

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Library Philosophy and Practice (e-journal)

Libraries at University of Nebraska-Lincoln

---

November 2023

## Utilization of Contemporary Technologies for Service Delivery in Special Libraries in Enugu State, Nigeria : A Survey

EMMANUEL CHIDIADI ONWUBIKO

ALEX EKWUEME FEDERAL UNIVERSITY NDUFU - ALIKE, IKWO,, onwubikoemma@yahoo.com

Cecilia Chimezie Offor

Nnamdi Azikiwe University, purityinchrist.offor@gmail.com

Follow this and additional works at: <https://digitalcommons.unl.edu/libphilprac>



Part of the [Scholarly Communication Commons](#)

---

ONWUBIKO, EMMANUEL CHIDIADI and Offor, Cecilia Chimezie, "Utilization of Contemporary Technologies for Service Delivery in Special Libraries in Enugu State, Nigeria : A Survey" (2023). *Library Philosophy and Practice (e-journal)*. 7942.

<https://digitalcommons.unl.edu/libphilprac/7942>

# Utilization of Contemporary Technologies for Service Delivery in Special Libraries in Enugu State, Nigeria : A Survey

Onwubiko Emmanuel Chidiadi. CLN, FCAI, FSASS

Alex Ekwueme Federal University, Ikwo, Nigeria

ORCID: 000-001-9386-4972

[onwubikoemma@yahoo.com](mailto:onwubikoemma@yahoo.com) or [emmabikos@gmail.com](mailto:emmabikos@gmail.com)

+2348037237792

Offor Cecilia Chemezie

Nnamdi Azikiwe University, Awka, Nigeria.

[purityinchrist.offor@gmail.com](mailto:purityinchrist.offor@gmail.com)

## ABSTRACT

Contemporary technologies involve the application of modern scientific knowledge in doing things in a much quicker and efficient ways which improve the workflow. Either it could be helping humans or doing the task alone, machines are always better in terms of accuracy and efficiency. This study therefore examines the extent at which special libraries in Enugu State, Nigeria utilize contemporary technologies for service delivery. The study which employed descriptive survey design, was guided by five research questions framed in line with the research objectives with a sampled population of 15 librarians derived from the six selected special libraries while the principle instruments used in obtaining data for the study were Observational checklist of 24 items and structured questionnaire. The data collected were analyzed using frequency count, mean, Standard deviations and rankings and presented in tables. The outcome of the study did show that contemporary technologies are under-utilized for service delivery in most special libraries in Enugu State a microcosm of the macrocosm Nigeria, although they complement many of the services provided by the special libraries, also the study revealed that contemporary technologies to a high extent are beneficial and contribute immensely to quality services delivery whereas, inadequate funding and epileptic power supply were part of the challenges identified militating against optimal utilization of these technologies of which solutions were proffered. . Recommendations were made based on the findings which includes steady or alternative power supply, adequate funding, consistent and constant training of staff to upgrade their skill on the use of contemporary technologies.

**Keywords:** Contemporary Technologies, Library Services, Special libraries, Utilization, Service Delivery

## **Introduction**

The essence of establishing special library in any organization is to provide information for circumscribed users with a view to satisfying their information needs in line with the mission and goal of the parent body. This is on the premise that information available at their disposal will determine their work efficiency and the growth and success of the organization as it concerns the realization of vision of the organization. This is because the era we are in is being ruled by information as information has become power and any establishment with the most current information in her area of focus can boast of being ahead of their competitors. The aphorism is that advances in information and communication technologies (ICTs) and the astronomical growth of information have brought about a tremendous transformation in the ways libraries of every sort are being managed as well as the ways services are rendered to users.(Onwubiko, 2022), To this end, the only means available for libraries and librarians of any sort to meeting up with information needs of teeming users is said the least the embracing of contemporary technologies otherwise called modern technologies.

The implication is that the emergence and advances in contemporary technologies are seen as information umbrella and librarians as information creators, managers and disseminators seem to be in the advantage as to cashing on the benefits and utilize to the maxima these tools for effective service delivery on the ground that technological advancement which supports information access has continued to impact information services in all the levels of knowledge building. Imperatively, they are asserted as essential tools needed for effective acquisition, processing, organization, storage and dissemination of information.

Special libraries which are known to be involved in selective dissemination of information (SDI) and current awareness services (CAS) with the aid of users' profile serve a specialized and limited clientele and delivers specialized services to the clientele (Onwubiko, 2016) are described as libraries which are part of a company, organization or other group with the mission of satisfying the information needs of such organizations towards the realization of their broad goals (Online Library Learning Center Glossary, 2010; Onwubiko, 2021).

On the other hand, technology is the collection of technique, skills, methods and process used in the production of goods or services or in the accomplishment of objectives such as scientific investigation. Technology can also be summed up in one simple sentence the practical use of human knowledge, Technology provides us with everything we use in the society as stated by Alan and Auger( 2010). Technology invariably has created a new forum for global information access in the libraries and information centers. While contemporary technologies comprise of both Information Technology (IT) and Information Communication Technology (ICT). While information and communication technology covers the application of computers to store, retrieve, transmit and manipulate data, information technology (IT) is the use of any computer storage networking and other physical devices, infrastructure and process to create, process, store, secure and exchange all forms of electronic data. (Rouse, 2015; Beal, 2017).

The use of Modern Technologies in special libraries to enhance effective service delivery is extremely overwhelming. Connell, Rogers, and Diedrichs (2005) stated that as availability and usage of technology in libraries have increased, so has the interest in learning more about the nature of that use and its impact on library collection development practices and on scholarly communication enlarged. The incorporation of technology into the library has affected its functioning at multiple levels: new configurations of searching space, autonomous and active learning processes using the technology has been adopted also; librarians traditional roles have been expanded, which include teaching users how to use the new technologies. Modern Technologies in special libraries are computers, electronic board display, CD-rom, internet facilities, library software, projectors, printers & scanners, book delivery robot, Braille, laptops, Radio, DVDs , telefascimile equipments ,photocopiers etc. These technologies are essential because they make access to information much easier and increase effective service delivery to the parent organization (Rendon, 2014).

Inasmuch as it has always been said that technologies can only assist and cannot replace the intellectual rigor of capturing essential details that are required to identify specific items within library collections, but the truth remains that in an era where digitalization has enveloped the globe and information becoming the most priced factor of production, the library has no option than to device means as to remaining relevant in every situation, including the period of

pandemic. The puzzle is how would a social institution like the library remain relevant and maintain maximal efficiency and effectiveness? It is in a situation like this, that the library should go full technological (Onwubiko, 2023). The application of an integrated library system should be the bail out. In the present dispensation, the application of information and communication technologies in libraries is to establish a relationship and support users and accessibility to information without boundaries for all throughout the every 24 hours of seven days in a week (24/7).(Onwubiko, 2023)

This study therefore is aimed at assessing the existence and the extent of utilizations of contemporary technologies in selected special libraries in Enugu state, Nigeria.

