborate to improve workflows. Troubleshooting technical issues (software/hardware):39.0% rated this as "High", and 38.8% rated it as "Very High", resulting in a mean score of 3.13, indicating a strong ability to resolve technical issues. Resolving complex technical problems:42.1% rated this as "High", and 31.0% as "Very High", with a mean score of 2.98, indicating some variation in proficiency. Adapting to new technologies:39.2% rated this as "Very High", and 37.0% as "High", resulting in a mean score of 3.09, showing adaptability to new tools and processes. Collaborating to solve technical problems:41.0% rated this skill as "High", and 37.5% as "Very High", resulting in a mean score of 3.10, reflecting strong collaboration skills. Designing and implementing solutions to improve workflows:42.1% rated this as "High", and 37.0% as "Very High", with a mean score of 3.09, indicating strong problem-

solving skills. Weighted Mean: 3.1, reflecting high proficiency in problem-solving and adapting to new technologies.

This overall grand mean score of 3.2 reflects above-average digital competency among librarians across the different areas, with problem-solving and communication showing the highest proficiency. There are areas for improvement in digital content creation and certain aspects of safety practices, especially in storytelling, accessibility, and threat identification.

4.3. Presentation of Hypotheses

The null hypotheses formulated for this study were tested at α = 0.05 level of significance.

Ho1: There will be no significant influence of inclusive libraries on user satisfaction of the physically challenged in higher institutions in Oyo state, Nigeria

Table 4.6: Influence of Inclusive Libraries on User Satisfaction of the Physically Challenged in Higher Institutions in Oyo state, Nigeria

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.701[a]	.491	.490	.36058

a. Predictors: (Constant), Inclusive_Library_Collection

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	56.308	1	56.308	433.079	.000[b]
	Residual	58.378	449	.130		
	Total	114.686	450			

a. Dependent Variable: User_Satisfaction

b. Predictors: (Constant), Inclusive_Library_Collection

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.886	.109		8.117	.000
	Inclusive_Library_ Collection	.731	.035	.701	20.811	.000

a. Dependent Variable: User_Satisfaction

Table 4.6 presents the results of regression on the influence of inclusive libraries on user satisfaction of the physically challenged in higher institutions in Oyo state, Nigeria In the Model Summary, the R value of 0.701 indicates a strong positive correlation between Inclusive Library Collection and library User Satisfaction. The R Square value 0.491 suggests that 49.1% of the variance in User Satisfaction is explained by the Inclusive Library Collection. The Adjusted R Square (.490) is similar to the R Square, which means that the model's explanatory power remains consistent after accounting for the number of predictors.

The ANOVA table further supports the model's strength. The regression sum of squares (56.308) indicates the amount of variance explained by the Inclusive Library Collection. The F-statistic (433.079) is highly significant (p-value = .000), confirming that the relationship between the predictor and the outcome variable is statistically significant, meaning that Inclusive Library Collection has a meaningful impact on User Satisfaction.

The Coefficients table shows that the unstandardized coefficient (B = .731) for Inclusive Library Collection indicates that for every one-unit increase in the Inclusive Library Collection score, User Satisfaction increases by .731 units. The standardized coefficient (Beta = .701) reflects the strength of this relationship. The t-value (20.811) and the associated p-value (.000) indicate that this result is statistically significant, further affirming the strong positive impact of Inclusive Library Collection on User Satisfaction. The constant value (.886) suggests the baseline level of User Satisfaction when Inclusive Library Collection is zero.

In summary, the analysis reveals a significant and positive relationship between Inclusive Library Collection and User Satisfaction, with the model explaining nearly half of the variance in satisfaction levels. The results suggest that enhancing the inclusivity of library collections, architecture and services could substantially improve user satisfaction. Therefore, the null hypothesis that there will be no significant influence of inclusive libraries on user satisfaction of the physically challenged in higher institutions in Oyo state, Nigeria is hereby rejected.

Ho2: There will be no significant influence of use of assistive technologies on user satisfaction of the physically challenged in Oyo state, Nigeria

Table 4.7 Influence of the Availability of Assistive Technologies on User Satisfaction of the Physically Challenged in Oyo state, Nigeria

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	.660[a]	.435	.434	.37973

a. Predictors: (Constant), Use_of_Assistive_Technology

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	49.944	1	49.944	346.367	.000[b]
	Residual	64.743	449	.144		
	Total	114.686	450			

a. Dependent Variable: User_Satisfaction

b. Predictors: (Constant), Use_of_Assistive_Technology

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.034	.114		9.069	.000
	UseofAssistiveTechnology	.684	.037	.660	18.611	.000

a. Dependent Variable: User_Satisfaction

Table 4.7 shows the regression analysis on the influence of Use of Assistive Technology on User Satisfaction. In the Model Summary, the R value (.660) indicates a moderate positive correlation between Use of Assistive Technology and User Satisfaction. The R Square value (.435) reveals that 43.5% of the variance in User Satisfaction can be explained by the Use of Assistive Technology. The Adjusted R Square (.434) confirms that the model remains robust even after accounting for the predictor.

The ANOVA table highlights the significance of the model. The regression sum of squares (49.944) reflects the amount of variance in User Satisfaction explained by Use of Assistive Technology. The F-statistic (346.367) is significant (p-value = .000), indicating that the relationship between Use of Assistive Technology and User Satisfaction is statistically significant and not due to random chance.

In the Coefficients table, the unstandardized coefficient (B = .684) suggests that for every one-unit increase in Use of Assistive Technology, User Satisfaction increases by .684 units. The standardized coefficient (Beta = .660) demonstrates the strength of the relationship. The t-value (18.611) and the corresponding p-value (.000) indicate that this relationship is highly significant. Additionally, the constant value (1.034) represents the baseline level of User Satisfaction when Use of Assistive Technology is not used.

In summary, the results show a significant and positive relationship between Use of Assistive Technology and User Satisfaction. The model explains a substantial portion of the variance in user satisfaction, suggesting that increasing the use of assistive technologies in the library has a meaningful impact on improving user satisfaction levels. Therefore, the null hypothesis that there will be no significant influence of the availability of assistive technologies on user satisfaction of the physically challenged in Oyo state, Nigeria is hereby rejected

Ho3: There will be no influence of librarians` digital competency on user satisfaction of the physically challenged in higher institutions in Oyo state, Nigeria

Table 4.8 Influence of Librarians` Digital Skills on User Satisfaction of The Physically Challenged in Higher Institutions in Oyo state, Nigeria

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.594[a]	.353	.352	.40643

Predictors: (Constant), Librarians Digital Competence

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	40.519	1	40.519	245.296	.000[b]
	Residual	74.167	449	.165		
	Total	114.686	450			

a. Dependent Variable: User_Satisfaction
b. Predictors: (Constant), Librarians_Digital_Competence

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.436	.110		13.072	.000
	Librarians Digital Competency	.559	.036	.594	15.662	.000

a. Dependent Variable: User_Satisfaction

Table 4.8 presents the result of analysis of the influence of librarians` digital skills on user satisfaction of the physically challenged in higher institutions in Oyo state, Nigeria. the analysis of the model summary, ANOVA, and coefficients tables provides insights into the relationship between *librarians' digital competence* and *user satisfaction*. In the **Model Summary,** the R value (.594) indicates a moderate positive correlation between

Librarians' Digital Competence and User Satisfaction. The R Square value (.353) reveals that 35.3% of the variance in *User Satisfaction* can be explained by *Librarians' Digital Competence*. The Adjusted R Square (.352) suggests that this relationship remains stable when accounting for the number of predictors in the model.

The **ANOVA** table further demonstrates the model's strength. The regression sum of squares (40.519) indicates the portion of variance explained by *Librarians' Digital Competence*. The F-statistic (245.296) is significant (p-value = .000), confirming that the predictor variable has a statistically significant effect on *User Satisfaction*, meaning that *Librarians' Digital Competence* plays an important role in influencing users' satisfaction levels.

The **Coefficients** table provides further details about the relationship. The unstandardized coefficient (B = .559) suggests that for every one-unit increase in *Librarians' Digital Competence, User Satisfaction* increases by .559 units. The standardized coefficient (Beta = .594) shows the strength of this relationship in standardized terms. The t-value (15.662) and the corresponding p-value (.000) indicate that this effect is statistically significant. The constant value (1.436) represents the baseline level of *User Satisfaction* when *Librarians' Digital Competence* is absent.

In summary, the results show a moderate yet significant positive relationship between *Librarians' Digital Competence and User Satisfaction*, with the model explaining 35.3% of the variance in satisfaction. The findings suggest that improving librarians' digital skills could have a substantial impact on enhancing user satisfaction in library services.