### **Statement of the Problem**

The exponential growth in information no doubt is a clog on the wheels of librarians as it concerns how to acquire all needed information to satisfy the information needs of their teeming clients. To this end, the emergence of information and technology (ICT) and other related technologies otherwise tagged the contemporary technologies of the 21<sup>st</sup> century are valued as veritable tools that can aid libraries and librarians effectively and efficiently meet up with their professional duties of information acquisitions; organizations, disseminations and other service delivery. To special libraries that are known to be serving a circumscribed users to perform their stipulated roles smoothly, effectively, efficiently and in accordance to special services within and outside the buildings, the belief is that they real need contemporary technologies such as the internet and others readily available and properly utilized, as they foster easy and quick access to information therefore a must need for special library to utilize for effective's service delivery to their users. The assertion is that special libraries are the heart of their parent organization and they are also recognized as the medium through which information is disseminated (Onwubiko, 2021).

The use of modern technologies to serve special users is essential because the development of effective information delivery systems is a key component of special library. If modern technologies in special libraries are not fully utilized in service delivery, it will result to poor performance, low productivity and retrogression. For instance, if a researcher in a research institute like; National Root and Crops Research Institute (NRCRI) visits the institute's library,

he expects to see technologies that will make it possible for him to obtain the desired information with a stroke of a keyboard. Unable to do this, will limit his knowledge as well as his productivity.

Be that as it may, with the extensive opportunities offered by information and communication technologies and considering the fact that it has also made the world a global village, one does not think that special libraries would like to be left in the scheme of information world as to be left behind and remain irrelevant as well as fail in meeting the information needs of their parent organizations. The implication is that if special librarian can optimally utilize contemporary technologies in the discharging of their duties the quality, efficiency and effectiveness of their services to their clientele will definitely improve and also increase.

This study therefore becomes imperative after considering the gains of these technologies to library services and having observed that inasmuch as many researchers have carried out studies on special libraries and technologies, to the knowledge of the researcher, little or no study has been carried out in the area of existence and extent utilization of contemporary technologies for effective service delivery in special libraries in Southeastern part of Nigeria. It is against this backdrop that this survey aimed at assessing the existence and utilization of contemporary technologies in special libraries in Enugu State, Nigeria becomes imperative.

### **The objectives**

The main objective of this study is to determine the existence and utilization of contemporary technologies for effective service delivery in special libraries in Enugu State, Nigeria.

The specific objectives of the study are:

- 1) To establish the existence of contemporary technologies in special libraries in Enugu State
- 2) Ascertain the extent of utilization of the modern technologies in these special libraries service delivery.
- 3) Determine the extent to which the use of contemporary technologies contribute to effective service delivery in the libraries.

- 4) Ascertain challenges faced by the staff in the course of using the contemporary technologies in service delivery in the special libraries.
- 5) Identify steps that can be taken to enhance the use of contemporary technologies for effective services delivery in the libraries.

## **Research Questions**

The study was further guided by the following research questions:.

- 1) What are the available contemporary technologies that are utilized in providing services in special libraries in Enugu State, Nigeria?
- 2) To what extent are contemporary technologies utilized in these special libraries in their service delivery?
- 3) To What extent does the use of modern technologies contribute to effective service delivery in the libraries?
- 4) What are the challenges militating against staff optimal utilization of contemporary technologies in promoting service delivery in the libraries?
- 5) What steps can be taken in enhancing utilization of contemporary technologies for effective service delivery in the libraries?

## **2.0. Review of Related literature**

### **2.1. Conceptual Framework**

#### **2.1.1. Special Library**

A special library is a privately owned library that forms a unit of a business firm or other organization, specializes in books and other material of special interest to the organization of which it is a part, and usually serves only the staff or members of this organization (Merriam Webster, 2023). If you think of "special" having the meaning of "specialist", you will get closer to the mark. According to the International Group of Ex Libris Users (2010) definition, special libraries cater for specific professional or academic groups whose information needs are defined by a particular subject or activity. While Ken et al (1978) defines it as a physical collection of information, knowledge and opinion limited to a single subject or group of related formats organized under the aegis of an institution which provides fund for its continuances, administered by a librarian or a specialist in the subject(s) covered and carrying the mission of acquiring, organizing and

providing access to information and knowledge in furtherance of the goals of the parent institution. So to speak, special library is a library which collects updated and comprehensive information on the subject concerning the parent organization and disseminating this information promptly to the people associated with the organization on demand and in anticipation. Besides this, one other factor is that a special library develops its major collection on some special subject or field.

American Library Association (ALA) glossary of library and Information Science (2013) defines it as a library established, supported and administered by a business firm, private corporation; association, government agency, or other special interest group of agency to meet the information needs of its members or staff in pursuing the goals of the organization. Scope of collections and services is limited to the subject interest of the host or parent organization..

Special libraries, which are also referred to as information centers, are located in a multitude of settings, including international organizations, advocacy organizations, government agencies, professional associations, large corporations, medical and/or health institutions, law firms, not-for-profit organizations, research centers, and college campuses. Suffice it to say, that these are libraries that serve particular institutions that have specific roles to play and they therefore tend to be "one subject" libraries. For example, they could serve a hospital, or a law firm, a media house or a manufacturing company or even the military. They also vary in sizes, depending in part on the sizes of the institutions they serve, but many of these libraries are run by special librarians, that is, librarians in special subject areas.

### **2.1.2. Modern Technology (Contemporary Technology)**

Modern technology can be said to be the advancement of old technology with new additions and modifications. It is all about doing things in a much quicker, efficient way by improving the workflow. (Swalin, 2023). Modern technology is also all about efficiency and speed; it is about ensuring face-to-face communication, connecting you to your service provider and empowering you by giving you more access and control to the kind of attention you get as well as service you receive (Ageing.Com, 2023) Modern technologies therefore, are contemporary products,



services, and infrastructure that are designed and built using scientific knowledge and engineering. These include; information technology based on software computers and networks. All the same, most modern products can also be viewed as technology even where they do not include computers. Included in the list of modern technologies among others are; block-chain technology, cloud computing, city automation, artificial intelligence, computers, heating and ventilation, data storage devices, digital camera, internet, media production tools, mobile devices, mobile apps, printers/3D printers, smartphones, solar panels, satellite, robotics, social media, tablets, Wi-Fi, voice recognition, video games, generating sets and vehicles, video-conferencing (Spacey, 2022).

### **2.1.3. Service Delivery**

Service delivery is one of the most important aspects of running a business. It provides the opportunity to impress customers and show them what the business can do and the value it offers. This can create an excellent relationship with the customer and lead to good reviews and word-of-mouth marketing. In this article, we look at what service delivery is, why it matters and examples of different service providers. (Indeed Editorial Team, 2022). Service delivery simply refers to the delivery of a service from a business to a customer. The service a business provides is something that the customer is unable to perform themselves, so there are a lot of elements to good service delivery. It encompasses all aspects of providing a service to a customer, including the initial interaction, on boarding, set up, conclusion of the service and follow-up provisions. Service delivery is also seen as the end-to-end process of providing a service to customers or the internal clients (Spacey, 2023)

Service delivery therefore as used in the context of this study refers to usage of modern technologies in special library to provide adequate timely information for use by library patrons, it is the librarian job to go out and meet the users, to understand and determine their needs, and by anticipating those needs, they secure their confidence in the value of the library service. According to Ugonneya et al (2012) information services are library processes and activities which aim at disseminating information to library and information users, Yusufu (2011) submits that information delivery means providing effective information service to support productivity .