Ho4: There will be no combined influence of inclusive libraries, availability of assistive technologies and librarians' digital competency on users' satisfaction of the physically impaired in higher institutions in Oyo state, Nigeria

Table 4.9 Combined Influence of Inclusive Libraries, Availability of Assistive Technologies and Librarians' Digital Competency on Users' Satisfaction of The Physically Impaired in Higher Institutions in Oyo state, Nigeria

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.741[a]	.550	.547	.33986

a. Predictors: (Constant), Use of Assistive Technology, Inclusive Library Collection, Librarians Digital Competence

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	63.056	3	21.019	181.976	.000[b]
	Residual	51.630	447	.116		
	Total	114.686	450			

a. Dependent Variable: User_Satisfaction

b. Predictors: (constant), UseofAssistiveTechnology, InclusiveLibraryCollection, LibrariansDigitalCompetence

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.559	.111		5.017	.000
Librarians digital competency	.109	.045	.115	2.396	.017
Inclusive library collection	.454	.049	.436	9.255	.000
Use of assistive technology	.276	.054	.267	5.150	.000

a. Dependent Variable: User_Satisfaction

Table 4.9 presents the results of multiple regression analysis on the combined influence of inclusive libraries, availability of assistive technologies and librarians' digital competency on users' satisfaction of the physically impaired in higher institutions in Oyo state, Nigeria. The model summary, ANOVA, and coefficients tables provides a comprehensive understanding of the relationship between Use of Assistive Technology, Inclusive Library Collection, Librarians' Digital Competence, and User Satisfaction.

In the Model Summary, the R value (.741) indicates a strong positive correlation between the combination of Use of Assistive Technology, Inclusive Library Collection, Librarians' Digital Competence, and User Satisfaction. The R Square value (.550) suggests that 55.0% of the variance in User Satisfaction is explained by these three predictors combined. The Adjusted R Square (.547) shows that the model remains robust after accounting for the number of predictors.

The ANOVA table further confirms the model's significance. The regression sum of squares (63.056) indicates the portion of variance in User Satisfaction explained by the predictors, and the F-statistic (181.976) is highly significant (p-value = .000). This suggests that the model is statistically significant and that the combination of these predictors significantly impacts User Satisfaction.

The Coefficients table offers detailed insights into the individual contributions of each predictor. The unstandardized coefficient for Librarians' Digital Competence (B = .109) indicates that for every one-unit increase in this variable, User Satisfaction increases by .109 units. However, the standardized coefficient (Beta = .115) shows that its contribution is relatively modest. The t-value (2.396) and p-value (.017) suggest that Librarians' Digital Competence has a statistically significant but smaller effect compared to the other variables.

Inclusive Library Collection has a stronger impact, with an unstandardized coefficient (B = .454), meaning that a one-unit increase in Inclusive Library Collection leads to a .454-unit increase in User Satisfaction. The standardized coefficient (Beta = .436) reflects the strong contribution of this variable, with a highly significant t-value (9.255) and p-value (.000). furthermore, the Use of Assistive Technology also plays an important role, with an unstandardized coefficient (B = .276) indicating that a one-unit increase in this variable results in a .276-unit increase in User Satisfaction. The standardized coefficient (Beta = .267) and the significant t-value (5.150) and p-value (.000) confirm the meaningful contribution of Use of Assistive Technology to the model.

Overall, the analysis shows that there is asignificant combined influence of Use of Assistive Technology, Inclusive Library Collection, and Librarians' Digital Competence on User Satisfaction among physically challenged students. Among these, inclusive library collection has the strongest influence, followed by use of assistive technology and then librarians' digital competence. The results highlight the importance of these factors in enhancing user satisfaction in libraries. Therefore, the null hypothesis that There will be no combined influence of inclusive libraries, availability of assistive technologies and librarians' digital competency on users' satisfaction of the physically impaired in higher institutions in Oyo state, Nigeria is hereby rejected.

4.5 Thematic Analysis Interview with Head of Libraries

In order to enrich the quantitative data collected from the respondents, the research also conducted a series of interviews with the head of libraries under study. The qualitative that provides useful insight into the quantitative data provided and allows for nuanced understanding of the subject of study.

User Satisfaction among Physically Challenged Library Patrons

The interview revealed that institutions employ various strategies to promote user satisfaction, specifically for students with physical challenges. Awareness programs and library orientations are common, with University of Ibadan using signage and personalized assistance for navigating the library. LAUTECH and Emmanuel Alayande University rely primarily on orientation programs to educate all library users. However, they lack targeted promotional efforts. The Federal College of Education (Special) and the Federal School of Surveying offer more extensive promotional strategies, with digital

outreach through social media, including WhatsApp and Facebook, to engage students with physical challenges. In addition, direct assistance and personalized service provision are provided mainly at UI and the Federal College of Education (Special), where services include one-on-one instructions and personalized reading resources for visually impaired students.

Inclusive Library Practices

The quantitative data revealed high level of inclusive library practice among the libraries. However, the interviews conducted show that the level of inclusiveness in library services varies significantly across institutions. This indicates that some outlier libraries may have helped boost the general perception of the libraries. For instance, the University of Ibadan (UI) can be described as "very inclusive," offering adapted resources at a basement level designed for easy accessibility, with ramps and signage for the physically challenged. However, despite the inclusiveness of resources, only a handful of students with special needs are reported to be patronising the library pointing to some underlying issues. Other institutions such as LAUTECH and Emmanuel Alayande University of Education show partial inclusiveness, with basic structural adjustments but limited resources specifically adapted for physically challenged users. In contrast, institutions such as the Federal College of Education (Special), Oyo, are highly inclusive, possessing departments dedicated to different areas of disabilities and various adapted resources. Accessibility measures are notably advanced at the Polytechnic Ibadan and the Federal School of Surveying, although some services, such as specific training for the visually impaired, are not yet fully implemented.

Use of Assistive Technology

The interviews conducted also revealed that the qualitative data may not be telling the whole story about the use of assistive technology in the libraries under study. Insights from the qualitative data further revealed that assistive technology use is not uniformly implemented across these institutions, with some advancements in remote services and technology training. The Federal School of Surveying provides a dedicated website for remote information access, while the Federal College of Education (Special) has ongoing training programs aimed at the physically challenged, enhancing user autonomy. By contrast, institutions such as UI and LAUTECH do not yet offer structured remote services, although UI is exploring policy development in this area. Similarly, training on assistive technology is minimal across most institutions, except for the Federal College of Education (Special), which provides annual orientation and technology training to aid library use among students with disabilities.

Digital Competence of Librarians

The qualitative data further supported the quantitative results when it comes to the digital competence among librarians. Librarians' digital proficiency levels vary but are generally high across institutions. UI librarians are described as “digitally competent,” possessing skills to navigate digital content and protect data security, a trend observed in institutions like the Federal School of Surveying and the Polytechnic Ibadan, which maintain robust security measures and handle digital content creation. However, a lack of expert support for handling assistive technology within libraries is notable, with several institutions like UI relying on assistance from other departments, such as the Department of Special

Education. Specific training on ICT is available to some degree across institutions, with UI leading in the number of trained professionals on-site for ICT-based training.

4.6 Discussion of Findings

The study aimed to determine the influence of use of assistive technology, inclusive library collection, and librarians' digital competence on user satisfaction among physically challenged students in public higher institution in Oyo state of Nigeria. The quantitative aspect of the study revealed insight findings.

The first research question explored the level of user satisfaction among the respondents. The finding indicates moderate to high overall satisfaction with the library services among physically challenged students' public higher institution in Oyo state of Nigeria. The breakdown of the result however showed that, while most users are satisfied, there are areas, particularly in the support services, where satisfaction levels are slightly lower. The highest satisfaction is in the area of service quality, particularly with the library's programs and events. It is interesting to note that library support services receive somewhat lower satisfaction scores, indicating potential areas for improvement in terms of availability and accessibility of support The findings revealed a moderate to high level of overall satisfaction, suggesting that the majority of these users perceive the library services as meeting their needs. However, the satisfaction is not uniformly high across all service aspects, indicating a nuanced experience among users. Specifically, the analysis highlights that users are most satisfied with the quality of library services, especially the programs and events offered. This could be attributed to well-designed events that cater

to diverse needs, including those of physically challenged users, creating a sense of inclusion and engagement.

On the other hand, the findings identified support services as a key area with lower satisfaction scores. This aspect includes services such as assistance in using library facilities, accessing digital resources, and receiving help with information retrieval. Lower satisfaction in these areas suggests that students with physical challenges may face barriers in accessing personalized assistance or that support services might lack the necessary accessibility features. This aligns with other studies, which found that while general library services are often rated positively, tailored support for physically challenged users tends to fall short, emphasizing a gap in inclusivity[1],[2].

The study's outcomes underscore the importance of focusing on enhancing the accessibility and availability of support services to ensure equitable library access for all users. Improving the training of library staff in dealing with diverse user needs, particularly those with physical disabilities, and investing in adaptive technologies can potentially bridge this satisfaction gap[3]. Thus, while the overall satisfaction among students is encouraging, the identified areas for improvement present an opportunity for libraries to enhance their inclusiveness and user support infrastructure, ultimately contributing to a more positive experience for all users.

The outcome of the second research question indicates that a moderate level of inclusiveness in the library collections. Users generally rate the library positively in terms of its collections and personnel knowledge of inclusiveness. However, there are shortcomings in areas such Wi-Fi reliability, restroom accessibility, and support for users with disabilities. The findings from the second research question indicate that the

library collections reflect a moderate level of inclusiveness, suggesting that the library has made efforts to cater to diverse user needs, including those with disabilities. Users generally provide positive feedback regarding the inclusiveness of the library collections, which includes resources that are relevant and accessible to a wider range of users. This may also extend to the knowledge and attitude of library personnel, who are seen as aware of and committed to inclusivity in their service provision.

However, despite these positive aspects, there are notable shortcomings that affect the overall user experience, particularly in areas such as Wi-Fi reliability, restroom accessibility, and tailored support for users with disabilities. The issue of Wi-Fi reliability can hinder users' access to digital resources, which is critical for students who may rely on electronic databases and e-books. Reliable internet access is a fundamental part of an inclusive digital library environment, as it ensures that all users, including those with mobility challenges, can access resources remotely if needed.

Similarly, restroom accessibility remains a practical and essential aspect of inclusivity. When restrooms are not adequately designed for users with physical disabilities, it limits their ability to use library facilities comfortably, thus impacting their overall experience. This aligns with findings from studies which highlight the importance of physical infrastructure in creating inclusive learning environments in libraries[4].

Moreover, the findings suggest gaps in the library's support services for users with disabilities, which could involve a lack of specialized equipment or insufficiently trained staff to assist these users effectively. Addressing these areas of concern is crucial, as it would enhance the library's role in providing a truly inclusive space for all users, allowing for equitable access to information. Previous scholar have also emphasize the

importance of libraries not only having inclusive collections but also creating an environment where physical access and support services are seamlessly integrated into the user experience[5]. By focusing on these areas, libraries can improve their service quality and better fulfill their mission of serving all members of their academic communities.

On the third research question, the finding indicates moderately high level of assistive technology use in the libraries. However, there is room for improvement in areas like accessibility, peer influence, and training. This finding suggests that these libraries are making strides toward providing inclusive technological support, enabling users to access resources effectively. However, the study reveals areas needing further improvement, particularly in accessibility, peer influence, and training.

Accessibility remains a critical factor in the use of assistive technology within libraries. According to previous studies, accessibility is foundational for equitable use of AT, as it directly impacts the ability of students with disabilities to access digital and physical resources[6]. A lack of user-friendly interfaces or inadequate physical access can limit the usability of assistive technologies, thereby affecting the overall library experience.

Peer influence also plays a role in how effectively students use assistive technologies. Peer support can encourage the adoption and continued use of AT, creating a collaborative learning environment. A study highlighted the importance of peer networks in fostering positive attitudes towards technology use, which can be instrumental in overcoming initial reluctance or uncertainty among students with disabilities[7]. When students observe their peers effectively using assistive technologies, they are more likely to engage with these tools themselves.

Training is another area where improvement is needed to enhance the use of assistive technology in libraries. A scholar emphasize that ongoing training for both library staff and users is essential for maximizing the potential of assistive technologies. Without proper training, users may struggle to utilize the full functionality of these tools, leading to underuse or ineffective application[8]. Additionally, staff training ensures that librarians are well-equipped to provide support and guidance, thus improving the overall user experience.

Moreover, experts discuss the importance of tailored training sessions that address specific needs of students, allowing them to adapt assistive technologies to their personal learning styles[9]. This targeted approach not only enhances usability but also increases the satisfaction and engagement of students with disabilities in the library setting.

Lastly, a recent study underlined that while assistive technologies have been increasingly integrated into academic libraries, a systematic focus on improving accessibility features and creating inclusive environments is crucial. They argue that addressing these gaps can significantly improve the effectiveness of assistive technology use, thereby fostering a more inclusive academic library environment for students with special needs[10].

The fourth research question led to the finding that librarians exhibit above-average digital competencies across various areas, with a particular strength in problem-solving and communication skills. This aligns with the growing emphasis on digital literacy in the library profession, as highlighted in recent research. For instance, studies emphasize the importance of problem-solving skills in adapting to digital tools and technologies in library settings, enabling librarians to navigate complex digital environments and assist

users effectively[11]. Similarly, communication skills are crucial for providing digital services and guiding users through online resources[12].

However, the lower proficiency scores in digital content creation suggest areas for improvement. This aspect is critical as libraries increasingly engage in creating digital collections, online exhibitions, and e-learning resources. According to an expert, the ability to create and manage digital content is a vital skill for librarians, especially in the context of expanding digital repositories[13]. Moreover, in the context of digital safety, the study highlights gaps in areas like storytelling, accessibility, and threat identification, which are crucial for ensuring inclusive and secure access to digital resources. Scholars have emphasized the need for enhanced digital safety practices, pointing out that librarians must be adept at identifying potential digital threats and ensuring that online platforms are accessible to all users, including those with disabilities[14].

Improving skills in these areas can have a significant impact on the overall quality of digital library services provided. Training programs targeting digital content creation and advanced safety protocols could bridge these gaps, ensuring that librarians are not only proficient but also equipped to address emerging challenges in the digital age[15]. Such targeted skill enhancement is essential for maintaining the relevance of libraries in the ever-evolving digital landscape.

The test of first hypothesis revealed a significant and positive relationship between inclusive library collection and user satisfaction among physically challenged students public higher institution in Oyo state of Nigeria. A related study has also reported that lack of inclusion often lead to dissatisfaction with library services among physically challenged groups. The library's failure to include physically challenged students in

decision-making processes and the lack of specific information items that cater to the disability of physically challenged students were also identified. Based on these findings, the study proposes that library staff be trained to address the needs of physically challenged users, as well as including this unique group of users in the library's decision-making process regarding collection growth[16].

In the same vein, the study found a significant and positive relationship between use of assistive technology and user satisfaction among physically challenged students inpublic higher institution in Oyo state of Nigeria. The model explains a substantial portion of the variance in user satisfaction, suggesting that increasing the use of assistive technologies in the library has a meaningful impact on improving user satisfaction levels.

In this digital age, where digital material is available in a variety of formats, Digital Right Management has arisen as a valuable technology utilised by content owners to protect their intellectual property online. Digital rights management protects the usage of copyrighted digital works from illegal access. Although Digital Rights Management appears to safeguard writers' copyrights, it restricts the copyright freedom of blind and visually impaired users who rely on accessible tools. This study examines how Digital Rights Management affects the accessibility of library electronic resources for BVI users. Furthermore, it addresses how complicated Digital Rights Management infringes BVI consumers' fair use rights by preventing them from accessing electronic resources. This review paper summarises the primary research findings on Digital Right Management challenges that blind and visually impaired people face when accessing electronic resources. The results, based on the literature studied, reveal that the majority of libraries worldwide are falling behind in providing efficient access to electronic resources for BVI

users. Libraries face a number of hurdles in making electronic content accessible, including Digital Rights Management challenges, license constraints, website design limitations, accessibility issues, and compatibility issues with assistive technologies[17].

Studies have established that inclusive services is a means of ensuring patron satisfaction. This was further reflected in study on the perceptions of physically challenged library users in India. The research results demonstrated that the library under study provided acceptable information resources and services to its physically challenged library users, with the exception of subtitled digital versatile disc (DVD) and videos for deaf pupils. It was also discovered that competent workers who are fluent in sign language, interpretation, and Braille reading are in high demand, which the library should consider in the near future. The results also showed that the majority of users were satisfied with the materials, while the least were satisfied with the library's services and facilities; suggestions were made to increase user satisfaction[18].

In a related study conducted in Zimbabwe, researchers examined the determinants affecting library utilisation by students with disabilities at the United College of Education in Zimbabwe. The study found that physical inaccessibility of the library for students with disabilities, insufficient infrastructure to support existing assistive technologies, information resources that fail to accommodate students with disabilities, and inadequately trained staff to assist users with disabilities[19].

However, the study found a moderate yet significant positive relationship between *librarians' digital competence* and *user satisfaction* among physically challenged students in public higher institution in Oyo state of Nigeria. The findings suggest that improving

librarians' digital skills could have a substantial impact on enhancing user satisfaction in library services. Librarians' digital competence has been identified by various scholars as a significant ingredient in rendering effective library services to all categories of users. A Nigeria researcher also reported similar finding.

The scholar contended that user satisfaction is a crucial determinant of library utilisation, reliant on skilled professionals providing high-quality services. Professional competence, which includes communication skills and academic qualifications, facilitates effective performance in libraries. Insufficient library services in colleges of education may impede user satisfaction. The study found a substantial effect of professional competence on user satisfaction among college libraries in Nigeria. To improve user satisfaction, college library management must evaluate service quality, hire qualified professionals, and emphasise positive work attitudes and environments[20].

In a related study, researcher also found that digital competence lead to effective performance of librarians and positively and significantly influence the quality of electronic services to library patrons, including physically challenged patrons. Thestudy assess the impact of digital competence and employee performance on the quality of electronic services utilised by students at the Unpad FISIP Library.. The research findings indicate that the digital competence and performance of the librarians at Unpad FISIP Library are assessed as very high or highly qualified, whereas the quality of the library's electronic services is rated as high or qualified[21].