#### **2.1.4. Utilization**

Utilization is a systematic approach to the process and use of resources to aid in the learning process (Seels & Richey, 1994). Utilization is also seen as the primary technique wherein success and performance efficiency are determined. This is especially in the case with tools and equipment. The term is also used to describe the act of using materials, products and services to make things function, extend the lifespan of machineries, improve durability of materials and other things that can lead to better performance and less risk of damage (Corrosionpedia, 2017). Utilization, as Ohah (2010) puts it, simply means the extent to which people are making use of whatsoever resources that is already available in the community or in an organization in the same light Omekwu (2012) opined that utilization is a stage where the individual uses the information and the main function of the utilization stage are to actually use the trials results and continue or discontinue to use the innovation at a later date of which the utilization of modern technologies are not far from the description .

Cox and Janti (2013) identified use as an activity which measures the worth of an item to a library or information system. Use is therefore the single criterion which could be used to determine the reason for retaining a document within the collection of a library and use is essential in guiding the collection development effort of the library. The differences between application and utilization, is majorly application is act of putting to use, while utilization is the process of been in use. A theory can be applied once but the usage depends on the consistency.

As the Cambridge dictionary explained that Utilization is to put to use, especially when it yields profits. Greentein (2000) also noted that when libraries make quality content available through the web, its use increases and it reaches more people within the institutions and beyond. Libraries through the ages has enhanced access to knowledge traditionally through the routine operations that include cataloguing and classification, abstracting, indexing, bibliographic compilation (BC), but most users are limited physically, these enhancements is usually not efficient enough, but with internet is limitless and without walls, this therefore increases the use and access to information to the users as of when needed. Utilizing modern technology supports effective service delivery for the parent community, in that a worker can stay in the confines of his office room and relay urgent information to the management, through the help of technology and this process reduces frustration in the work place.

## **2.2. Theoretical and Empirical Studies**

Technology not doubt has become an essential tool in library and information delivery, it has had many positive effects on almost all facets of human activities. Issa (2010) submitted to the fact that the advent of Technology in libraries has seen the introduction of electronic services like computerized subscription, library software's, Bibliographical utilities, Resource sharing and the internet, thus culminating into a face lifting Modern librarianship. Issa (2010) discovered that attempts have been made during the last two decades to incorporate the use of technology into library and information dissemination through the rigorous efforts of library professionals, libraries saw their advent in their present shape towards the 20th century, the application of these information technologies; computer, telecommunications and documents reproduction gave birth to Information Revolution. This made libraries to embrace and adopt the great touch of these technologies. Initially, library staff functions were limited to manual practices such as cataloguing, acquisition, shelving and shelf reading, user education, accessioning, charging in and charging out, serials management which was very tedious and slow and users experience few benefits from these services

Modern Technology is very essential in special libraries because it can serve as the spirit of engagement with the patrons, for instance, technology can supplement an inspiring Architect to think beyond the physical space of the library, sharpening his creative skills to be more efficient and productive. Anaeme (2006) reinforced that the emergence of information and communication technology and their application in libraries especially universities library has continued to revolutionize the pattern and scope of library services. He stated that the world has become information conscious that the people are no longer satisfied with paper and print based service, which has threatened traditional practices and services. The latest contemporary technology examples include the 5G network which provides blazing fast internet to the users, self-driving cars, and reusable satellite launchers. But it is not limited to just these things. The technological progress we have made and the number of tools we have invented is beyond imagination (Indeed Editorial Team, 2022; Swalin, 2023). Gary (2010) stated that technologies plays a significant role in the delivery of modern library services, the software and hardware

used in library management system and catalogues, internet enabled computers and electronic and digitized library resources

The belief is that technology has taken librarianship to a greater height, as tools that librarians used to serve their patrons have changed with the increasing application of modern technology. These tools and equipment can be utilized for the following library operation: resource sharing, digitized circulation services, current awareness services, information subscription and ordering, acquisition of information materials, creation and management of information analysis and design, information networking, selective dissemination of information, advisory services, bibliographic control services, lending and borrowing, website utility, research, online communication and information processing .(Anyakoha,2005). The use of contemporary technology is noted to foster easy and quick access to information. The delay that would have resulted due to manual operation is removed. Information can be gotten from a database at the press of a button compared to Days or weeks it will take if such information were to be obtained manually. Current information is also assured through the use of modern information technologies. New library services and functions such as instant updates on requests and overdue as well as networking and cooperative among libraries can be carried out routinely and faster with computers revealed Aguolu and Aguolu (2012).

Raseroka (2009) posits that the application of information technology has made the library a new information service unit providing electronic acquisition service , electronic cataloguing services ,electronic inter library service and electronic circulation services. Commenting on the recent prevailing conditions relating to service delivery, Anderson (2006) opined that the digital age has redefined the way librarians provide their services; hence he identified the services of librarians in a digital age to include – selecting electronic information resources and evaluating their quality; developing expeditions and effective locator tools to make complex web of resources more readily available to both sophisticated and new users –teaching novices how to find information resources –teaching critical available skills.

Modern technologies are potentially made to compliment many of the services provided by special libraries and also extend them to other library users. They improve and promote

information related activities (Ojedokun, 2000). They contain a wealth of simple information of direct applicability and are ubiquitous (ie accessible anytime from anywhere subject to the availability of require resources. Modern Technologies enable users to access a single electronic copy simultaneously from many location (using internet) and electronics information reformatted to the specification of the reader). This corresponds with the assertion by Ramzan and Singh (2009) that ICT allows easy integration of various library activities, increase efficiency in acquisition, access to data, cataloguing, classification, information retrieval and dissemination. It encourages innovation and creativity since technology is challenging, it sparks the brain to work to its full potential. People can stay at home, create and startup money yielding businesses that can help them build wealth. Improved communication, communication is like water to life. Abdul (2010) suggested that the proliferation of information can be controlled by computers while information dissemination can be made possible by the use of information technology. Madu (2010) stated that while the face to face encounter with library users and the contact with the desk of librarian are being reduced, service deliveries in many libraries are now being revolution by the use of information technology.

As revealed by Omeluzor and Oyovwe-Tinuoye (2016) the use of ILS in library operation is critical as its adoption and use positively affect the library and its users and non-adoption of ILS by libraries will definitely cause setback, to delivery of quality library services to patrons. ILS also has potential to reduce costs of running the library (Word Press, 2012). It is evident that ILS supports the general operations of the library like acquisition, cataloguing, and circulation. That ILS gives detailed information about users, staff and information resources; tracks how many resources are available in library and books charged to users; resources that are mostly used; keeps records; and reports for management (Kumar and Abraham, nd).