Similarly, a study found a moderate provision of smart information services by academic libraries, alongside a corresponding moderate level of digital skills related to the

promotion of these services in Jordanian libraries. The findings demonstrated a significant positive correlation between the extent of smart information services in the studied libraries and the digital competencies of the librarians. The author submitted that technological advancement has compelled academic libraries to modify their traditional services and routines by integrating emerging technologies. This adaptation addresses the evolving information needs of users, who increasingly favour remote access and timely information retrieval. Smart technologies represent a contemporary trend in academic libraries[22].

Overall, the study found a significant combined influence of use of assistive technology, inclusive library collection, and librarians' digital competence on user satisfaction among physically challenged students in public higher institution in Oyo state of Nigeria. Among these, inclusive library collection has the strongest influence, followed by use of assistive technology and then librarians' digital competence. The study's findings highlight the significant combined impact of assistive technology (AT) use, inclusive library collections, and librarians' digital competence on user satisfaction among physically challenged students in public higher institutions in Oyo State, Nigeria. Notably, among these factors, the strength of the inclusive library collection was found to be the most influential in driving user satisfaction. This result underscores the multifaceted nature of creating an inclusive library environment that caters to the needs of students with disabilities, and it sheds light on how libraries can enhance their services to foster a better academic experience for all users.

An inclusive library collection is critical for ensuring that library users, especially those with disabilities, have access to resources that meet their diverse needs. This encompasses both the physical and digital collections that are designed to be accessible to all users, including those with visual, auditory, or physical impairments. Inclusive collections help to provide equitable access to information, making it easier for students to find resources that match their educational requirements. The emphasis on inclusivity in collections aligns with prior research, which highlights that inclusive collections are crucial for fostering a sense of belonging among students with disabilities, ultimately enhancing their satisfaction with library services[23].

In the context of Oyo State, an inclusive library collection may include materials in accessible formats such as Braille, audio books, and digital materials that are compatible with screen readers. The provision of such resources ensures that students with disabilities can access the same academic materials as their peers, thus reducing barriers to learning. The positive reception of these resources among the physically challenged students in this study suggests that the availability of inclusive materials can significantly enhance their library experience, contributing to their overall satisfaction.

Assistive technology plays a vital role in enabling students with disabilities to access and engage with library resources. Technologies such as screen readers, voice recognition software, and specialized hardware help bridge the gap between students' needs and the resources available in the library. The study's findings indicate that while assistive technology use contributes positively to user satisfaction, its impact is not as pronounced as that of an inclusive library collection.

This can be attributed to the fact that the mere availability of assistive technology does not guarantee its effective use. The extent to which students are able to benefit from these technologies often depends on factors such as the availability of training, the accessibility of library environments, and the quality of support services offered by library staff. As experts point out, assistive technology must be integrated with robust support structures and tailored training programs to maximize its effectiveness[24]. Therefore, the findings of the study may suggest that while assistive technology is a valuable resource, its impact on user satisfaction is enhanced when it is part of a broader strategy that includes inclusive collections and competent library staff.

Librarians' digital competence emerged as another significant factor in influencing user satisfaction in this study. Digital competence refers to the ability of librarians to effectively utilize digital tools and platforms to assist students in accessing library resources. This competence is particularly important in environments where digital resources are increasingly being used alongside traditional print materials. For students with disabilities, having digitally competent librarians means that they can receive better guidance on how to access digital collections, use assistive technologies, and navigate online databases.

The positive impact of librarians' digital competence on user satisfaction aligns with the findings of another scholar who argue that the ability of library staff to provide digital support is essential for creating an inclusive library environment. Digital competence enables librarians to facilitate better user experiences, ensuring that students with disabilities are able to fully utilize available resources[25]. Moreover, competent librarians

can provide tailored support, helping students to overcome specific challenges they might face in using digital tools. Thus, digital competence is not only a technical skill but also a critical aspect of delivering inclusive library services.

The combined influence of these factors—use of assistive technology, inclusive collections, and digital competence—highlights the interdependent nature of creating an inclusive library environment. For example, even with a well-curated inclusive library collection, the lack of competent librarians to guide students in using those resources could lead to a suboptimal experience. Similarly, without the availability of assistive technologies, students with certain disabilities may not be able to fully access the digital collections, limiting their ability to benefit from the library's offerings.

This finding underscores the importance of a holistic approach to library services. Libraries must not only focus on building inclusive collections but also ensure that assistive technologies are available and that staff are well-trained to support students' needs. As an expert suggested, the synergy between these factors is what ultimately determines the overall quality of library services for students with disabilities. By addressing these interconnected needs, libraries can create a more supportive and satisfying experience for their users[26].

While the study reveals a positive trend in the use of assistive technology and the availability of inclusive collections, it also suggests areas where improvements can be made. The fact that the influence of assistive technology is not as strong as that of inclusive collections points to a need for more targeted interventions, such as better training programs for users and staff, as well as improved access to these technologies.

Scholars emphasize that training and peer support can play a crucial role in enhancing the adoption of assistive technology, thus making it a more significant contributor to user satisfaction[27].

Additionally, improving the physical accessibility of library spaces and ensuring that digital resources are compatible with a range of assistive technologies could further enhance the user experience. Investing in infrastructure that supports better internet access, ergonomic facilities, and seamless integration of digital tools could address some of the gaps identified in this study. Libraries could also focus on fostering a culture of inclusivity, where feedback from students with disabilities is actively sought and used to make improvements.

The findings of this study provide valuable insights into the factors that influence user satisfaction among physically challenged students in public higher institutions in Oyo State, Nigeria. It is evident that an inclusive library collection is a key driver of satisfaction, suggesting that libraries should prioritize the availability of accessible materials. However, the role of assistive technology and digital competence cannot be overlooked, as these elements contribute to a supportive environment where students can access and engage with library resources more effectively.

For libraries aiming to enhance their services, adopting a comprehensive approach that integrates inclusive collections, assistive technology, and digital competence is crucial. Such an approach not only addresses the immediate needs of students with disabilities but also ensures that they have the tools and support necessary to succeed academically. Future research could explore how these factors interact over time and assess the long-

term impact of improvements in these areas on user satisfaction. By continuing to refine and expand their services, libraries can ensure that they remain inclusive and responsive to the diverse needs of all their users[28].

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Chapter Five

Conclusion

This chapter concludes the study. It succinctly presents the study outcome based on the quantitative and qualitative data analyses that have been conducted to answer the research questions and test the research hypotheses. The chapter presents a summary of the finding and outlines the conclusion drawn from these findings. Recommendations are also made in order to provide policy makers and key stakeholders with the necessary information to improve the lot of physically challenged library users across tertiary institutions in Nigeria.

5.1 Summary of Findings

The findings of these are summarised as follows;

The first research question explored the level of user satisfaction among the respondents. The finding indicates moderate to high overall satisfaction with the library services among physically challenged students' public higher institution in Oyo state of Nigeria. The breakdown of the result however showed that, while most users are satisfied, there are areas, particularly in the support services, where satisfaction levels are slightly lower.

The outcome of the second research question indicates that a moderate level of inclusiveness in the library collections. Users generally rate the library positively in terms of its collections and personnel knowledge of inclusiveness. However, there are shortcomings in areas such Wi-Fi reliability, restroom accessibility, and support for users with disabilities.

On the third research question, the finding indicates moderately high level of assistive technology use in the libraries. However, there is room for improvement in areas like accessibility, peer influence, and training. This finding suggests that these libraries are making strides toward providing inclusive technological support, enabling users to access resources effectively.

The fourth research question led to the finding that librarians exhibit above-average digital competencies across various areas, with a particular strength in problem-solving and communication skills.

The study found that there is a significant and positive relationship between Inclusive Library Collection and User Satisfaction, with the model explaining nearly half of the variance in satisfaction levels.

In the same vein, the study found a significant and positive relationship between use of assistive technology and user satisfaction among physically challenged students in public higher institution in Oyo state of Nigeria.

However, the study found a moderate yet significant positive relationship between *librarians' digital competency* and *user satisfaction* among physically challenged students in public higher institution in Oyo state of Nigeria. The findings suggest that improving librarians' digital skills could have a substantial impact on enhancing user satisfaction in library services.

Overall, the study found a significant combined influence of use of assistive technology, inclusive library collection, and librarians' digital competence on user

satisfaction among physically challenged students in public higher institution in Oyo state of Nigeria. Among these, inclusive library collection has the strongest influence, followed by use of assistive technology and then librarians' digital competency.

5.2 Conclusion

The study has provided a comprehensive analysis of factors influencing user satisfaction among physically challenged students in public higher institutions in Oyo State, Nigeria. It found that while there is a generally moderate to high level of satisfaction with library services, areas like support services require improvement. Additionally, the inclusiveness of library collections was deemed moderate, with positive perceptions but gaps in areas such as Wi-Fi reliability and accessibility facilities. The study also highlighted that the use of assistive technology is at a moderately high level, though further enhancements in accessibility and user training are necessary. Moreover, librarians demonstrated above-average digital competencies, contributing positively to the library experience for students with disabilities. A significant positive relationship between the use of assistive technology and user satisfaction emphasizes the importance of technological support in fostering a more inclusive and satisfying library environment.