Furthermore, using an ILS system to manage libraries encourages will ease of use of library resources, allows highly-secured cloud data management, allows mobile access, and enhances reporting and monitoring among others. In line with the views of Sriram (2019) cited in Oyovwe-Tinuoye & Omosekejimi (2022) utilizing ILS in the library with its' easy to use, will increase library engagement, efficient cloud data management, highly secure, scalable and reliable, mobile accessibility, dynamic reports, error-free, innovation and cost-effective among others. Library automation further facilitates remote access to users' services more so in the

areas of providing electronic journals and accessibility of databases around the clock (Malik and Mahmood, 2013) which is ideal in an era of pandemic in which users are served from their homes

In another contribution on the benefits on contemporary technologies in the provision of library services, it was revealed that at the peak of Covid-19, the digital services of libraries demonstrated their potential as they provided more rich and free e-content as well as more high-quality online services. The utilization of digital library services will no doubt be on the increase more so with globalization, astronomical growth in information and man's quest to know. To this end, it is incumbent on libraries to devise means of sustainably providing information to her clientele no matter the situation (Onwubiko, 2023)

The use of contemporary technologies in providing services in the library is not without notable challenges. The first among which is funding; It is a known fact that most modern technology costs fortune in that they are usually capital intensive risk, which include the acquisition, installation, maintenance, training and sustainability (Shepherd, 2000) in fact states Ezeani (2010) most libraries do not earmark sufficient amount of money to the building of ICT infrastructure in their libraries. Ani (2005) disclosed that the level of funding of libraries and their ICT budgets in Nigeria is comparatively low, Omekwu (2004) pointed out initial investment in system study, design implementation, procurement of hardware and software could be very expensive. He added that even after full implementation of ICT, areas of further expenditure include system maintenance or replacement. Similarly, it being discovered from regular interaction with some librarians, that cost of installing and maintaining a computer is high and many libraries in developing countries cannot source funds; for this sort of purchase.

Lack of Adequate power supply –ICT equipment depends solely on electricity power supply for functionality and effective performance. In Nigeria, intermittent and frequent power outage, erratic and epileptic with an unending sign of improvement poses a serious threat to ICT application in libraries. Nnadozie (2006) stated that public power supply is unreliable and the alternative is expensive and out of the reach of these poorly funded libraries. Omekwu (2004) added that the epileptic power supply cause serious damage to the computer hardware and crashing of huge databases. This is one of the reasons why many information professional are not

enthusiastic about computer –based library system. Obviously frequent power outages remain a problem in the country and constitute a serious problem to automation. This makes the cost of running power-generating plants prohibitive for libraries.

Potentials of poor communication between management, staff and the change agents, without careful explanation, a staff may misinterpret the reason for the introduction of a new system and improperly evaluate its benefits, also poor communication will turn people off, cause worry and convert potential information technology advocates into opponents. Manning (2000)

equally complained of the issue of library managers and staff who are faced with the task of becoming familiar with these modern technologies, this, as a result pose a serious hindrance to the use of library resources in the sense that when the librarians who were supposed to assist the users are not well accustomed to the Technology, it will be difficult for them to help users, thus implying ineffective utilization of the resources in the library. It's also called technophobia – The introduction information technology often demands re-definition of duties and responsibilities, departmental relations may change. (Ezeani and Ekere 2009) also discovered that the younger librarians adapt faster than the older librarians particularly older women who find it difficult using modern technologies which could hinder the utilization in special librarians. In support of this assertion are Oketunji (2001) and Omekwu (2004) disclosed that the conservative disposition of library staff to the introduction and use of technologies in library operation and services pose a threat to their jobs.

Aguolu and Aguolu (2002) emphasized that the attendant features of underdevelopment such as power failure, machine breakdown, lack and high cost of spare parts and technicians, intermittently stall the performance of modern gadgets of information storage transfer. These problems hinder utilization of modern technologies in libraries. In addition, the disclosure is that management can also contribute to the failure of a new system by not providing appropriate support through such things as training, compensation, equipment and furnishings. Invariably unanticipated Technical problem associated with change are present. Technical problems may arise if there are no manuals, if parts are badly designed or if the system software programmer did not install it. Management of the equipment and finance is one of the disadvantages of modern technology –considering that technology is always improving, the decision to purchase

new technology is always controversial (whether to buy current ones or wait for new ones, while managing your financial budget; New-skills, special librarians will need to learn and be trained to successfully use the new technology that is installed.

With knowledge on the enormous obstacles to the effective use of library modern technologies, it is then necessary to seek for means of surmounting these problems to enhance the utilization of modern technology in special library to the overall advantage of the users. On the challenge posed by the library environment, Ajayi and Adetayo (2005) suggested that library environment should be made more pleasant and comfortable. A cozy library environment will attract users who will in turn use the available modern technologies, special libraries should try as much as possible to equip and upgrade their library environment, for instance a company worker who use air condition in his personal office would rather find it difficult to visit a library that is warm and smell damp, coming for research in an uncondusive library is tiresome. Also some library environment can contribute to easy and faster damage of technologies, example computer are not to be exposed to dusty environments.

Afolabi (2008) maintains that the special library standard indicates that the special library should have a budget to support its management and exercise control over the budget, modern technologies and other books materials can be acquired with enough funding which will enhance effective service delivery. As noted by Maliki and Uche (2007) not only the users / learner but also parents and care givers and the circumstance of their existence place a consideration impact on the learner's ability to utilize modern technologies in the library, the desire to use technologies in the most decent way and manner should be inculcated to the children , young adults and all grades of users both by parents, caregivers, and librarians , misuse of modern technologies other than its primary purpose should be prohibited .

Writing on the same issue, Nnoman (2010) suggests that the provision of adequate decentralization of information communication technology services, increase marketing strategies, training of staff in the library. Apparently, librarians can help to motivate the use of modern technology in libraries by advertising the library they work in as” learners friendly “to those who do not know how use the library. He thought that if librarians could be more



individualistic and diverse, recognizing the individual difference of the different users, it will go a long way to help. Interestingly, technology is no longer a luxury but a true need; therefore library user should be made to appreciate and utilize modern technologies especially since information now take place anywhere, library user expect that instruction will be available anywhere as well, therefore, librarians should device a way of using electronic to teach information access.

On empirical studies, Islam and Panda (2009) carried out a research on IT application in special librarian in Dhaka, Bangladesh discovered that Bangladesh is confronted with the problem of introducing IT based services and other infrastructural facilities such as tables and chairs. it was also found out that the staff of these libraries are yet to be groomed into the use of IT in their information service delivery . It also revealed the embryonic state of IT in the special library of Bangladesh. While Nnoma (2013) carried research on extent of utilization of ICT based library resources by post graduate research universities in south east Nigeria. The purpose is to investigate the extent of utilization of ICT based library resources. Obaseki (2014) carried out research on the availability and use of Electronic information resources (EIR) and service delivery in the university libraries south –south Nigeria and found that all the university libraries have one form of electronic information resource or the other and that they are used for service delivery. It was also discovered that the EIR to a large extent are beneficial to library patrons

Onwubiko (2022) in a study on the inclusion of Information and Communication Technologies in the Management of University Libraries in Nigeria, discovered that the emergence of information and communication technologies (ICTs) have brought an undeniable transformation in library operations and the ways services are provided to users and other stakeholders and that the inclusion of ICT facilities in the management of the library has tremendous positive effect in the management of the library. From the reviewed works, one can deduce that contemporary technologies regardless of the library type are accelerators, drivers and tools for effective and efficient library services.

### **3.0. Methodology**

The research design adopted for this study is descriptive survey with a sampled population of 15 librarians purposively selected from six specials libraries in six organizations and agencies in Enugu State, Nigeria as a microcosm of the macrocosm Nigeria. These libraries include; Central

Bank of Nigeria (CBN) library (3), National Orthopedic library (3), Radio Nigeria library (3), Project Development Institute (PRODA) library (2), Scientific Equipment Development Institute (SEDI) library (2) and 82 Division library (2). The main instruments utilized for data collections were self-prepared observation checklist and modified four scaled Likert Scale structured questionnaire titled: 'Utilization of contemporary Technology for Effective Service Delivery in Special Libraries questionnaires" (UCTSLCQ) . Data were collected with the use of observation and questionnaires personally administered by the researcher to the librarians. The data that were collected were analyzed using frequency tables. Four responses options of questionnaires were assigned values, which were used to arrive at the criterion mean of 2.50. the result of the computation where it is either equal or greater than criterion mean was regarded a major factor – “ accepted “ , conversely where it was less than criterion mean 2.50 was regarded not a major factor therefore ‘rejected’. Each item mean, standard deviation was computed and decision taken

#### 4.0. Data Presentation and Analysis

##### Research Question 1

What are the available modern technologies that are used to provide services in special libraries?

**Table 1:** The existing contemporary technologies that are used to provide different services in special libraries.

S/N	Contemporary technologies in special libraries	Available		Not Available		Decision
		F	%	F	%	
1	Online Database	12	80	3	20	Available
2.	Internet facilities	15	100	*	*	Available
3	Compact Disc ROM	15	100	*	*	Available
4	Online Public Access Catalogue	3	20	12	80	NA
5	Printer	15	100	*	*	Available
6	Scanner	15	100	-	-	Available
7	Projector	5	33.33	10	66.67	NA
8	Library management software	8	53.33	7	46.67	Available
9	Telefascimile equipment	6	40	9	60	NA
10	Machine Readable catalogue	2	13.33	13	86.67	NA
11	Local Area Network	3	20	12	80	NA
12	Wide Area Network	11	73.33	4	26.67	Available
13	Computers	15	100	*	*	Available
14	Radio	15	100	*	*	Available
15	Tape recorder	4	26.67	11	73.33	NA
16	DVD-Rom	10	66.67	5	33.33	Available



8	software	4	5	3	3	2.65	0.96	14 <sup>th</sup>	HE
9	Telefascimile equipment	2	1	2	10	1.59	1.03	24 <sup>th</sup>	LE
10	Machine Readable catalogue	*	2	3	10	1.52	0.81	27 <sup>th</sup>	LE
11	Local Area Network	2	4	9	*	2.29	0.92	16 <sup>th</sup>	LE
12	Wide Area Network	4	8	3	*	2.83	1.10	10 <sup>th</sup>	HE
13	Computers	5	10	*	*	3.10	0.96	1 <sup>st</sup>	HE
14	Tape recorders	5	8	2	*	3.07	1.08	4 <sup>th</sup>	HE
15	DVD-Rom	4	6	3	2	2.68	1.15	13 <sup>th</sup>	HE
16	Digital Cameras	5	6	4	1	3.01	0.97	8 <sup>th</sup>	HE
17	Digital Video Cameras	2	4	9	*	2.43	1.00	14 <sup>th</sup>	LE
18	E-journals	2	3	1	9	1.80	1.13	20 <sup>th</sup>	LE
19	E-books	2	4	8	1	2.27	1.06	18 <sup>th</sup>	LE
20	GPs Apps that help locate materials	1	2	1	11	1.60	0.96	23 <sup>rd</sup>	VLE
21	Electronic Bulletin Board	1	2	2	10	1.65	1.04	21 <sup>st</sup>	VLE
22	Use of search engine eg: Google	5	8	1	1	3.08	0.99	3 <sup>rd</sup>	HE
23	Artificial intelligence	*	*	4	11	1.40	0.94	30 <sup>th</sup>	VLE
24	Cloud computing	*	2	4	9	1.43	0.92	28 <sup>th</sup>	VLE
25	Videoconferencing	*	3	2	10	1.53	1.04	25 <sup>th</sup>	VLE
26	CCTV Cameras		2	8	5	1.61	1.05	22 <sup>nd</sup>	LE
27	Digital Imaging & Media Technology	*	*	3	12	1.32	0.59	31 <sup>st</sup>	VLE
28	Email	5	7	3	*	3.05		5 <sup>th</sup>	HE
29	Social Media	5	7	3	*	3.05	0.77	5 <sup>th</sup>	HE
30	Book delivery Robot	*	*	13	2	1.42	0.91	29 <sup>st</sup>	VLE
31	Photocopying machines	3	9	3	*	3.05	0.77	7 <sup>th</sup>	HE

The data as displayed in table 2 above did reveal that of the 31 listed items special librarians' use of internet facilities, computers and radios to serve their users have the highest mean score as they are ranked 1<sup>st</sup> with 3.10 mean score while the use of search engines such as Google and Mozilla Firefox followed with a mean score of 3.08 then, tape-recorders, e-mail, and social media with mean above 3.00 respectively. Other devices in use include CD-Rom, library software, wide area network and DVD-Rom. In all Only 5 items were classified under very high extent and 11 under high extent.

### Research Question 3

What effects have contemporary technologies towards effective service delivery in the libraries?

**Table 3:** Effects of contemporary technologies in special library service delivery

S/N	Item	VHE	HE	LE	VLE	Mean	SD	Rank	Decision
1	Unlimited access to information	13	1	1	*	3.70	0.84	5 <sup>th</sup>	VHE
2	Reduces cost of information dissemination	13	*	2	*	3.73	0.54	4 <sup>th</sup>	VHE
3	Encourages innovation and creativity	14	1	*	*	3.78	0.56	1 <sup>st</sup>	VHE
4	Easy integrations of various library activities	13	2	*	*	3.74	0.78	2 <sup>nd</sup>	VHE
5	Enhances efficiency and accuracy of information	10	4	1	*	3.50	0.67	6 <sup>th</sup>	HE
6	Resources sharing is easy and convenient	10	3	2	*	3.48	0.97	7 <sup>th</sup>	HE
7	Leads to integration of library services	13	2	*	*	3.74	0.78	2 <sup>nd</sup>	VHE
8	Cheaper than traditional library services	10	3	2	*	3.44	0.84	8 <sup>th</sup>	HE
9	High speed processing and transmission capacity	9	5	1	*	3.33	0.82	9 <sup>th</sup>	HE
10	Provides round the clock access to information	8	3	*	2	3.05	1.26	10 <sup>th</sup>	HE

**Keys:** VHE=Very High Extent, HE=High Extent, LE=Less Extent, VLE=Very Low Extent

The data on table 3 is on the positive effects of contemporary technologies towards effective service delivery in special libraries. Out of the 10 listed items, 5 items which were accepted to be sure contributions of contemporary technologies to service delivery were rated ‘very high extent’ while 5 other items were also seen as further contributions of the technology but in a high extent. The mean scores fall within the range of 3.05 – 3.78 which indicates ‘very high extent’ the acceptance of the contributions of contemporary technologies to service delivery in special libraries by the respondents. The item that ranked first in the effect, is ‘the use of contemporary technology to encourage innovation and creativity, followed by the benefits of ‘reducing the cost of information dissemination’.

#### Research Question 4

What challenges are faced by the staff while using the modern technologies in service delivery in the special libraries?