5.3 Recommendations

Based on the findings of this study, the researcher considers these recommendations as imperative;

i. Libraries should focus on improving support services by offering more tailored assistance and user-centric programs to meet the specific needs of physically challenged students, thereby raising overall satisfaction levels.

ii. Libraries should endeavor address shortcomings in inclusiveness, libraries should prioritize improving Wi-Fi reliability, enhancing restroom accessibility, and expanding services tailored for users with disabilities to ensure an equitable experience.

iii. It is recommended that libraries implement more extensive training sessions on the use of assistive technology and foster a culture of peer support to enhance accessibility and user confidence in utilizing these technologies.

iv. Continuous professional development and digital training programs for librarians should be maintained, focusing on keeping their skills up-to-date, especially in new digital tools and platforms that can benefit physically challenged students.

v. Efforts should be made to leverage the strong positive relationship between inclusive library collections and user satisfaction, it is recommended that libraries continuously update and diversify their collections to better reflect the needs and interests of physically challenged students, ensuring that resources are accessible and relevant to this group.

vi. Libraries should increase investment in assistive technology infrastructure and provide regular training sessions for students on how to use these technologies effectively, ensuring that physically challenged students can fully benefit from the resources and enhance their satisfaction with library services.

vii. In order to strengthen the positive relationship between librarians' digital competence and user satisfaction, it is advisable that libraries provide continuous professional development opportunities focusing on digital skills, enabling librarians to offer better support and guidance to physically challenged students.

viii. Given that inclusive library collections have the strongest impact on user satisfaction, followed by assistive technology and digital competence, libraries should adopt a holistic approach to service improvement by integrating these elements; updating collections, investing in assistive technology, and boosting librarians' digital skills; to create a more inclusive and supportive library environment for all students.

5.4 Contribution to Knowledge

This study has made some contributions towards the expansion of the frontier of knowledge. The contributions can be discussed in terms of conceptual, theoretical, and empirical contributions. This study contributes to the understanding of the interrelationship between library service quality and user satisfaction among students with disabilities. It introduces a framework that incorporates inclusiveness, technological support, and staff competencies as integral components of satisfaction. The study also enhances the theoretical understanding of library service delivery by applying concepts of user satisfaction, inclusiveness, and technology use within the context of physically challenged students, demonstrating the critical role of assistive technology in modern library settings.

Empirically, this research adds to the body of knowledge by providing evidence from Nigerian higher institutions, offering insights into the specific challenges and needs of physically challenged students in public libraries. It also provides data-driven recommendations that can inform future policies and practices in library management aimed at creating more inclusive and supportive environments.

5.5 Suggestions for Further Studies

From the findings of this study, it becomes obvious that the following areas of further investigations are suggested for consideration:

The present study assessed issues concerning inclusive libraries, the use of assistive technology , librarians digital competency and their effects on user satisfaction of the physically challenged in public higher institutions in Oyo state. Further research could be directed towards assessing the impact of inclusive libraries, use of assistive technology, librarians' digital literacy and user satisfaction of other categories of the specially abled individuals (disabled) such as the hearing impaired, the slow learners or learning disabled, students with intellectual disabilities, and the gifted and talented, or other target groups like the hospital bound patients, the elderly and the prisoners.

The present study focused on the physically challenged students in public higher institutions in Oyo state, it is therefore possible to replicate the present study at a larger scale using more universities and colleges of education, most especially beyond south-west region of Nigeria, outside the country or beyond the continent of Africa.

It is also possible to carry out a comparative analysis User Satisfaction with Inclusive Library Services between Public and Private Universities

Apart from the above, it therefore becomes expedient to recommend that as a follow up to this study, an investigation should be carried out on the impact of digital literacy training on the use of assistive technology among physically challenged students:

Another useful follow-up research could focus on comparative analysis of effectiveness of peer-led programs in promoting the use of digital resources among physically challenged students.

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Appendix I

Department of Information and Management,
Faculty of Communication and Management Sciences,
Lead City University, Ibadan

Dear Respondents,

This questionnaire is mainly designed to carry out research into issues bordering on Inclusive library, assistive technology, digital competency and user satisfaction of the selected students in public institutions within Oyo State

Your responses to the questions raised shall be appreciated as it will help greatly in the successful completion of the study. The information provided will be specifically utilized for only academic purposes and will be treated confidentially.

Thank you for your cooperation.

Yours sincerely
Adebayo, O.A
Research Student
08112851477

Section A: Demographic Data

Instruction: Please, fill the information below by ticking(√) the applicable box once.

i. Gender: Male ( ) Female ( )

ii. Institution: College ( ). University ( ) Polytechnic/ Monotechnic ( )

iii. Religion: Christianity ( ). Islamic ( ). Traditional ( )

iv. Educational level: 100 ( ) 200 ( ). 300 ( ) 400 ( ). Others: specify…

Section B: User Satisfaction

Kindly read each statement and decide how strongly the statement applies to YOU on the scales of Very High (VH), High (H), Low (L), and Very Low (VL).

S/N	User Satisfaction	VH	H	L	VL
	Service Quality				
1	Library`s programme and events are very effective				
2	I always appreciate the effectiveness and timeliness of library operation				
3	I am satisfied with the level of availability and accessibility of library resources				
4	Library information provision are always accurate and reliable				
5	I am proud of my library`s quality services delivery				
	Brand Image				
6	I can boldly describe our library as friendly, welcoming and innovative				
7	Our library`s image remain intact on either of website, social media and physical space				
8	I can recommend my library to others, based on its brand value				
9	My library holds a good reputation within and outside the community				
10	Our library is better off, compared with other libraries around				
	Library Support				
11	The library is always responsive to my information needs and queries				
12	I am satisfied with the library`s online support resources e.g FAQs, tutorials, guides				
13	I am satisfied with the availability and accessibility of library support services. (e.g. phone, email, chat in person)				
14	I will continue to receive help from library staff in the future				
15	The quality of support provided by the library staff is superb				

Section C

S/N	Inclusive Library	VH	H	L	VL
	Library Collections				
1	Library information materials are available in multiple formats, e.g braille, audio books, e-books etc)				
2	The library e-book and digital resources are always accessible				
3	There are collections of graphic novels and comics in our library				
4	Library materials are accessible online and in- person				
5	The digital resources in our library are accessible and user-friendly				
	Architecture				
1	My library entrance, doorways and corridors are accessible and wheel-chair friendly				
2	Braille and tactile signs are available throughout our library				

3	My institution`s library has a safe and welcoming environment for all users.				
4	Accessible restrooms are available in our library				
5	The library's Wi-Fi network is reliable and accessible				
	Services				
1	My institution has inclusive and accessible programme for diverse students				
2	The library personnel demonstrate great knowledge of equity, diversity and inclusiveness				
3	There are adaptive technologies for users with disabilities				
4	Library services and resources are accessible for all individuals with special needs				
5	We enjoy multimedia support and resources in my library				

Section: D

S/N	Use of Assistive Technology	VH	H	L	VL
	Performance Expectancy				
1	Library assistive technology devices are very useful in achieving ones goals				
2	Library assistive technology improves my performance				
3	Library assistive technology enhances my efficient completion of tasks				
4	My academic success is dependent on access to AT tools or software				
5	Am satisfied with the overall performance of assistive technology in the library				
	Effort Expectancy				
1	The use of library assistive technology is very easy				
2	I can easily manipulate every library assistive technology device				
3	It takes a great effort to use library assistive technology devices				
4	It is very easy to get assistance with assistive technology in the library				
5	The assistive technologies available in the library are user friendly				
	Social Influence				
1	I was influenced greatly by library staff to use assistive technology				
2	All my special needs friends engage the use of assistive technology				
3	I will constantly advocate for the use of library assistive technology				
4	The entire society believe all I need is the use of library assistive technology				
5	My decision to use library assistive technology was greatly influenced by my peers				
	Facilitating Condition				
1	Assistive Technology (AT) is always available when needed in the library				
2	I have direct access to the assistive technology in our library				
3	I have been trained by the library on how to use AT				

4	Technical support is always available when needed in the library				
5	The physical environment of the library is conducive for the use of AT				
	Behavioural Intention				
1	I will constantly advocate for the use library assistive technology				
2	I will keep using assistive technology on weekly basis				
3	I have the ability to grasp the mastery of AT usage within a short while				
4	The use of AT will assist and promote daily academic experience				
5	The use of library AT would be consistent with my personal values				

Section E

S/N	Librarians Digital Competency	VH	H	L	VL
	Information and Data Literacy				
1	Our librarians are very skilful in handling library software				
2	Librarians always help in navigating online databases and information resources comfortably				
3	Librarians are well versed in teaching us how to evaluate online resources				
4	Our librarians can readily assist users with data related tasks, such as data visualisation or statistical analysis				
5	Librarians in my institution are familiar with data analysis tools and techniques				
	Communication and Collaboration				
1	Our librarians can readily communicate technology related information to library users				
2	My institution`s librarians can readily design and develop online learning resources, like tutorials or guides				
3	Librarians are very comfortable using digital tools for virtual meetings or remote collaboration				
4	Librarians in my institution can easily design and deliver on-line training				
5	Our librarians are well versed in their knowledge of accessibility guidelines for digital communication and collaboration				
	Digital Content Creation				
1	We constantly enjoy librarians' creation of digital contents such as videos, or podcasts				
2	We are familiar with librarians digital story telling techniques and tools, such as Storify or Wakelet				
3	Librarians always design and develop online learning resources, such as tutorials or guides				
4	Librarians constantly create other digital contents, such as infographics or other social media graphics, for library publicity				
5	We do enjoy librarians creation of accessible digital contents, such as alt-text for images or closed captions for videos				
	Safety				
1	Librarians ensure constant updating of software and operating system to ensure latest security patches are applied				

2	Librarians have the ability to identify and report online security threats, such as phishing or ransomware attacks				
3	Librarians in my institution can readily handle password management and two factor authentication				
4	Librarians always ensure development and implementation of online safety policies and procedures for the library				
5	Librarians often provide training for users on online safety and digital literacy				
	Problem Solving				
1	Librarians can readily troubleshoot technical issues with library software or hardware each time the need arises				
2	Librarians always resolve complex technical problems in the library				
3	Librarians are always comfortable when adapting to new technologies and workflows to solve emerging problems				
4	Our librarians often collaborate with one another to solve technical problems				
5	Librarians are confident with their ability to design and implement solutions to improve library workflows or processes				

Appendix II

Inclusive Libraries, Use of Assistive Technologies, Librarians Digital Competency and User Satisfaction of Physically Challenged Students in Public Higher Institutions, Oyo State, Nigeria

Interview with University/Polytechnic/Monotechnic/College Librarians of Public Higher Institutions, Oyo State Nigeria

INTERVIEW GUIDE

Sir/Ma,
Kindly give your opinions/answers freely and objectively on the following about the research topic stated above.

Inclusive Libraries

1. *As the University/Polytechnic/Montechnic/College Librarian, can you tell us in plain terms how inclusive your library is?*

2. *Do you have adapted resources for the physically challenged users?*

3. *How many Braillists are working directly with the library?*

4. *Are there sign language interpreters?*
5. *How accessible are the sections of the library to the physically challenged students?*

Use of Assistive Technology

1. Is the library offering remote services to the physically challenged students of the institution?
2. How often do you train your students on the use of assistive technology devices?

Librarians Digital Competency

1. *How will you describe the digital competence proficiency level of your library personnel?*

2. *How many experts in the library can handle assistive technology devices?*

3. *How many experts can you send out to handle the trainings involving web management, online information processing and retrieval, web blogs and the rest?*

4. *Can the library boast of any digital content creation?*

5. *How safe are the library on-line records, and what measure is in place to ensure their*

   safety?

6. What are the measures in place to ensure data security within the library and who are those in charge?
7. What organization are you specifically partnering with in order to serve the physically challenged user population?

User Satisfaction

1. How do you make your programmes known to the physically challenged population of the users?
2. How are you projecting the library image towards satisfaction of the students with physical challenge?
3. Is there any personalized service to the physically challenged students in your library?

Bio Data

A Personal Data

NAME: **ADEBAYO, OLUREMI ADEBOWALE**

Sex:	**Male**
Date of Birth:	11th July,1974
Marital Status:	Married
State of Origin:	Osun State
Local Government:	Iwo L.G
Nationality:	Nigerian
Religion:	**Christianity**
Discipline:	**Librarianship (Library and Information Science)**
Place of Work:	**Federal College of Education (Special), Oyo**
Number of Children:	**4**
Ages of Children:	**15, 13, 10 & 8 Years**
Address:	N0 93 Goshen Estate, Amuloko Road, Jobele, Oyo State
Telephone:	08034774265
Email:	remsonlib@yahoo.com, adebay71@gmail.com

B. INSTITUTIONS ATTENDED WITH DATES:

St. Anthony Catholic Grammar School, Iwo	- 1985-1992
General Certificate Examination (GCE)	- 2001
University of Ibadan, Ibadan.	- 1999-2001
University of Ibadan, Ibadan	- 2004-2007
University of Ibadan, Ibadan	- 2008-2010
Federal College of Education (Special), Oyo	- 2011
Federal College of Education (Special), Oyo	- 2012

ACADEMIC AND PROFESSIONAL QUALIFICATIONS WITH DATES:

West African Examination Council (WAEC) - 1992
General Certificate Examination (GCE) - 2000
Diploma in Librarianship - 2001
Bachelor Degree in Library and Information Studies - 2007
Teachers Registration Council of Nigeria - 2012
Master of Library and information Studies - 2010
Certificate in Computer Training - 2011
Professional Diploma in Education (Special Education) - 2012
(PhD) Degree in Library and Information Science **In-view**

C. Work Experiences with Dates:

DATE OF ASSUMPTION OF DUTY IN THE COLLEGE/STATUS:
7th August, 1997/ Senior Library Attendant

NAME OF SCHOOL OR DEPARTMENT:
College Library/ Readers Services Division

COURSES TAUGHT WITHIN THE PROMOTION PERIOD: GSE 112
Introduction to Library Studies

ADMINISTRATIVE EXPERIENCE: (SCHEDULE OF WORK AND POSITIONS WITH DATES)

Collection Development/Serials Section: Senior Library Attendant-

1997- 1998

i. Checking of New Arrivals into the Library against Order;
ii. Collating of New Arrivals, Stamping and Accessioning
iii. Transfer of Processed Materials into the Appropriate Section;
iv. Stamping of Serials Publications as well as Indexing of Newspapers;
v. Shelving and Shelf- Reading of Serials Materials and Retrieval of Information for Library Users

Circulation Section: Library Assistant: **1999-2000**

i. Registration of Library Users: Issuing of Library Permit Card and Borrowers Tickets respectively.

ii. Charging and Discharging of Library Information Bearing Materials

iii. Compilation of Overdue Notice of Books

iv. Sending of Overdue Notices to the Library Defaulters

v. Filling of Users' Record

vi. Keeping of Statistical Records of Books Consulted, Books Charged and Discharged, as well as Hourly Use of the Library.

vii. Shelving and Shelf- Reading of Library Materials

viii. Weeding of Mutilated Library Materials

ix. Book Reservation and Retrieval of Relevant Information for Users Based on Request

Cataloguing and Classification Section: Senior Library Assistant / Asst. Lib. Officer

Officer: 2001-2003

i. Cataloguing of Information Materials

ii. Classification of Library Materials

iii. Writing of Call Mark(s) on Book Spines

iv. Retrieval of Information Materials from the Shelves for Further Processing

v. Writing of Book Cards and Pasting of Book Labels and Pockets on Books

vi. Transferring of Processed Materials to the Appropriate Section

vii. Assisting in the Preparation of X-LIB Worksheet / Template

viii. Writing and Filing of Catalogue Cards into the Catalogue Cabinet

Serials Section: Assistant Library Officer **2004-2005**

i. Stamping of Serials Publications

ii. Indexing of Newspapers

iii. Indexing of Journal Articles

iv. Shelving and Shelf- Reading

v. Assisting in the Preparation of Newspaper and Magazine Bills

vi. Retrieval of Information Materials from the Shelves for the Use of Library Clienteles

Cataloguing and Classification Section: Higher Library Officer 2006-2009

i. Cataloguing of Newly Acquired Library Materials
ii. Classification of Library Materials
iii. Writing of Call Marks on Book Spines
iv. Filing of Typed Catalogue Cards into the Catalogue Cabinet
v. Pasting of Books Labels and Book Pockets on newly acquired Materials
vi. Writing of Books Cards
vii. Transfer of Processed Materials to the Appropriate Section(s)
viii. Online Cataloguing and Engagement in the Input of X-LIB Software
ix. Taking Part in Library Orientation Programme for Students
x. Preparation of Quarterly and Annual Report
xi. Any other Duties as May be Assigned by the College Librarian

Virtual Library: Higher Library Officer / Librarian III 2010-2011

i. Attending to Users on the Use of Internet
ii. Photocopying Services
iii. Users' Registration
iv. Maintenance of Computers in the Virtual Library

Serials Section: Librarian III/ Librarian II 2011- 2014

i. Marking of Relevant information in the National Dailies for Indexing
ii. Engaging in Current Awareness Services (CAS) as well as Selective Dissemination of Information (SDI) within the College Community from Time to Time
iii. Preparation of Newspapers' bill on Monthly Basis
iv. Co-ordination of subordinate staff of the Section.
v. Co-ordination of Activities of the Section as a Whole

vi. Engagement in the Collection and Distribution of Newspapers to the Management Members of the College, most especially on Weekends

vii. Retrieval of Relevant Information Materials for Users based on Request

viii. Supervision of Students on Industrial Attachment

ix. Keeping and Maintenance of Serials Materials and Records

Collection Development Section: Librarian II/Librarian I. January, 2015 – 2018

i. Book selection for acquisition purposes

ii. Ensuring proper acquisition of relevant materials into the library

iii. Liaising with the College Librarian in ensuring due process as regards material acquisition

iv. Keeping of records of new arrivals as well other records of the Section

v. Keeping of vendors lists and contract agreement

vi. Facilitating payments to vendors through timely processing of bills

vii. Liaising with the College Store and the Audit unit of the College to ensure proper documentation of acquisitions

viii. Timely acknowledgement of donors

ix. Co-ordination of subordinate staff of the Section

x. Co-ordination of Activities of the Section as a Whole

xi. Ensuring proper processing of acquired materials

xii. Engagement in the retirement of TETFund project execution.