**Table 4:** Challenges encountered by staff in the use of contemporary technologies in service delivery

S/N	Item	VHE	HE	LE	VLE	Mean	SD	Rank	Decision
1	Inadequate funding	12	3	*	*	3.52	0.77	2 <sup>nd</sup>	VHE
2	Outdated software	11	2	1	1	3.45	1.05	3 <sup>rd</sup>	HE
3	Epileptic power supply	13	2	*	*	3.55	0.88	1 <sup>st</sup>	VHE
4	System breakdown / failure	10	1	3	*	3.35	1.15	7 <sup>th</sup>	HE
5	Inconsistency in Network coverage	10	1	2	2	3.36	1.01	6 <sup>th</sup>	HE
6	Poor maintenance culture	11	*	3	2	3.37	1.11	5 <sup>th</sup>	HE
7	Lack of adequate internet bandwidth for accessing information online	8	3	2	2	3.10	1.13	9 <sup>th</sup>	HE
8	Lack of technical skills on how to use the technologies	9	2	2	1	3.22	1.33	8 <sup>th</sup>	HE
9	Non-conductive environment	8	3	2	2	3.10	1.13	9 <sup>th</sup>	HE
10	Negative attitudes of most librarians towards contemporary technology	6	3	2	4	2.95	1.02	13 <sup>th</sup>	HE
11	Inadequate training of staff	7	3	3	2	3.01	1.23	11 <sup>th</sup>	HE
12	Poor management	11	1	2	2	3.40	0.89	4 <sup>th</sup>	HE
13	Poor Internet Bandwidth	7	3	1	4	2.97	1.03	12 <sup>th</sup>	HE

**Keys:** VHE=Very High Extent, HE=High Extent, LE=Low Extent, VLE=Very Low Extent

The data collected and synthesized in table 4 depict the challenges that militate against the optimal utilization of contemporary technologies for effective service delivery. From the 13 listed items, epileptic power supply ranked first with a mean score of 3.55, followed by inadequate funding with 3.52 mean score were rated as ‘very high extent’ while the remaining 11 items which include ‘negative attitudes of most librarians towards contemporary technologies’ were also identified as a challenges with a mean scores ranging from 2.95 – 3.45 and rated as ‘high extent’.

### Research Question 5

What steps are necessary for enhancing the utilization of modern technologies for effective service delivery in the libraries?

**Table 5:** Steps towards enhancing use of contemporary technologies in special libraries

S/N	Item	VA	A	LA	NA	SD	Mean	Rank	Decision
1	Adequate funding	15	*	*	*	3.95	0.34	1 <sup>st</sup>	VA
2	Adequate system maintenance	13	2	*	*	3.91	0.29	4 <sup>th</sup>	VA
3	Personalized and diverse user education	12	3	*	*	3.88	0.41	5 <sup>th</sup>	VA
4	Up-to-date information	14	1	*	*	3.93	0.25	2 <sup>nd</sup>	VA
5	Provision of adequate technical staff	14	1	*	*	3.93	0.25	2 <sup>nd</sup>	VA
6	Uninterrupted power supply	10	5	*	*	3.81	0.58	7 <sup>th</sup>	VA
7	Regular re-training of staff	10	5	*	*	3.81	0.40	7 <sup>th</sup>	VA
8	Constant network access	11	4	*	*	3.85	0.35	6 <sup>th</sup>	VA
9	conducive library Environment	6	9	*	*	3.50	0.65	12 <sup>th</sup>	VA
10	Preservation of electronic materials	8	7	*	*	3.67	0.48	10 <sup>th</sup>	VA
11	Provision of internet bandwidth by library management	9	6	*	*	3.70	0.62	9 <sup>th</sup>	VA
12	Library Advertisement	7	8	*	*	3.55	0.71	11 <sup>th</sup>	VA

**Keys:** VA=Very Appropriate, A=Appropriate LA=Less Appropriate, NA=Not Appropriate

Table 5 contains data disclosing the agreed appropriate steps that can be taken towards enhancing the use of contemporary technologies and curbing the challenges militating against their optimal utilization for effective service delivery in special libraries Enugu State, Nigeria. All the items listed were accepted showing great approval of the steps outlined. First on the rating are funding with a mean score of 3.95 followed by, up-to-date information and provision of adequate technical staff with mean scores of 3.94 respectively then adequate system maintenance with a mean score of 3.91. In fact, all the 12 items listed were indicated by the respondents as very appropriate.

## 5.0. Discussion of Results

The study as shown in table 1, revealed that contemporary technologies in use in service delivery in special libraries include; computers (both desk and laptops), photocopiers, printers, scanners, security cameras, OPAC, MARC, Braille, projectors, internet facilities, library software, DVDs among others, It is pertinent to state that these technologies holdings in these special libraries studies varies as no single one of them could boast of having all. As observed, these technologies are being used for services such as; referral services, information sourcing, information retrieval, storage, online referencing resource sharing, classification and cataloguing ,training programme, user education, selective dissemination of information (SDI), current awareness services (CAS), inter-library loans, reference services and database loans which makes the library services more efficient and effective. It was further observed that connected computers, CD-Rom, internet facilities were mostly available in the special libraries studied. This finding affirms the assertion that Modern Technologies in special libraries are computers, electronic board display, CD-rom, internet facilities, library software, projectors, printers & scanners, book delivery robot, Braille, laptops, Radio, DVDs, telefascimile equipments ,photocopiers etc. These technologies are essential because they make access to information much easier and increase effective service delivery to the parent organization (Rendon, 2014).

As well as Walsh (2016) declaration that modern technologies are essential for survival of information service, he also reaffirmed that it also creates good opportunity for librarian to grow and strengthen relationship with the library users and that of Gary (2010) that technology plays a significant roles in the delivery of modern library management system and catalogues. The implication is that special libraries as one with circumscribed users with peculiar needs as a necessity must embrace the use of contemporary technologies for effective and efficient services delivery if they are to be relevant in this information age and meet up with information needs their parent bodies.

As displayed in table 2, The study discovered that the extent at which these contemporary technologies are being used by these special libraries extensively depend on their availability, workability and maintenance culture of the technology and skills of the technicians or librarians as the case maybe. The checklist revealed that most technologies that are needed in the special libraries are not available while the available ones are either obsolete or faulty; some are equally dormant as a result of epileptic power supply. It was discovered that most desktop computers



were not even connected to the internet, while some storage instruments such as CD-ROMs have been overused and some printers and scanners packed up. In the only library where telefacsimile equipment was seen, it has been replaced by individual cell phones. Among the contemporary technologies seen in use in some of these libraries though in low extent include: projectors, E-books, 3-D printer etc. The fact is the extent of utilizations of contemporary technologies in these libraries studied failed short of expectations, a situation that the view of Oni (2004) that it is beneficial to invest in modern technology but effective implementation is the key especially when it involves knowledge of recent technology trends.

From the result, as displayed in table 3, contemporary technologies act as accelerators, drivers and tools for effective and efficient library services not only to the special libraries but to other types of libraries. The library is the main information center Modern technologies in no small measure have contributed immensely to the development of services. According to vijayakumar and Vijayan (2011) the contributions ranges from speedy and access to information, help attract users, round the clock access ,increase efficiency, save the time of the users, access to unlimited information from different sources also reduce the work load of the library staff. Contemporary technologies have contributed immensely towards effective service delivery. This is also the stand of Anyakoha (2005) who posits that technology has taken librarianship to a greater height, Ezeani (2010) also shared the same view that the technologies have brought tremendous revolutionary changes in information processing, storage dissemination and distribution. In the same vein, Onwubiko (2022), discovered that the emergence of information and communication technologies (ICTs) have brought an undeniable transformation in library operations and the ways services are provided to users and other stakeholders and that the inclusion of ICT facilities in the management of the library has tremendous positive effect in the management of the library. This indeed is very helpful as librarians are able to respond rapidly to the request of many users in a timely manner.

Regardless of the accrued benefits associated with the utilizations of contemporary technologies in the provision of efficient and effective services in special libraries in particular and libraries as

a whole, the study did discover that there are many factors militating against their optimal utilizations in these libraries. According to the data collected and analyzed and shown in table 5, Such factors include: epileptic power supply; inadequate, outdated software, poor management, poor internet bandwidth, poor maintenance culture among others. This discovering corroborates the findings of Ezeani (2010) and Gbaje (2007) who in their separate studies also identified inadequate funding; poor information infrastructure, networks bandwidth and unskilled staff as constraints restricting effective and efficient service delivery in libraries.

The study also discovered agreed appropriate steps (see table 5) that ought to be taken to enhance optimal utilizations of these contemporary technologies in specials libraries for effective service delivery. Among the very appropriate steps agreed by almost all the respondents were; provision of adequate technical staff, funding and up-to-date information and provision of systems services. In fact the 12 listed items in table 6 were all agreed to be very appropriate. This finding is in conformity with the position of Orji (2013) that funds should not only be allocated but released by the organization parenting the special library to enable the library carryout library operations and services in other to support the organization. Whereas, Afolabi (2008) maintains that the special library should have a standby budget that can be used to support it management and acquisitions of modern technologies. This built on the premise that, modern technologies and other books materials can be acquired with enough funding which will enhance effective service delivery. This finding equally affirms the proposal of Samuel and Abba (2009) that alternative power supply should be installed and provided by the library to forestall problem of power outage since the national power supply is not steady and reliable, this is very crucial since modern technology needs electric power supply, also the government should rise to the challenge of meeting this demand for improved stability in its supply.

## **5.1. Conclusion and Recommendations**

The outcome of this study did reveal that various contemporary technologies are being used in most special libraries ranging from internet facilities, computers, databases software, social media, and search engines to photocopies among others. The extent of utilization of these technologies as shown in table 2 basically depends on the availability in such special libraries.

This means that most librarians do not utilize the technologies because of the non-availability in their establishments, while most of them have broken down or outdated. The obvious here is that contemporary technologies also known as modern technologies are necessary tools for effective and efficient service delivery in any special library. Furthermore, the outcome of this study has thrown to the open that contemporary technologies and librarianship are like Siamese twins – inseparable in that they are so beneficial to special libraries for effective and efficient service delivery and encourage innovation and creativity, high speed processing and transmission capacity, also reduce cost of information dissemination and provide unlimited access to updated and upgraded information.

On the other hand, the study found that there are many factors militating against optimal utilizations of contemporary technologies in delivery services in special libraries such as; inadequate funding and epileptic power supply among others (see table 5) and steps that can be taken to solve these identified challenges (see table 5). In the light of the above therefore, the following recommendations are made:

1. Management of special libraries should make available funds for acquisitions of contemporary technologies more so information and communication technologies and other related technologies of our time as they are accelerators, drivers and instruments for effective and efficient service delivery in any library.
2. Librarians working in special libraries just like other libraries should be regularly updated in skills and knowledge through training in line with the technological trends if they are to be at their best in providing services to their clientele and contribute optimally in the realization of the vision and mission of the parent bodies.
3. Management of special libraries should work in conjunction with the parent bodies and ensure the provision of reliable sources for uninterrupted power supply (like solar energy) (UPS) as no modern information technology can be used maximally without regular power supply.
4. Management of special libraries should come up with policies that will promote and enhance conservation and preservation of modern technologies since it is the key to a longer life span and imbibe repair and total maintenance culture against the idea of ‘there is money to purchase new ones’ because of selfish interest but at the detriment of the parent body.

5. Most contemporary technologies need internet services to function optimally. To this end, library management and parent bodies should as a matter of necessity ensure 24 hours and seven days all round Internet Bandwidth availability.
6. Special libraries' associations should make the availability of these modern technologies in every special library a basic criterion for operation and a parameter to assessing their effectiveness and efficiency in service delivery.

## Reference

Afolabi, M.O. (2008) A review of library and information science curricula in Nigeria in relation to adequacy of curriculum. A paper presented at the IFLA/ALP workshop on review of library and information science curricula in West Africa. 2008. July 21-24, University of Nigeria.

Ageing. Com (2023)What is Modern Technology and How is it Changing? Retrieved from <https://aging.com/what-is-modern-technology-and-how-is-it-changing/>

Aguolu, C.C. & Aguolu, I.E. (2002). *Libraries and information management in Nigeria; Seminar essays on Themes and Problems*. Maiduguri, Nigeria: Edl-information services.  
Aina, L.O. (2004). *Library and information science text for African*. Ibadan: Third world information services limited.

Ajayi ,N.A., & Adetayo J.O(2005).use of library book to enhance academic excellencein Nigerian tertiary institutions ;A case study of Hezekiah Oluwasanni Library. *Journal of social science* 10(2) ,119-122.

ALA Glossary of Library and information Science (4<sup>th</sup> ed) (2013). Special library. Washington DC: ALA Editions

Anaeme, F.O. (2004) Contemporary formats and types of information resources: Implications for libraries and information managers in the millennium?. *Coal City Libraries*. 1 (1)

Anderson, C.W. (2006) Rebuilding the new; metropolitan journalism in the Digital age. Retrieved from <http://Ijoc.org/index.php/ijoc/article/view>

Ani, V.A., Emmanuel, O., Arnold, I.N., Columbus, O.U., Jonathan,. C.O., George, I.N., Emeka, E.M. (2016). Strategies for enhancing the utilization of Information Communication Technology (ICT)-based library resources in research .*Library Philosophy and Practice (e-journal)*, Retrieved from <http://digitalcommons.unl.edu/libphilpractice> 1310

Anyakoha, M.W. (2005) Information and communication technology (ICT) in library and information service. *Coal City libraries*. 2 (1&2) 1-2.