Circulation Section:Librarian I/ Senior Librarian 2018 - 2023

i. Co-coordinating the activities of the section

ii. Clearance of staff, students and corps members of the college community

iii. Keeping proper records of the activities of the section

iv. Acting as the image maker of the library in terms of giving guidance and instruction to users as well as relating with users on behalf of the College Librarian

v. Compilation of overdue notices and collection of overdue fines

vi. Issuance of library tickets

vii. Ensuring proper security of information materials within the library premises

viii. Provision of referral services to users on demand

ix. Keeping and maintenance of materials on reserve

x. Supervision of students on industrial attachment

xi. Project supervision

Readers' Services Division: Senior Librarian 2023

i. Coordinating the activities of the entire Readers Services Division in the Library.

ii. Working with the Head of Sections to ensure smooth running of all activities.

iii. Timely reporting of germane issues to the College Librarian to ensure a coordinated entity.

OTHER DUTIES

i. Teaching of GSE112 (Introduction to Library Studies) - 2010 till Date

ii. Invigilation of examinations and marking of scripts. - 2010 till Date

iii. Teaching practice supervision. - 2013 till Date

iv. Supervision of micro-teaching - 2013 till Date

RESEARCH EXPERIENCE

Adebayo, O. A. (2018). A Bibliography on natural health

Adebayo, O.A. (2022). Inclusive libraries, assistive technology, digital skills and user satisfaction in achieving Sustainable Development Goals for the visually impaired persons in Oyo state, Nigeria

Adebayo, O. A. (2018). An Investigation into the attitudinal disposition towards herbal health information among staff in colleges of education in Oyo metropolis

Adebayo, O.A. (2021). A Bibliography on natural health

Omoniyi, O.K &**Adebayo, O.A**. (2017). Reading Culture among Students in Colleges of Education: a Study of Federal College of Education (Special) and Emmanuel Alayande College of Education, Oyo

Adebayo, O.A. (2021). An Investigation into the attitudinal disposition towards herbal health information among staff in colleges of education in Oyo metropolis

D. Awards and fellowship:

Letter of Commendation/Applause as best staff of the moment for the fourth quarter of 2020

E. **. MEMBERSHIP OF PROFESSIONAL BODIES**

a. Member, Librarian Registration Council of Nigeria (LRCN 02954)
b. Teachers Registration Council of Nigeria (REG. NO: OY/R/04587)
c. Member, the Nigerian Library Association (NLA) Oyo State Chapter.
d. Member, the Nigerian Red Cross Society.

F. PUBLICATIONS

Articles in Learned Journals/ Books Indexed

Journal Articles

Adebayo, O.A. (2010). Information Accessibility for Persons with Visual Impairment. *.Journal of Association of Libraries for the Visually Impaired*(*JALVI*) 4(1), pp162-168.

Akinlubi, I.S. and Adebayo, O.A. (2011).The Use of Library Facilities between Persons with Hearing and Visual Impairment at Federal College of Education (Sp), Oyo.*Journal of Issues in Special Education (ISSE)* 10(1), pp.37-46.

Olabode, S.O and **Adebayo, O.A.** (2012). Lecturers and Students Perspective of the effectiveness of Virtual Library Services in teaching and Learning Activities: a Study of two Colleges of Education*. International Journal of Research in Education* ***7*** (3).pp.211-243.

Maduagwu, D.K &**Adebayo, O.A**. (2013). Mentoring in Academic Libraries: Prospects and Possibilities. *COCLIN Journal of Library and Information Science*.6 (1&2).pp.22-39.

Adebayo O.A. (2014). The need for Information Literacy Competencies by Academic Libraries and Nigerian Colleges of Education.*COCLIN Journal of Library and Information Science*.7 (1&2).pp101-112.

Adebimpe, O.A., Imam, A.O. Akinlubi, I.S., Imran, A.A., **Adebayo, O.A**., & Adeleke, K.W. (2014). Availability and Accessibility of Information Materials for Sustainable Academic Achievement of the Visually Impaired Persons at SPED, Oyo. Journal of Issues in Special Education. 13 (2). Pp.19-49

Adebayo, O.A & Mosebolatan, B. I. (2015). Impact of Academic Libraries in the Sustainability of National Security.*COCLIN Journal of Library and Information Science*.8 (1&2).pp87-98.

Adebayo, O.A. Adeleke, K.W. & Ojewande, K.A. (2016). Academic Libraries: Creativity in Service Delivery to the Remote Users.*COCLIN Journal of Library and Information Science*. 9 (1&2). Pp220-231.

Adebayo, O.A (2016). Readers Services Routine as Antidote to Sedentary Living amongst Academic Librarians.*International Journal of Special and General Education (IJSGE).9. pp 193-201*

Adebayo, O.A. (2017). The Place of Collection Management in the Selection and Deselection of Library Materials. *Journal of Adult and Non-formal Education (SPED).2(1) pp343-358.*

Omoniyi, O.K &**Adebayo, O. A.** (2017). Reading culture in colleges of education: A study of Federal College of Education (Special), Oyo and Emmanuel Alayande College of Education, Oyo. *Journal of Issues in Colleges of Education. pp.49-85*

Adebayo, O.A, Mosebolatan , B.I. and Raheem T.A.(2018).Effects of social networking sites on the use of library among students in Federal College of Education (Special), Oyo. *COCLIN Journal of Library and Information Science*.8 (1&2). pp.87-98.

Adebayo, O.A.and Adedokun M.T. (2019). Awareness creation on HIV/AIDs among learners with hearing impairment: a sin qua non for national development. Erudite journal1 (1).pp397-409

Journal Articles

Adebayo, O.A. (2022). An investigation to the attitudinal disposition towards herbal health information among staff in colleges of education in Oyo metropolis. *International Journal of Special and General Education (IJSGE)* vol. 21.pp 28-37

Adebayo, O.A. (2022). Synergy between library aesthetics and the promotion of reading culture in Nigerian libraries. *Erudite Journal* vol 4 (1), pp493-502

Adebayo, O.A. (2023). Relevance of SERVQUAL model to library marketing and advocacy in academic library. *Kotangora Journal of Intellectual Discourse (KJDID): Multidisciplinary edition.* 2 (1). Pp103-116

Adebayo, O.A. (in press). Digitization of library materials and use of information communications technology towards the restructuring of teacher education in Nigeria. *SPED Journal of Computing and Science Education* 1(1)

Adebayo, O.A (in press). The place of reference sources and services as a reliable infrastructure for sustainable development. *International Journal of Special and General Education (IJSGE)* (22)

Adegbite, O.A & Olatunji, R.A (Eds.) (2022).*Contemporary issues in teacher education in Nigeria: A multidisciplinary approach*: Adeyoung.

Usman, K.O., Ogunkunle, S.J.& Abdulsalam, A.O. (2023). *Reinvigorating and polarizing technology –enabled education in the 21st century: A book of Readings in Honour of Dr. Oladiran Olabode Kayode Omoniyi*. Pp. 337-346

Chapter Contribution in Books

Adebayo, O.A.& Ojewande, K. (2017). The relevance of user education in academic libraries. In R.F Quadri and A.F. Adedeji (Eds). *Forty years of health and library education in Nigeria (past, present and future): Trends and development of health education in Nigeria. A feschrift in honour of Mr. Abdul-Rafiu Aliyu*. Ilorin:Estim Impressions.(Pp.75-91).

Adebayo, O.A.& Raheem T. A. (2021). The role of school library in the development of reading culture in Nigeria. In K.O Usman, M.A. Abimbola, Theo A Ajobiewe, S.O. Agbato & S.J. Ogunkunle (Eds). *Qualitative and functional education for all in Nigeria: Myths and realities: a book of readings in honour of Oladepo Ayinla Adebimpe*. Peerless Grace Prints & Publishing.

Adebayo, O.A. (2022). Information technology and overhauling of library routines: A sine qua non for information services provision. In A.O Imam & Dr. E.O. Olalude.Library philosophy in conventional and contemporary era: A commemoration publication in honour of S.A. Agbaje, Dr. J.A. Kadiri and O.A. Adebimpe. Oyo: Adeyoung Printing Press.

Adebayo, O.A. & Raheem T.A. (2023). Web 2.0 information technology tools: The future of librarianship. In K.O, Usman, S.J. Ogunkunle & A.O. Abdulsalam *Reinvigorating and popularizing technology- enabled education in the 21st century: A book of readings in honour of Dr. Oladiran Olabode Kayode Omoniyi.*

Books

Adebayo, O.A. (2020). *An introduction to the use of modern library for practising librarians and learners in institutions of higher learning*. Adeyoung

Book Indexed

Adelowo, T.O, Osatuyi, N.O.O. and Ajobiewe, T. Eds. (2007).*Collaborative Partnership in Special Education*. Glory Land Publishing. pp. 229-234

Ajobiewe, T. and Osuorji, P.I. Eds. (2011). *Globalization and Special Education*. Glory Land Publishing. Pp.260-266.