- Aunger,R. (2010) Types of Technology . Technol. Forecast for social change. Retrieved from <http://doi106/j.techfore.2010>
- Connell, R., Wallis, L., & Comeaux, D. (2021). The impact of COVID-19 on the use of academic library resources. *Information Technology & Libraries (ITAL)*.
- Corrosionpedia (2017). What Does Utilization Mean? Retrieved from <https://www.corrosionpedia.com/definition/1538/utilization>
- Cox, R.J &Janti, j. (2013). Evaluative study of information resources. Retrieved from [www.impactjournal.us/download.php/name](http://www.impactjournal.us/download.php/name)
- Ezeani, C.N (2010).information communications technology; An overview in Madu E.C and Ezeani C.N (ed) modern library and information science for professional in Africa. Ibadan. Eni Coleman publication
- Gary, B.S. (2010) Discovering computers 2010-John Bowne high school. Retrieved from <http://www.Johnbowne.enschool.org.discover%20computers.books.google.comcomputers.general>
- Gbaje (2007). Provision of online information services in Nigeria academic libraries. Retrieved from <https://www.researchgate.net/.../28809043>
- Greetein, S. (2000) Strategies for developing sustainable and scalable digital library collections. Washington D.C: *Association of Research Library*. (9), 1-8
- Indeed Editorial Team (2022). *What is service delivery? Definition, importance and types*. Retrieved from <https://uk.indeed.com/career-advice/career-development/what-is-service-delivery>
- Islam A and Panda K.C. (2009) IT in special libraries in Bangladesh: A case study. *The Electronic Library*. 127 (1):149-161.
- Issa, W.O.A. (2010). Imperative and challenges of computer applications in Libraries. *Modern library and information science for information professional in Africa*: Ibadan. Text links publishers. 1-7
- International Group of Ex Libris Users (2010). Stats out of the closet - Using Management Information - 30' The 5th IGeLU annual conference was held in Ghent, Belgium, August 30 – September 1, Retrieved from <https://dev.igelu.org/conferences/ghent-2010>
- Kent, A., et al.(1978). *Encyclopedia of library and information science*. New York: Special Library Association
- Khoo, C.S. (2011). Competencies for new era librarians and information professionals. Retrieved

from <https://www//ICO%20paper%202%20christopher%20khoopdf>

Kumar, V. and Abraham, T. (nd) Eight things you should know about open source integrated library systems. Retrieved from <http://eprints.rclis.org/13858/1/20.pdf>

Malik & Mohmood (2013). In Oyovwe-Tinuoye, G.O & Omosekejimi, A. F (2022) User perception of the use of library softwares for service delivery in federal university libraries in Niger Delta, Nigeria. *Library Philosophy and Practice* (e-journal). 6856. <https://digitalcommons.unl.edu/libphilprac/6856>

Manning, M. (2002) *Challenges of information technology management in the 21<sup>st</sup> century Library managers and staff with manning 2000*. Retrieved from <https://book.google.com.ng/book>

Merriam Webster (2023). Special Library <https://www.merriam-webster.com/dictionary/special%20library>

Nnadozie, C.M (2006). Collection development activities in selected academic libraries. *Nigerbiblios*. 17. (1& 2) 22-37.

Nnoma(2010).extent of utilization of ICT –based resources by postgraduates researchers in the university in south east, Cited Agaba D.M (2004) .Assesment of the utilization of Makerere university of Electronic information resources by Academic Staff: challenges and prospects, *University of Dares salam library Journal* 6(1).

Ohah.O. (2013). Effective utilization of ICT for repositioning of libraries. Retrieved from [www.idpublication.org](http://www.idpublication.org).

Ojedokun, A.A. (2000). Prospects of digital libraries in Africa. *African Journal of library, Archives and information science*. 10 (1)..

Oketunji, I. (2001). Computer Application to libraries: making a difference in the knowledge age. A compendium of papers presented at the 39<sup>th</sup> Annual conference and AGM at Sam Mbakwe Hall. Imo concord hotel Owerri: 17-22 June.

Omekwu, C.O. (2004). Planning for library and information center computerization in developing countries. *Technology for Information Management and Services*. Ibadan: Evi- coleman publications.

Omeluzor, S.U. and Oyovwe-Tinuoye, G.O. (2016) Assessing the Adoption and Use of Integrated Library Systems (ILS) for Library Service Provision in Academic Libraries in Edo and Delta States, Nigeria. *Library Review*, 65, 578-592. Reteieved from <https://doi.org/10.1108/LR-01-2016-0005>

Oni, F.A. (2004). Enhancing the performance of library operations through appropriate Information Technology in Madu E.C (ed) *Technology for Information Management and*

*Services*. Ibadan: Eni Coleman publication

Onwubiko, E.C (2021). Future and challenges of special libraries as transformation agents in public institutions in Nigeria: A survey. *Library Philosophy and Practice* (e-journal). Retrieved from <https://digitalcommons.unl.edu/libphilprac/4691>

Onwubiko, E.C (2016). *Library plus*, Abakali8ki, Nigeria: Good Tiding Press

Onwubiko, E.C (2021). *Modern approaches in librarianship*. Moldova: Lambert Academic Publishing

Onwubiko, E.C (2021). Future and challenges of special libraries as transformation agents in public institutions in Nigeria: A survey. *Library Philosophy and Practice* (e-journal). Retrieved from <https://digitalcommons.unl.edu/libphilprac/4691>

Onwubiko, E.C (2022), An investigation of the Inclusion of information and communication technologies in the management of university libraries. *Library Philosophy and Practice* (e-journal). 7030. Retrieved from <https://digitalcommons.unl.edu/libphilprac/7030>

Onwubiko, E. C (2023). Integrated library system as a panacea to sustainable library services delivery in an era of pandemic In Okejie, V and Igbinova, M. O (Eds) *Global Perspective on Sustainable Library Practices*. U.S.A: IGI Global

Orji, I. D. (2013) strategies for enhancing information services delivery using Digital library system in Federal Universities in South East Nigerian. Unpublished thesis.

Oyovwe-Tinuoye, G.O & Omosekejimi, A. F (2022) User perception of the use of library softwares for service delivery in federal university libraries in Niger Delta, Nigeria. *Library Philosophy and Practice* (e-journal). 6856. <https://digitalcommons.unl.edu/libphilprac/6856>

Ramzam, M and Singh, D. (2009) Status of Information Application in Pakistan Libraries . *The Electronic Library*..27 (4 ) 573-587

Raseroka, H.K. (2009) The Role of University Libraries. *Association of African Universities occasional papers* 3. (12).

Rendon, F. (2015) *How Innovation and Technology are shaping libraries of today*. Huffpost Books. Blog.

Rouse, M. (2005) ICT (Information Communication Technology). Searchcio.Techtarget.com

Shepherd, M. (2000). Strategies for working with library staff members in embracing change caused by library automation. IATUL. Retrieved from <http://org/ppt/vol10/papers/shepherdfull>

Spacey, J (2022). 64 examples of modern technologies. Retrieved from <https://simplicable.com/history/modern-technology>

Spacey, J (2023). Service delivery, Retrieved from <https://simplicable.com/IT/service-delivery>

Sriram (2019). In Oyovwe-Tinuoye, G.O & Omosekejimi, A. F (2022) User perception of the use of library softwares for service delivery in federal university libraries in Niger Delta, Nigeria. *Library Philosophy and Practice* (e-journal). 6856. <https://digitalcommons.unl.edu/libphilprac/6856>

Swalin (2023). What is Modern Technology? Retrieved from <https://www.techqintal.com/modern-technology/>

Wordpress (2012) Library Management System. Retrieved from <https://dsakernel12.wordpress.com/tag/introduction-of-library>

Vijayakumar, A. & Vvijayan, S.S. (2011). Applications of information technology in libraries *International Journal of Digital library Services*, 1(2),144.152

Yusufu, A.(2001) Contemporary Issues and Development in Corporate information delivery. Retrieved from [www.abu.edu.ng/publications/2011-1105](http://www.abu.edu.ng/publications/2011-1105)