Busari, A.O. (2011). *Psychology of child development: a dynamic approach*. Ibadan: Glory Land Publishing. Pp.146-150.

Dagbo, S.A. (2011).*Total communication: an introduction*. Glory Land Publishing. Pp.145-154.

Ogundele, A.A. and Ajayi, A.O. (2011). *Vertebrate anatomy and physiology for tertiary institutions*. Glory Land Publishing. pp. 81-84.

Daramola, C.O. (2012). *Introduction to sociology of education*.Revised edition. Ibadan: Glory Land Publishing.pp.142-146.

Gabriel, A.B. (2012). *Basic text in social studies: man and his physical environment*. Glory Land Publishing.pp.63-67.

Ogunjide, J.A. and Oladimeji, M.A. (2012). *An introduction to historical development of education in Nigeria*. FolayemiChristlike Publishing. pp.172-174.

Ogunjide, J.A, Oladimeji, M.A. and Odewale, T.R. Eds.(2012). *Introduction to educational planning and administration in Nigeria*: FC Ventures. Pp.127-131

Ojebode, P.A. and Ajayi, B.B. (2012).*Introduction to the study of religions*. Omo-Oje Publishers.pp.152-157.

Oladejo, M.A Ed. (2012). *Current Thoughts on Nigerian Education.* SPREAD. Pp.318-332.

Owoeye, O. Ed. (2012). *Readings in English & Communication Skills*. Nathy. pp.116-118

Ozoji, E.D, Kolo, I. A. and Ajobiewe, T.A. (2012). *Contemporary issues in guidance, counseling and special needs education: a book of reading in honour of late Professor Beatrice AgbonmaOkeke-Oti*. Glory Land Publishing.pp. 453-469.

Quadri, K, Ogunjide, J.A, Oladejo, M.A. and Olowo, G.M. (2012). *Introduction to research methods*. pp: 138-142.

Ajobiewe, T. and Adebiyi, K. Eds . (2013) .*Access and Quality of Special NeedsEducational Service Delivery in Nigeria*. Glory-Land Publishing. pp 528-560

Ajobiewe, T. and Adebiyi, B.A Eds. (2013) .*Foundation of Special Needs Education*.. Odumat Publishers.pp 182-190

Ladigbolu, A.A. Ed. (2013). *Oba Adeyemi III: Alaafin of Oyo the Articulate King of Kings*. Omo-Oje.pp340-348

Olosunde, G. R. Ed. (2013). *Fundamentals of Basic Mathematics II for Schools and Colleges.* Odumat Publishers. pp.140-142

Shitu, S.I. (2013). *Basic Graphic Design Practice.* Benel Books .pp49-58

Adefabi, R.A. Ed.(2014). *Basics of Economics: volume 1*. Odumatt. pp. 239-245

Adelua, O. O**,** Adejumobi, A.A and Olaojo, O.A Eds (2014). *Adolescent Psychology for Tertiary Institutions.* Glory-Land Publishing. pp.149-158

Bolarinwa, E.O. (2014). *Akewi n kilo: apa kin-in-ni*.Abeokuta: Gee& Pee Press.pp.95-100.

Fatokun,O. and Oyerinde,O.(2014). *AloonitankaakiriileYoruba*.Pee&Gee Press.pp.203-216

Ogundele, A.A. (2014). *Introduction to genetics*. Powerhouse.pp. 71-78.

Ojo, R.A. (2014). *Vital statistics in health education*. Peerless Prints.pp.148-152

Salaudeen, M.A. (2014). *A compendium of Tajwiid: Quranic Rules of Recitation.* Yumat Press & Computers. pp. 142-147.

Adeniran, S.A &Kehinde, M.A. (2015). *Algebra in Simple Form for Tertiary Institutions*. Peerless. Pp.220-224.

Adesola,S.A. (2015). *System analysis and design.* Leke P Prints.pp.77-78

Bolarinwa, E.O.andAdeoye, A. (2015). *Akewi n kilo: apakeji*. O'yes Nigeria Publication Ltd.pp.95-100.

Atolagbe, S.A. (2015). *Elements of citizenship education*. Tobistic.pp.117.

Azanor, F.O., Isola, S.A.&Ajobioewe, Theo. (2015). *Essentials of Special Needs Education: a Practical Guide for Teachers*. Gee&Pee Press. pp.265-276.

Olosunde, G.R. (2015). *Fundamentals of research design and statistical methods for behaviouralscience*. Odumatt.pp.231-235.

Araoye, M.I.(2016). *Understanding teaching methodology in the biology classroom.: a handbook for effective teaching*. Arab Ventures.pp.66-70

Oyekola, A.A.(2016*). Fundamentals of English for tertiary education students*. Awe Printing works.pp.111-126

Fadare, O.F.(2017). *Introductory logic and algebra*. Omo-Oje. Pp.144-147.

Adebiyi, B.A & Azanor F.O. (Eds.) (2020). Discrimination against people with disabilities (Prohibition) Acts: accessibility imperative and implementation strategies: A fescrift in honour of (Mrs) Clara Kikelomo Adeyemi. Glory Land Publishing Company. Pp.444-549

Bakare, A.O.(2020). *Readings in concepts and theories of counseling and psychotherapy*. Ibadan University Printery.

Ubani-Robots, F.O (2019). *Language of instruction in Nigeria primary schools: the mother tongue option.* Emolajay.pp.153-163

Elemukan, S.I & Ugo, A. E. (Eds.) (2019). *Inclusion, equality, support and sustainable development for persons with special needs*. Glory Land Publishing Company.pp.240-247

Alilonu, H, Salaam W, Bolarinwa E & Olu-agbeniga V. Eds. (2019*). Employment generation through linguistic and literary reflections.* Glory Land Publishing Company.pp497-502

Lawal, I.O.B. (2019). *Basic concept in office and management (OTM)*. Glory Land Publishing Company.pp116-121

Arewa, O.O. (2018). *Research methods and statistical techniques*. Joskin Prints. Pp.165-172.

G. Major Conferences Attended with dates:

Akinlubi, I.S. and Adebayo, O.A. (2011). The Place of Library in Electronic Application in Nigerian Education: Problems, Prospects and possibilities. Paper presented at the National Conference of the School of Education, Federal College of Education (Sp.), Oyo, between 20th and 23rd June.

Adebayo, O.A. (2013). Information Services for the Empowerment of People with Special needs. Paper presented at the 2013 Annual Conference/ General Meeting of Nigerian Library Association (Delta State Chapter) held at Federal College of Education (Technical), Asaba, 14th and 15th November, 2013.

Adebayo, O.A. (2013). Inter-library Cooperation Among African Libraries: The place of consortium formation, Networking and Resource Sharing''Paper Presented at the fifth National Conference of COEASU South-West National Conference held at Michael Otedola College of Primary Education, Noforija-Epe between Monday 25th and Friday 29th November, 2013.

Adebayo, O.A. (2014). Nigerian Academic Libraries and Information Literacy. Paper presented at the 2014 National Conference & Annual General Meeting of Committee of College Librarians in Nigeria held at Adeyemi College of Education, Ondo, 24th-28th March, 2014.

Adebayo, O.A. (2015). Prompt library service provision as a mechanism for the empowerment of persons with special needs. Paper presented at the biennial conference of the school of special education held at Federal College of Education (Special), Oyo.26th-30th October, 2015.

Adebayo, O.A ,Adeleke, K. W. & Ojewande, K.(2016). Academic libraries: creativity in service delivery to the remote users. Paper presented at the 2014 National Conference & Annual General Meeting of Committee of College

Librarians in Nigeria held at Federal College of Education (Special), Oyo. 30th-3rd June, 2016.

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Adebayo, O.A.and Adedokun M.T. (2019). Awareness creation on HIV/AIDs among learners with hearing impairment: a sin qua non for national development. Being a paper presented at the Bienial Conference of School of Education, FCE(Sp), Oyo between 11th and 14th November,2019.

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In Attendance

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H. Referees

1. **Mrs. A. O. Imam**
   College Librarian,
   Federal College of Education (Special), Oyo.

2. **Mr. D.K. Maduagwu**
   Chief Librarian,

Federal College of Education (Special), Oyo.

3. **Mr. I. S. Akinlubi**
Chief Librarian,
Federal College of Education (Special), Oyo.

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SIGNATURE **DATE**

Inclusive Libraries, Use of Assistive Technologies, Librarians Digital Competency and User Satisfaction of Physically Challenged Students in Public Higher Institutions, Oyo State, Nigeria

Oluremi Adebowale ADEBAYO
LCU/PG/002557

Being a PhD Post-field Presented to the Department of Information Management,Faculty of Communication & Information Sciences, Lead City University, Ibadan

In Partial Fulfillment of the Requirement for the Award of Doctor of Philosophy (PhD) Degree in Library and Information Science

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